KOVID-19 U TRUDNOĆI: PUTEVI ZDRAVSTVENE ZAŠTITE I IZAZOVI ZDRAVSTVENOG SISTEMA U KAZAHSTANU – KVALITATIVNA STUDIJA

ORIGINALNI RAD PO POZIVU: Kvalitativno istraživanje

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NAVIGATING COVID-19 IN PREGNANCY: CARE PATHWAYS AND SYSTEM CHALLENGES IN KAZAKHSTAN – A QUALITATIVE STUDY

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SAŽETAK

Uvod: Međunarodne studije sprovedene tokom KOVID-19 pandemije pokazale su da su trudnice često nailazile na značajne prepreke u ostvarivanju blagovremene i adekvatne zdravstvene zaštite. Međutim, veliki deo postojećih dokaza potiče iz kvantitativnog nadzora ili iz okruženja sa dobro uspostavljenom digitalnom infrastrukturom i standardizovanim kliničkim protokolima, što možda ne odražava realnost mnogih zdravstvenih sistema u zemljama sa srednjim dohotkom. Cilj ove studije je da se kvalitativno istraže iskustva trudnica i zdravstvenih radnika u vezi sa putevima zdravstvene zaštite kod KOVID-19 oboljenja, uključujući prepoznavanje simptoma, ambulantno lečenje i hospitalizaciju, u gradu Almatiju, u Kazahstanu.

Metode: U ovoj studiji je primenjen kvalitativni, deskriptivni, fenomenološki dizajn kako bi se istražila iskustva trudnica obolelih od KOVID-19 oboljenja i zdravstvenih radnika u domenu organizacije zdravstvene zaštite tokom pandemije. U studiju je uključeno 24 učesnika iz lokalnih domova zdravlja i bolničkih ustanova u gradu Almatiju, u Kazahstanu. Petnaest zdravstvenih radnika i devet trudnica, odnosno porodilja dobrovoljno i anonimno je dalo informisani pristanak za detaljne polustrukturisane intervjue, bilo uživo ili putem konferencijskog video poziva sa bezbednom vezom, u periodu od maja do avgusta 2023. godine.

Rezultati: Zdravstveni radnici su izvestili da je KOVID-19 pandemija značajno izmenila zdravstvenu zaštitu trudnica i porodilja zbog povećanog obima posla, straha od infekcije i prelaska na daljinsku zdravstvenu zaštitu. Neizvesnost u vezi sa kliničkim smernicama specifičnim za trudnoću i standardnim operativnim procedurama (SOP) doprinela je tome da se zdravstveni radnici oslanjanju na opšte protokole i neformalne prakse, dok je odložena hospitalizacija bila povezana sa poricanjem simptoma, strahom od prijema u bolnicu, samolečenjem i sistemskim ograničenjima. Trudnice i porodilje su često pogrešno tumačile KOVID-19 simptome kao simptome povezane sa trudnoćom ili kao znake blagog oblika bolesti, što je dovelo do samolečenja i odlaganja traženja pomoći. Lekarsko praćenje je u velikoj meri bilo nestrukturirano i zasnovano na komunikaciji putem telefona ili poruka. Iskustvo u ostvarenoj zdravstvenoj zaštiti je variralo, od blagovremene kliničke podrške do nedoslednog nadzora i davanja prednosti kućnom lečenju.

ABSTRACT

Introduction: International studies conducted during the COVID-19 pandemic have shown that pregnant women often experienced significant barriers to timely and appropriate care. However, much of the existing evidence is derived from quantitative surveillance or from settings with well-established digital infrastructure and standardized clinical pathways, which may not reflect the realities of many middle-income health systems. This study aims to qualitatively explore the experiences of pregnant women and healthcare professionals regarding COVID-19 care pathways, including symptom recognition, outpatient management, and hospitalization, in Almaty, Kazakhstan.

Methods: The present study applied a qualitative, descriptive, phenomenological design to explore how pregnant COVID-19 patients and healthcare professionals experienced the organization of care during the pandemic. The study included 24 participants from local primary health care and hospital settings in Almaty, Kazakhstan. Fifteen healthcare professionals and nine pregnant or postpartum women voluntarily and anonymously provided informed consent to in-depth semi-structured interviews, either face-to-face or via secure video conferencing, between May and August 2023.

Results: Healthcare professionals reported that COVID-19 substantially altered maternal health care due to increased workload, fear of infection, and a shift toward remote care. Uncertainty regarding pregnancy-specific clinical guidelines and standard operating procedures (SOPs) contributed to reliance on general protocols and informal practices, while delayed hospitalization was linked to symptom denial, fear of admission, self-treatment, and system constraints. Pregnant and postpartum women commonly misinterpreted COVID-19 symptoms as pregnancy-related or mild illness, leading to self-medication and delayed help-seeking. Follow-up was largely unstructured and based on communication via phone or messages. The experience of care varied, ranging from timely clinical support to inconsistent monitoring and preference for home-based management.

Conclusion: The study offers detailed insights into a fragile and fragmented COVID-19 care pathway for pregnant women in primary and hospital care set-

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Zaključak: Studija pruža detaljan uvid u krhki i fragmentirani put zdravstvene zaštite trudnica obolelih od KOVID-19 u sklopu primarne i bolničke zdravstvene zaštite u Almatiju. Nekoliko prioriteta za jačanje organizacije zdravstvene zaštite za trudnice obolele od KOVID-19 i za buduće javnozdravstvene vanredne situacije uključuju poboljšanje kontinuiteta zdravstvene zaštite, smanjenje kašnjenja u eskaliranju zdravstvene zaštite i unapređenje bezbednosti zdravstvenih usluga za trudnice i porodilje tokom izbijanja zaraznih bolesti.

Ključne reči: trudnoća, KOVID-19, kvalitativna studija, zdravstvena zaštita trudnica i porodilja, organizacija

tings in Almaty. Several priorities for strengthening care organization for pregnant women with COVID-19 and for future public health emergencies include improving continuity of care, reducing delays in escalation, and enhancing the safety of maternal health services during infectious disease outbreaks.

Keywords: pregnancy, COVID-19, qualitative study, maternal health care, organization

АННОТАЦИЯ

Кіріспе: COVID-19 пандемиясы кезеңінде жүргізілген халықаралық зерттеулер жүкті әйелдердің медициналық көмекке уақтылы және тиісті түрде қол жеткізуінде елеулі кедергілер болғанын көрсетті. Алайда қолда бар дәлелдердің басым бөлігі сандық мониторингтік деректерге немесе цифрлық инфрақұрылымы дамыған және клиникалық маршруттары стандартталған елдерге негізделген, бұл табысы орта деңгейдегі көптеген елдердің нақты жағдайын толық көрсете бермейді. Осы зерттеудің мақсаты – Алматы қаласында жүкті әйелдер мен медициналық қызметкерлердің COVID-19 кезіндегі медициналық көмекті ұйымдастыру, соның ішінде симптомдарды тану, амбулаториялық бақылау және госпитализациялау маршруттары жөніндегі тәжірибесін сапалық тұрғыдан зерттеу.

Әдістері: Зерттеу COVID-19 жұқтырған жүкті әйелдер мен медициналық қызметкерлердің пандемия кезеңіндегі медициналық көмекті ұйымдастыру тәжірибесін зерттеуге бағытталған сапалық сипаттамалық феноменологиялық дизайнда жүргізілді. Зерттеуге Алматы қаласындағы бастапқы медициналық-санитариялық көмек ұйымдары мен стационарлық деңгейден барлығы 24 қатысушы тартылды, оның ішінде 15 медициналық қызметкер және 9 жүкті немесе босанғаннан кейінгі кезеңдегі әйелдер болды. Барлық қатысушылар зерттеуге ерікті түрде және анонимді түрде қатысуға келісім беріп, 2023 жылғы мамыр–тамыз айлары аралығында бетпе-бет немесе қауіпсіз бейнеконференция арқылы жартылай құрылымданған тереңдетілген сұхбаттардан өтті.

Нәтижелері: Медициналық қызметкерлер COVID-19 пандемиясы ана мен бала денсаулығына көрсетілетін көмекті айтарлықтай өзгертті деп сипаттады, оның ішінде жұмыс жүктемесінің артуы, жұқтыру қаупі және қашықтан медициналық көмек көрсетуге көшу байқалды. Жүктілікке бейімделген клиникалық нұсқаулықтар мен стандартты операциялық рәсімдердің жеткіліксіздігі жалпы COVID-19 хаттамалары мен бейресми тәжірибелерге сүйенуге әкелді, ал госпитализацияның кешіктірілуі симптомдарды елемеу, ауруханаға жатудан қорқу, өзін-өзі емдеу және жүйелік шектеулермен байланысты болды. Жүкті және босанғаннан кейінгі әйелдер COVID-19 симптомдарын жүктілікке тән өзгерістер немесе жеңіл респираторлық ауру ретінде қабылдап, медициналық көмекке кеш жүгіну және өзін-өзі емдеу жағдайлары жиі тіркелді. Бақылау көбіне құрылымданбаған түрде телефон арқылы немесе мессенджерлер көмегімен жүзеге асырылды. Медициналық көмекті қабылдау тәжірибесі әртүрлі болды: кейбір әйелдер уақтылы қолдауға ие болса, басқалары тұрақсыз бақылауды бастан кешіріп, үй жағдайында қалуды жөн көрді.

Қорытынды: Зерттеу Алматы қаласында жүкті әйелдерге COVID-19 кезінде көрсетілген медициналық көмектің бастапқы және стационарлық деңгейлерде фрагменттелген әрі осал маршруттарын жан-жақты сипаттайды. Алынған нәтижелер болашақ қоғамдық денсаулық сақтау төтенше жағдайларында жүкті әйелдерге көрсетілетін медициналық көмекті жетілдіру үшін күтімнің сабақтастығын арттыру, көмек көрсету деңгейіне уақтылы көшуге кедергілерді азайту және ана денсаулығы қызметтерінің қауіпсіздігін күшейту қажеттігін көрсетеді.

Түйінді сөздер: жүктілік, COVID-19, сапалық зерттеу, ана денсаулығы, медициналық көмекті ұйымдастыру

UVOD

Tokom pandemije KOVID-19 oboljenja, trudnice su identifikovane kao visokorizična grupa. U poređenju sa ženama reproduktivnog uzrasta koje nisu trudne, kod trudnica postoji veća verovatnoća razvoja teškog oblika bolesti, prijema u jedinicu intenzivne nege i nepovoljnih akušerskih ishoda, uključujući prevremeni porođaj [1–4]. Pored direktnih kliničkih rizika infekcije SARS-CoV-2 virusom, trudnoća stvara dodatnu osetljivost, jer su zdravlje majke i fetusa usko povezani, zbog čega kašnjenja ili prekidi u pružanju zdravstvene zaštite mogu biti potencijalno štetniji [5]. Sledstveno tome, tokom KOVID-19 pandemije na svetlo je izašla ne samo potreba za efikasnim kliničkim zbrinjavanjem infekcije kod trudnica, već se pokazalo i da je od ključnog značaja način na koji se zdravstvena zaštita za ovu populaciju organizuje, pruža i čini dostupnom [5,6].

Kada se pandemija brzo širi, klinički ishodi nisu određeni samo biološkom težinom infekcije već i načinom na koji zdravstveni sistemi odgovaraju na potrebe pacijenata. Kod trudnica obolelih od KOVID-19 infekcije, pravovremeno prepoznavanje simptoma, pristup testiranju, jasni putevi upućivanja na odgovarajuće lečenje i primerene odluke o ambulantnom odnosno bolničkom lečenju, ključni su za sprečavanje pogoršanja stanja i nepovoljnih ishoda [7]. Poremećaji u komunikaciji, neizvesnost u vezi sa kliničkom odgovornošću ili kašnjenja u hospitalizaciji mogu oboljenje koje bi se inače moglo staviti pod kontrolu pretvoriti u ozbiljnu pretnju i za majku i za fetus [8–10]. Stoga je razumevanje načina na koji putevi pružanja zdravstvene zaštite funkcionišu u praksi od suštinskog značaja za identifikovanje nedostataka koji mogu ugroziti bezbednost i efikasnost zdravstvene zaštite trudnica i porodilja tokom javnozdravstvenih vanrednih situacija.

Međunarodne studije sprovedene tokom pandemije KOVID-19 oboljenja pokazale su da su trudnice nailazile na značajne prepreke u ostvarivanju blagovremene i adekvatne zdravstvene zaštite. U to su spadali i strah od infekcije u zdravstvenim ustanovama, nesigurnost u vezi sa tim kada treba potražiti medicinsku pomoć, smanjen broj neposrednih kontakata sa kliničarima i oslanjanje na komunikaciju na daljinu [11–13]. Isto tako, zdravstveni radnici su izveštavali o velikom opterećenju poslom, kliničkim smernicama koje su se rapidno menjale i poteškoćama u koordinaciji zdravstvene zaštite među različitim službama [14–16]. Kvalitativna istraživanja iz zemalja sa visokim dohotkom opisala su kako su ovi izazovi uticali na komunikaciju, poverenje i donošenje odluka između trudnica i zdravstvenih radnika [17,18]. Sa druge strane, mora se imati u vidu da veliki deo postojećih dokaza potiče iz kvantitativnog nadzora ili iz okruženja sa dobro razvijenom digitalnom

INTRODUCTION

Pregnant women have been identified as a high-risk group during the COVID-19 pandemic. Compared with non-pregnant women of reproductive age, they face a higher likelihood of severe disease, intensive care unit admission, and adverse obstetric outcomes, including preterm birth [1–4]. Beyond the direct clinical risks of SARS-CoV-2 infection, pregnancy creates additional vulnerability because maternal and fetal health are closely intertwined, making delays or disruptions in care potentially more harmful [5]. As a result, the COVID-19 pandemic highlighted not only the need for effective clinical management of infection in pregnant women, but also the critical importance of how care is organized, delivered, and accessed for this population [5,6].

During a rapidly evolving pandemic, clinical outcomes are shaped not only by the biological severity of infection but also by how health systems respond to patient needs. For pregnant COVID-19 patients, timely recognition of symptoms, access to testing, clear referral pathways, and appropriate decisions about outpatient versus inpatient care are crucial for preventing deterioration and adverse outcomes [7]. Disruptions in communication, uncertainty about clinical responsibility, or delays in hospitalization can turn otherwise manageable illness into a serious threat for both mother and fetus [8–10]. Therefore, understanding how care pathways function in practice is essential for identifying gaps that may undermine the safety and effectiveness of maternal health care during public health emergencies.

International studies conducted during the COVID-19 pandemic have shown that pregnant women often experienced significant barriers to timely and appropriate care. These included fear of infection in healthcare facilities, uncertainty about when to seek help, reduced face-to-face contact with clinicians, and reliance on remote communication [11–13]. Likewise, healthcare professionals likewise reported heavy workloads, rapidly changing clinical guidance, and difficulties coordinating care across services [14–16]. Qualitative research from high-income countries has described how these challenges affected communication, trust, and decision-making between pregnant women and providers [17,18]. However, much of the existing evidence is derived from quantitative surveillance or from settings with well-established digital infrastructure and standardized clinical pathways, which may not reflect the realities of many middle-income health systems.

Despite a growing body of international research on pregnancy and COVID-19, important gaps remain [19]. Most qualitative studies have been conducted in

infrastrukturom i standardizovanim kliničkim putevima, što možda ne odražava realnost mnogih zdravstvenih sistema u zemljama sa srednjim dohotkom.

Uprkos sve većem broju međunarodnih istraživanja o trudnoći i KOVID-19 oboljenju, i dalje postoje značajne praznine u stečenom znanju i informacijama [19]. Većina kvalitativnih studija sprovedena je u zemljama sa visokim dohotkom, relativno stabilnim zdravstvenim sistemima i uspostavljenim kliničkim putevima. Nekoliko kliničkih studija iz Kazahstana dokumentovalo je uticaj KOVID-19 infekcije na zdravlje majki, uključujući veće stope nepovoljnih kliničkih ishoda i povećanu maternalnu smrtnost povezanu sa pandemijom. Nedavna multicentrična studija je pokazala da su trudnice sa KOVID-19 oboljenjem imale teže simptome i veću stopu prijema u jedinicu intenzivne nege u poređenju sa ženama koje nisu bile trudne, a nacionalni podaci ukazuju na nagli porast indirektnih uzroka maternalne smrtnosti tokom pandemijske godine [2,20,21]. Međutim, postojeća istraživanja iz Kazahstana prvenstveno su bila usmerena na kvantitativne kliničke ishode, uz malo kvalitativnih dokaza o tome kako su žene i zdravstveni radnici u stvarnosti doživljavali puteve pružanja zdravstvene zaštite. Ova studija ima za cilj da kvalitativno istraži iskustva trudnica i zdravstvenih radnika u vezi sa putevima zbrinjavanja trudnica obolelih od KOVID-19 infekcije, uključujući prepoznavanje simptoma, ambulantno lečenje i hospitalizaciju, u gradu Almatiju, u Kazahstanu.

MATERIJAL I METODE

Dizajn studije

U ovoj studiji primenjen je kvalitativni, deskriptivni, fenomenološki dizajn kako bi se istražilo na koji način su trudnice obolele od KOVID-19 oboljenja i zdravstveni radnici doživeli organizaciju zdravstvene zaštite tokom pandemije. Fenomenološki pristup izabran je kako bi se obuhvatila doživljena iskustva i percepcije učesnika o putevima zdravstvene zaštite, postojećim preprekama i načinima donošenja odluka u stvarnim kliničkim situacijama.

Okruženje i period istraživanja

Studija je sprovedena u gradu Almatiju, u Kazahstanu. Prikupljanje podataka je obavljeno između maja 2023. i avgusta 2023. godine. U tom periodu, zdravstvena zaštita trudnica obolelih od KOVID-19 oboljenja bila je regulisana nacionalnim kliničkim protokolima i regionalnim organizacionim procedurama, koje su tokom pandemije često revidirane.

Učesnici i uzorkovanje

Učesnici su regrutovani iz lokalnih ustanova primarne zdravstvene zaštite i bolničkih ustanova u gradu Alma-

high-income countries with relatively stable health systems and established clinical pathways. Several clinical studies from Kazakhstan have documented the impact of COVID-19 on maternal health, including higher rates of adverse clinical outcomes and increased maternal mortality associated with the pandemic. A recent multicentric study reported that pregnant women with COVID-19 experienced more severe symptoms and higher rates of intensive care unit admission compared with non-pregnant women, and national data indicate a sharp rise in indirect causes of maternal death during the pandemic year [2,20,21]. However, existing research from Kazakhstan has primarily focused on quantitative clinical outcomes, with little qualitative evidence on how care pathways were experienced by women and providers in the real world. The present study aims to qualitatively explore the experiences of pregnant women and healthcare professionals regarding COVID-19 care pathways, including symptom recognition, outpatient management, and hospitalization, in Almaty, Kazakhstan.

MATERIALS AND METHODS

Study design

The present study applied a qualitative, descriptive, phenomenological design to explore how pregnant COVID-19 patients and healthcare professionals experienced the organization of care during the pandemic. The phenomenological approach was chosen to capture the participants' lived experiences and perceptions of care pathways, barriers, and decision-making in real-world clinical settings.

Setting and study period

The study was conducted in Almaty, Kazakhstan. Data collection took place between May 2023 and August 2023. At the time, care for pregnant COVID-19 patients was regulated by national clinical protocols and regional organizational procedures, which were undergoing frequent revisions during the pandemic.

Participants and sampling

The participants were recruited for the study from local primary health care and hospital settings in Almaty, Kazakhstan. They were informed on the study protocol and invited to voluntarily and anonymously provide informed consent. Two groups of participants were recruited:

1. **Healthcare professionals** involved in the care of pregnant women with COVID-19 (*n* = 15), including obstetricians-gynecologists, midwives, infectious disease specialists, and hospital and primary care managers.

tiju, u Kazahstanu. Informisani su o protokolu studije i upućen im je poziv da dobrovoljno i anonimno daju informisani pristanak za učešće u studiji. Regrutovane su dve grupe učesnika:

1. **Zdravstveni radnici** uključeni u zbrinjavanje trudnica obolelih od KOVID-19 infekcije (n = 15), uključujući akušere-ginekologe, babice, specijaliste za infektivne bolesti, kao i rukovodioce bolnica i ustanova primarne zdravstvene zaštite.
2. **Trudnice i žene u postporođajnom periodu** sa potvrđenom KOVID-19 infekcijom tokom trudnoće (n = 9).

Učesnici su odabrani namenskim uzorkovanjem kako bi se obezbedilo da su direktno uključeni u pružanje zdravstvene zaštite u vezi sa KOVID-19 infekcijom, odnosno da su oboleli od ove infekcije. Prikupljanje učesnika je nastavljeno dok nije postignuta saturacija podataka. Saturacija podataka definisana je kao trenutak kada se iz intervjua više nisu dobijali novi koncepti ili teme.

Kriterijumi za uključivanje u studiju i isključivanje iz studije

Zdravstveni radnici su mogli da učestvuju u studiji ako su bili aktivno uključeni u zbrinjavanje trudnica obolelih od KOVID-19 infekcije i ako su napismeno dali svoj informisani pristanak. Zdravstveni radnici koji nisu bili direktno uključeni u zbrinjavanje trudnica sa KOVID-19 oboljenjem ili nisu bili prisutni tokom perioda istraživanja bili su isključeni.

Trudnice i žene u postporođajnom periodu mogle su da učestvuju u studiji ako su bile starosti 18-49 godina, imale potvrđenu trudnoću u vreme oboljevanja od KOVID-19 infekcije i bile sposobne i voljne da učestvuju u intervjuu. Žene sa ozbiljnim komunikacionim barijerama ili one koje nisu dale informisani pristanak bile su isključene iz studije.

Prikupljanje podataka

Podaci su prikupljani putem detaljnih, polustrukturisanih intervjua sprovedenih licem u lice ili putem bezbedne video-konferencijske platforme (*Zoom*), u zavisnosti od toga šta su učesnici odabrali. Intervjui su trajali između 21 i 40 minuta.

Učesnici su intervjuisani 2023. godine, nakon najakutnijih faza KOVID-19 pandemije. Tokom intervjua učesnici su podsticani da se osvrnu kako na svoja iskustva u vreme bolesti tako i na ranije talase pandemije, kada su se putevi zdravstvene zaštite, kliničke smernice i organizacija zdravstvenih usluga brzo menjali. Ovaj retrospektivna perspektiva omogućila je istraživanje načina na koji su se iskustva i percepcije zdravstvene zaštite menjali tokom vremena.

2. **Pregnant and postpartum women** with confirmed COVID-19 during pregnancy (n = 9).

Participants were selected through purposive sampling to ensure they were directly involved in or affected by COVID-19 care. Recruitment continued until data saturation was achieved. Data saturation was defined as the point when no new concepts or themes emerged from the interviews.

Inclusion and exclusion criteria

Healthcare professionals were eligible to participate in the study if they had been actively involved in the care of pregnant COVID-19 patients and if they provided written informed consent. The healthcare professionals not directly involved in maternal COVID-19 care or not present during the study period were excluded.

Pregnant and postpartum women were eligible to participate in the study if they were aged 18–49 years, had confirmed pregnancy at the time of COVID-19 infection, and were able and willing to participate in an interview. Women with severe communication barriers or those who did not provide informed consent were excluded from the study.

Data collection

Data were collected through in-depth, semi-structured interviews conducted either face-to-face or via secure video conferencing (Zoom), at the participants' preference. Interviews lasted between 21 and 40 minutes.

Participants were interviewed in 2023, after the most acute phases of the COVID-19 pandemic. During the interviews, participants were encouraged to reflect both on their experiences at the time of illness and on earlier pandemic waves, when care pathways, clinical guidelines, and the organization of health services were rapidly evolving. This retrospective viewpoint enabled the exploration of the ways that experiences and perceptions of care changed over time.

Interview guides were developed separately for healthcare professionals and pregnant women. For healthcare professionals, the questions focused on clinical protocols, care organization, hospitalization, and communication with patients. For the pregnant women, the questions addressed symptom recognition, help-seeking behavior, experiences with healthcare services, and follow-up during illness.

All interviews were audio-recorded and transcribed verbatim by the research team.

Interview guides

Separate semi-structured interview guides were developed for pregnant/postpartum women and for healthcare professionals.

Vodiči za intervjue osmišljeni su odvojeno za zdravstvene radnike i trudnice. Za zdravstvene radnike pitanja su bila usmerena na kliničke protokole, organizaciju zdravstvene zaštite, hospitalizaciju i komunikaciju sa pacijentima. Za trudnice pitanja su se odnosila na prepoznavanje simptoma, ponašanje pri traženju pomoći, iskustva sa zdravstvenim službama i lekarsko praćenje tokom bolesti.

Načinjeni su zvučni zapisi svih intervjua koji su potom doslovno transkribovani od strane istraživačkog tima.

Vodiči za intervjue

Sastavljeni su odvojeni polustrukturisani vodiči za intervjue sa trudnicama/ženama u postporođajnom periodu i za intervjue sa zdravstvenim radnicima.

Sa trudnicama i ženama u postporođajnom periodu, intervjui su započinjali otvorenim pitanjima o njihovom iskustvu tokom trudnoće i postporođajnog perioda u vreme KOVID-19 infekcije. Diskusija se zatim fokusirala na to kako su žene prepoznale i tumačile simptome KOVID-19 oboljenja, kako su tražile zdravstvenu zaštitu i kako su doživljavale stavove i reakcije zdravstvenih radnika u primarnoj zdravstvenoj zaštiti i bolnicama. Intervjui su se završavali pitanjima o njihovom iskustvu lekarskog praćenja i kliničke komunikacije tokom bolesti.

Sa zdravstvenim radnicima, intervjui su započinjali opštim pitanjima o stručnom obrazovanju i radnom iskustvu. Naredna pitanja istraživala su njihovo poznavanje nacionalnih kliničkih protokola za KOVID-19 i regulative povezane sa trudnoćom, njihova iskustva u zbrinjavanju trudnica obolelih od KOVID-19 infekcije, ponašanje pacijentkinja prilikom traženja pomoći, puteve hospitalizacije i dostupnost resursa potrebnih za pružanje zdravstvene zaštite.

Polustrukturisani format omogućio je istraživačima da prate narativ učesnika, istovremeno obezbeđujući da ključne teme povezane sa putevima zdravstvene zaštite, donošenjem odluka i sistemskim preprekama budu dosledno obrađene u svim intervjuima.

Analiza podataka

Podaci su obrađeni primenom tematske analize. Transkripti su više puta čitani radi upoznavanja sa sadržajem, a zatim su induktivno kodirani uz pomoć softvera ATLAS.ti (verzija 24). Kodovi su grupisani u kategorije, a zatim u šire teme koje odražavaju obrasce u podacima.

Početno kodiranje sproveo je doktorand, nakon čega su kodovi i teme pregledani i dodatno usavršeni pod nadzorom mentora kako bi se obezbedila analitička preciznost i doslednost.

For pregnant and postpartum women, interviews began with open-ended questions about their pregnancy and postpartum experience during COVID-19. The discussion then focused on how women recognized and interpreted COVID-19 symptoms, how they sought care, and how they perceived the attitudes and responses of primary care and hospital-based providers. Interviews concluded with questions about their experience of follow-up and clinical communication during illness.

For healthcare professionals, interviews started with general questions about professional background and work experience. Subsequent questions explored their knowledge of national COVID-19 clinical protocols and regulatory documents related to pregnancy, their experiences in managing pregnant COVID-19 patients, patient help-seeking behavior, hospitalization pathways, and the availability of resources needed to provide care.

The semi-structured format allowed interviewers to follow participant narratives while ensuring that key topics related to care pathways, decision-making, and system-level barriers were consistently addressed across interviews.

Data analysis

Data were processed using thematic analysis. Transcripts were read repeatedly to achieve familiarization and then coded inductively using ATLAS.ti (Version 24). Codes were grouped into categories and then into broader themes reflecting patterns across the data.

Initial coding was conducted by a doctoral researcher, whereafter codes and themes were reviewed and refined under the supervision of the academic supervisors, to enhance analytic rigor.

Ethical considerations

All participants provided written informed consent prior to participation. To ensure confidentiality, personal identifiers were removed from interview transcripts, and participants were assigned unique codes (e.g., R1, R2). Interviews were conducted in secure settings, and all digital data were stored on password-protected devices. Ethical approval for the study was obtained from the Local Ethics Committee of Al-Farabi Kazakh National University (approval dated 9 June 2022; IRB-A470). The study was conducted in accordance with the principles of the Declaration of Helsinki at all stages.

RESULTS

Participant characteristics

The study included 24 participants: 15 healthcare professionals and 9 pregnant or postpartum women (Table 1).

Etički aspekti

Svi učesnici su pre uključivanja u studiju dali pisani informisani pristanak. Radi obezbeđivanja poverljivosti, lični identifikatori uklonjeni su iz transkripata intervjua, a učesnicima su dodeljeni jedinstveni kodovi (npr. R1, R2). Intervjui su sprovođeni u bezbednim uslovima, a svi digitalni podaci čuvani su na uređajima zaštićenim lozinkom. Etičko odobrenje za studiju dobijeno je od Lokalnog etičkog komiteta Kazahstanskog nacionalnog univerziteta *Al-Farabi* (odobrenje od 9. juna 2022; IRB-A470). Studija je u svim fazama sprovedena u skladu sa principima Helsinške deklaracije.

Among the healthcare professionals, nine worked in primary health care and six in hospital settings. The sample included a broad range of professionals involved in maternal COVID-19 care, including one chief physician, one deputy chief physician, three obstetrician-gynecologists, three midwives, one infectious disease specialist, and six hospital-based clinicians. This ensured representation of both managerial and frontline clinical perspectives across different levels of care.

Among the pregnant and postpartum women, all participants were between 28 and 40 years of age, with slightly more than half of them aged 35–40 years. Most women had a higher level of education (77.8%) and

Tabela 1. Karakteristike zdravstvenih radnika i trudnica/žena u postporođajnom periodu

Table 1. Characteristics of healthcare professionals and pregnant/postpartum women

Zdravstveni radnici (*n* = 15) / *Healthcare professionals (n = 15)*	**n**
Nivo zdravstvene zaštite / *Level of care*	
Primarna zdravstvena zaštita - PZZ / *Primary health care - PHC*	9
Bolnice / *Hospital*	6
Stručna pozicija / *Professional role*	
Načelnik / *Chief physician*	1
Zamenik načelnika / *Deputy chief physician*	1
Ginekolog-akušer (PZZ) / *Obstetrician-gynecologist (PHC)*	3
Babica (PZZ) / *Midwife (PHC)*	3
Infektolog /*Infectious disease specialis*	1
Bolnički kliničar / *Hospital-based clinicians*	6
Trudnice i žene u postporođajnom periodu (*n* = 9) / *Pregnant and postpartum women (n = 9)*	n (%)
Godine starosti / *Age (years)*	
28-34	4 (45.5%)
35-40	5 (55.5%)
Obrazovanje / *Education*	
Srednje / *Secondary*	0 (0.0%)
Srednje stručno / *Vocational*	2 (22.2%)
Visoko / *Higher education*	7 (77.8%)
Broj porođaja / *Parity*	
Primapare / *Primiparous*	2 (22.2%)
Multipare (≥2 porođaja) / *Multiparous (≥2 births)*	7 (77.8%)
Nacionalna pripadnost / *Ethnicity*	
Kazahstanska / *Kazakh*	5 (55.6%)
Ruska / *Russian*	3 (33.3%)
Ostalo / *Other*	1 (11.1%)
Status trudnoće prilikom intervjuisanja / *Pregnancy status at interview*	
Trudnice / *Pregnant*	5 (55.6%)
– Prvi trimestar / – *First trimester*	1 (20.0%)
– Drugi trimestar /– *Second trimester*	4 (80.0%)
Postporođajni period (≤3 meseca) / *Postpartum (≤3 months)*	4 (44.4%)

REZULTATI

Karakteristike učesnika

Studija je obuhvatila 24 učesnika: 15 zdravstvenih radnika i 9 trudnica, odnosno žena u postporođajnom periodu (Tabela 1).

Među zdravstvenim radnicima, devetoro je radilo u primarnoj zdravstvenoj zaštiti, a šestoro u bolničkim ustanovama. Uzorak je uključivao širok spektar stručnjaka uključenih u zbrinjavanje trudnica obolelih od KOVID-19 infekcije, uključujući jednog načelnika, jednog zamenika načelnika, tri akušera-ginekologa, tri babice, jednog specijalistu za infektivne bolesti i šest bolničkih kliničara. Time je obezbeđena zastupljenost perspektiva i upravljačkih i kliničkih kadrova uključenih u prvu linije zdravstvene zaštite, na njenim različitim nivoima.

Među trudnicama i ženama u postporođajnom periodu, sve učesnice bile su starosti između 28 i 40 godina, pri čemu je nešto više od polovine bilo u starosnoj grupi od 35–40 godina. Većina žena je imala visoko obrazovanje (77,8%) i bile su multipare (77,8%). Većina se izjasnila da je kazahstanske nacionalnosti (55,6%), zatim ruske (33,3%), dok su ostale pripadale drugim etničkim grupama. U vreme intervjua, pet žena (55,6%) su bile trudne, većinom u drugom trimestru, dok su četiri (44,4%) bile u periodu do tri meseca nakon porođaja.

Zdravstveni radnici

Najpre predstavljamo nalaze dobijene od zdravstvenih radnika, fokusirajući se na ono što je u njihovom iskustvu pružanja zdravstvene zaštite trudnicama obolelim

were multiparous (77.8%). The majority identified as Kazakh (55.6%), followed by those identifying as Russian (33.3%) and those of other ethnic backgrounds. At the time of the interview, five women (55.6%) were pregnant, most of them in their second trimester, and four (44.4%) were within three months postpartum.

Healthcare professionals

We first present findings obtained from healthcare professionals, focusing on what was most important in their experience of providing care to pregnant COVID-19 patients during the pandemic. Using their own words, we illustrate how clinicians navigated rapidly changing conditions, patient behaviors, and system-level constraints. Four main themes were identified: the impact of COVID-19 on healthcare work, the availability and use of clinical guidelines and SOPs, perceived patient responses to COVID-19, and delayed care and hospitalization. Each theme and its sub-themes are illustrated with verbatim quotations from the interviews (Table 2A).

Impact of COVID-19 on healthcare practices

COVID-19 substantially reshaped everyday clinical practice for healthcare professionals involved in the care of pregnant women. Participants consistently described a sharp increase in workload, administrative burden, and psychological stress, driven by the growing number of cases and the expansion of their clinical responsibilities. Fear of infection was a recurrent element of their experience and influenced how care was organized.

To reduce transmission risks, healthcare workers adopted new working practices, including strict use of

Tabela 2A. Pregled tema i podtema identifikovanih među zdravstvenim radnicima

Tema	Podteme (kodovi)
Uticaj KOVID-19 na zdravstvenu praksu	Povećano opterećenje na poslu Administrativno opterećenje Strah od infekcije Upotreba lične zaštitne opreme - LZO Prebacivanje na pružanje zdravstvenih usluga na daljinu
Kliničke smernice i standardne operativne procedure - SOP	Primena opštih KOVID-19 protokola Neizvesnost i dileme u vezi sa SOP Oslanjanje na neformalne procedure
Uočene reakcije pacijentkinja na KOVID-19	Poricanje simptoma Strah od testiranja i hospitalizacije Odlaganje prijavljivanja simptoma Samolečenje
Odlaganje zdravstvene zaštite i hospitalizacije	Odbijanje hospitalizacije Percipiranje KOVID-19 kao "običnog gripa" Porodične i društvene barijere Dostupnost slobodnih bolesničkih postelja (u ranoj fazi pandemije) Kućno lečenje

Table 2A. Outline of themes and sub-themes identified among healthcare professionals

Theme	Sub-themes (codes)
Impact of COVID-19 on healthcare work	Increased workload Administrative burden Fear of infection Use of personal protective equipment - PPE Shift to remote care
Clinical guidance and SOPs	Use of general COVID-19 protocols Uncertainty about SOPs Reliance on informal practices
Perceived patient responses to COVID-19	Symptom denial Fear of testing and hospitalization Delayed reporting Self-treatment
Delayed care and hospitalization	Refusal of hospitalization Perception of COVID-19 as "the common flu" Family and social barrier Bed availability (early pandemic) Home management

od KOVID-19 infekcije tokom pandemije bilo najvažnije. Koristeći njihove sopstvene reči, ilustrujemo kako su se kliničari suočavali sa uslovima koji su se brzo menjali, ponašanjem pacijentkinja i sistemskim ograničenjima. Identifikovane su četiri glavne teme: uticaj KOVID-19 na zdravstvenu praksu, dostupnost i primena kliničkih smernica i SOPs, uočene reakcije pacijentkinja na KOVID-19 i odlaganje zdravstvene zaštite i hospitalizacije. Svaka tema i njene podteme ilustrovane su doslovnim citatima iz intervjua (Tabela 2A).

Uticaj KOVID-19 na zdravstvenu praksu

KOVID-19 je značajno preoblikovao svakodnevnu kliničku praksu zdravstvenih radnika uključenih u zbrinjavanje trudnica. Učesnici su dosledno opisivali nagli porast obima posla, administrativnog opterećenja i psihološkog stresa, koji je bio izazvan rastućim brojem slučajeva i proširenjem njihovih kliničkih odgovornosti. Strah od infekcije bio je element njihovog iskustva koji se ponavljao i uticao na način organizacije zdravstvene zaštite.

Da bi se smanjio rizik od prenosa infekcije, zdravstveni radnici su usvojili nove radne prakse, uključujući strogu upotrebu lične zaštitne opreme i komunikaciju sa pacijentkinjama na daljinu. Ove promene bile su posebno opterećujuće u svakodnevnoj praksi i doprinosile su umoru i emocionalnom opterećenju.

„Strah nam se uselio u misli, papirologija se povećala, a bili smo u veoma bliskom kontaktu sa trudnicama" (R9, babica).

„Posao je postao komplikovaniji. Kada je žena imala KOVID, zvali smo je svaki dan, proveravali njeno stanje, popunjavali kontrolne liste. Sada stalno nosimo maske,

personal protective equipment and remote communication with patients. These changes were particularly burdensome in daily practice and contributed to fatigue and emotional strain.

"There was fear in our minds, paperwork increased, and we were in very close contact with pregnant women" (R9, midwife).

"The work became more complicated. When a woman had COVID, we called her every day, checked her condition, filled in checklists. Now we wear masks all the time, even in summer, which is especially uncomfortable" (R4, obstetrician-gynecologist).

Several participants described how digital tools became central to maintaining continuity of care, especially for women in isolation or with a positive PCR test. WhatsApp groups and remote consultations were widely used to provide information, monitor symptoms, and coordinate follow-up.

"We created a WhatsApp group for about a hundred pregnant women. We sent COVID-related information to all of them, answered questions, and conducted remote consultations. We also called them to remind them of appointments and sometimes even visited them at home for examinations and tests. It was very difficult" (R5, obstetrician-gynecologist).

These practices functioned as informal or ad hoc telemedicine strategies that emerged in response to reduced face-to-face contact and the absence of fully institutionalized digital care pathways.

Clinical guidelines and standard operating procedures (SOPs)

Healthcare professionals reported substantial uncertainty regarding the availability and use of clinical gui-

čak i leti, što je posebno neprijatno" (R4, akušer-ginekolog).

Nekoliko učesnika je opisalo kako su digitalni alati postali ključni za održavanje kontinuiteta zdravstvene zaštite, posebno za žene u izolaciji ili sa pozitivnim *PCR* testom. *WhatsApp* grupe i konsultacije na daljinu široko su korišćene za pružanje informacija, praćenje simptoma i koordinaciju daljeg zdravstvenog nadzora.

„Napravili smo *WhatsApp* grupu za oko stotinu trudnica. Svima smo slali informacije u vezi sa KOVID-om, odgovarali na pitanja i sprovodili konsultacije na daljinu. Takođe smo ih zvali da ih podsetimo na preglede, a ponekad smo ih čak i posećivali kod kuće radi pregleda i testiranja. Bilo je veoma teško" (R5, akušer-ginekolog).

Ove prakse funkcionisale su kao neformalne ili *ad hoc* telemedicinske strategije koje su nastale kao odgovor na smanjeni broj neposrednih kontakata i odsustvo potpuno institucionalizovanih digitalnih puteva zdravstvene zaštite.

Kliničke smernice i standardne operativne procedure (SOP)

Zdravstveni radnici su prijavili značajnu neizvesnost (dileme) u vezi sa dostupnošću i upotrebom kliničkih smernica za zbrinjavanje trudnica obolelih od KOVID-19. Iako je većina učesnika bila upoznata sa opštim nacionalnim protokolima za lečenje KOVID-19 infekcije, mnogi nisu bili sigurni da li postoje smernice specifične za trudnoću, a još manji broj je mogao da potvrdi postojanje SOP koje regulišu puteve pacijenata na nivou ustanove.

Učesnici su često navodili da se oslanjaju na opšte KOVID-19 protokole ili neformalne prakse, umesto na strukturirane smernice specifične za trudnoću. Ovaj nedostatak jasnoće doveo je do varijabilnosti u kliničkom donošenju odluka, naročito prilikom zbrinjavanja trudnica sa sumnjom na KOVID-19 ili potvrđenom infekcijom.

„Ne, ne postoji poseban protokol, pratimo opšti protokol" (R9, babica).

„Postoji protokol za zbrinjavanje trudnica i žena na porođaju sa KOVID-19 infekcijom." (R6, akušer-ginekolog).

„Ne postoji protokol posebno za trudnice. Međutim, u susednim zemljama, kao što je Rusija, postoje jasni standardi i mi smo koristili njih." (R5, akušer-ginekolog).

Nekoliko učesnika nije bilo sigurno da li SOP postoje u njihovim institucijama i navelo je da takvi dokumenti, ukoliko postoje, nisu dosledno prosleđivani osoblju koje radi na prvoj liniji zdravstvene zaštite.

„Za trudnice… nisam baš sigurna. Pratili smo KOVID protokol, ali kada su trudnice dolazile, plašili smo se da ih zbrinjavamo kod kuće, pa smo radili testove i pokušavali da ih pošaljemo u bolnicu" (R6, akušer-ginekolog).

delines for managing pregnant COVID-19 patients. Although most participants were aware of general national COVID-19 treatment protocols, many were unsure whether pregnancy-specific guidelines existed, and even fewer could confirm the presence of SOPs regulating patient pathways at the facility level.

Participants frequently described relying on general COVID-19 protocols or informal practices rather than structured, pregnancy-specific guidelines. This lack of clarity resulted in variability in clinical decision-making, particularly when managing pregnant women with suspected or confirmed infection.

"No, there isn't a separate one, we follow the general protocol" (R9, midwife).

"There is a protocol for managing pregnant women and women in labor with COVID-19." (R6, obstetrician-gynecologist).

"There is no protocol specifically for pregnant women. However, in neighboring countries, like Russia, there are clear standards, and we used those." (R5, obstetrician-gynecologist).

Several participants were uncertain whether SOPs existed within their institutions and indicated that such documents, if available, were not consistently communicated to frontline staff.

"For pregnant women… I'm not really sure. We followed the COVID protocol, but when pregnant women came, we were afraid to manage them at home, so we took tests and tried to send them to hospital" (R6, obstetrician-gynecologist).

"I think there is one, maybe the senior midwife has it" (R8, midwife).

Overall, the findings indicate gaps in the dissemination and operationalization of clinical guidelines and SOPs, contributing to inconsistent care pathways for pregnant COVID-19 patients.

Perceived patient responses to COVID-19

Healthcare professionals described significant variations in how pregnant women responded to COVID-19 symptoms. While some women promptly contacted their doctors when symptoms appeared, others minimized or ignored early signs of infection, particularly when symptoms were mild. Fear of testing positive and being hospitalized emerged as a key reason for delayed reporting.

Several participants noted that women often questioned or dismissed positive PCR results when they experienced only minor symptoms, such as a sore throat, and in some cases repeated testing privately instead of informing their doctors.

"If the symptoms were mild, like just a sore throat, they didn't take it seriously. Even with a positive PCR, they didn't believe it and went to retest privately. They

„Mislim da postoji, možda ga ima glavna babica" (R8, babica).

U celini, nalazi ukazuju na nedostatke u prosleđivanju i operativnoj primeni kliničkih smernica i SOP, što je doprinosilo neujednačenim putevima zbrinjavanja trudnica obolelih od KOVID-19 infekcije.

Uočene reakcije pacijentkinja na KOVID-19

Zdravstveni radnici su opisali značajne razlike u načinu na koji su trudnice reagovale na simptome KOVID-19 infekcije. Dok su neke žene odmah kontaktirale svoje lekare kada su se simptomi pojavili, druge su umanjivale ili ignorisale rane znake infekcije, naročito kada su simptomi bili blagi. Strah od pozitivnog testa i hospitalizacije pojavio se kao ključni razlog za odloženo prijavljivanje simptoma.

Nekoliko učesnika je navelo da su žene često dovodile u pitanje ili odbacivale pozitivan *PCR* rezultat kada su imale samo blage simptome, poput bola u grlu, a u nekim slučajevima su ponavljale testiranje privatno umesto da obaveste svog lekara.

„Ako su simptomi bili blagi, kao samo bol u grlu, nisu to shvatale ozbiljno. Nisu verovale čak ni pozitivnim *PCR* testu i išle su da se privatno ponovo testiraju. Plašile su se da ćemo ih poslati u bolnicu" (R9, babica).

Samolečenje kod kuće pre kontaktiranja zdravstvenih radnika takođe je bilo uobičajeno. Prema rečima kliničara, neke žene su čekale jedan ili dva dana pokušavajući same da kontrolišu simptome, što je odlagalo lekarsku procenu.

„Neke odmah prijave simptome, ali druge pokušavaju da se leče kod kuće jedan ili dva dana. Mnoge nam ne kažu jer se plaše da ćemo tražiti da urade *PCR* test, a zatim ih hospitalizovati" (R6, akušer-ginekolog).

Istovremeno, nekoliko zdravstvenih radnika je primetilo da su se svest i ozbiljnost pristupa povećavali kako je pandemija napredovala i kako su komplikacije postajale vidljivije.

„U početku su mnoge bile ravnodušne, ali nakon što su videle komplikacije izazvane KOVID-19 oboljenjem, počele su brže da traže pomoć" (R8, babica).

U celini, kliničari su procenili da je većina žena na kraju ipak potražila zdravstvenu zaštitu, ali da je značajan deo odlagao prijavljivanje simptoma zbog straha od hospitalizacije i potcenjivanja težine bolesti.

„Načelno gledano, oko 70% trudnica nas je kontaktiralo na vreme" (R6, akušer-ginekolog).

Odlaganje zdravstvene zaštite i hospitalizacije

Zdravstveni radnici su identifikovali odlaganje prijema u bolnicu kao jedan od najkritičnijih izazova u zbrinjavanju trudnica obolelih od KOVID-19 infekcije. Žene sa blagom ili asimptomatskom infekcijom često su

were afraid we would send them to hospital" (R9, midwife).

Self-treatment at home before contacting healthcare providers was also common. According to clinicians, some women waited one or two days trying to manage symptoms on their own, which delayed medical assessment.

"Some report their symptoms immediately, but others try to treat themselves at home for one or two days. Many don't tell us because they are afraid we will ask them to take a PCR test and then hospitalize them" (R6, obstetrician-gynecologist).

At the same time, several healthcare workers observed that awareness and seriousness increased as the pandemic progressed, and complications became more visible.

"At first, many were indifferent, but after seeing complications from COVID-19, they started to seek help more promptly" (R8, midwife).

Overall, clinicians estimated that most women eventually sought care, but a substantial minority delayed reporting symptoms due to fear of hospitalization and underestimation of disease severity.

"In general, about 70% of pregnant women contacted us in time" (R6, obstetrician-gynecologist).

Delayed care and hospitalization

Healthcare professionals identified delayed hospital admission as one of the most critical challenges in managing pregnant COVID-19 patients. Women with mild or asymptomatic infection were commonly managed at home, but delays in escalation of care often occurred when symptoms worsened. Clinicians emphasized that late presentation increased the risk of complications and limited the effectiveness of timely intervention.

Pregnant women were typically treated as outpatients when symptoms were mild or absent, even with a positive PCR test.

"We manage them at home only if the infection is mild. If there is shortness of breath, fever above 38, cough, or intoxication, we hospitalize them" (R5, obstetrician-gynecologist).

"Asymptomatic women, those with a positive PCR test but no fever or symptoms, stay at home" (R9, midwife).

However, refusal of hospitalization contributed significantly to prolonged home management. Healthcare workers reported that many women declined admission even when it was medically indicated. The most common reasons included fear of COVID wards, belief that the illness was mild, family responsibilities, and mistrust of the diagnosis.

"Some didn't believe they had COVID. They thought it was just the flu" (R5, obstetrician-gynecologist).

lečene kod kuće, ali su kašnjenja u eskaliranju zdravstvene zaštite često nastajala kada su se simptomi pogoršavali. Kliničari su naglasili da kasno javljanje lekaru povećava rizik od komplikacija i ograničava efikasnost pravovremenih intervencija.

Trudnice su obično lečene ambulantno kada su simptomi bili blagi ili odsutni, čak i uz pozitivan *PCR* test.

„Lečimo ih kod kuće samo ako je infekcija blaga. Ako postoji kratak dah, temperatura iznad 38, kašalj ili intoksikacija, hospitalizujemo ih“ (R5, akušer-ginekolog).

„Žene bez simptoma, one sa pozitivnim *PCR* testom ali bez temperature ili simptoma, ostaju kod kuće“ (R9, babica).

Međutim, odbijanje hospitalizacije značajno je doprinosilo produženom lečenju kod kuće. Zdravstveni radnici su prijavili da su mnoge žene odbijale prijem čak i kada je bio medicinski indikovan. Najčešći razlozi uključivali su strah od KOVID odeljenja, uverenje da je bolest blaga, porodične obaveze i nepoverenje u dijagnozu.

„Neke nisu verovale da imaju KOVID. Mislile su da je to samo grip“ (R5, akušer-ginekolog).

„Odbijale su jer nisu imale kome da ostave decu ili nekoga ko bi se brinuo o domaćinstvu“ (R6, akušer-ginekolog).

„Neke su se plašile da bi mogle da umru u bolnici“ (R4, akušer-ginekolog).

Iako je većina kliničara navela da su bolnice uglavnom primale trudnice kada je bilo slobodnih kreveta, na početku pandemije nedostatak kreveta je povremeno dovodio do toga da su žene sa blagim oblikom bolesti vraćane kući.

„Na početku su svi slati u bolnicu, ali pošto nije bilo dovoljno kreveta, žene sa blagim oblikom bolesti su ponekad vraćane i praćene od strane ambulantnih timova“ (R13, bolnički lekar).

Samo-medikacija je bilo još jedan važan faktor koji je doprinosio odlaganju eskaliranja zdravstvene zaštite. Zdravstveni radnici su prijavili da su neke žene pokušavale da kontrolišu simptome kućnim lekovima ili su izbegavale antivirusne lekove zbog zabrinutosti za bezbednost fetusa, često bez obaveštavanja lekara.

„Neke su se lečile kod kuće, samo su pile tečnost i izbegavale antivirusne lekove jer su se plašile da bi time mogle da naškode bebi“ (R5, akušer-ginekolog).

Uprkos svakodnevnom praćenju od strane timova primarne zdravstvene zaštite putem telefonskih poziva i *WhatsApp* poruka, odlaganje prijavljivanja simptoma i odbijanje hospitalizacije ostali su trajne prepreke pravovremenom lečenju.

„Svakog dana im šaljemo poruke u “četu”, govoreći im da ne misle da je to samo grip i da nas pozovu ako imaju temperaturu ili kašalj“ (R9, babica).

“They refused because they had no one to leave their children with, or no one to take care of the household” (R6, obstetrician-gynecologist).

“Some were afraid they might die in the hospital” (R4, obstetrician-gynecologist).

Although most clinicians reported that hospitals generally accepted pregnant women when beds were available, early in the pandemic bed shortages occasionally led to women with mild disease being sent back home.

“At the beginning, everyone was sent to hospital, but because there were not enough beds, women with mild disease were sometimes returned and monitored by outpatient teams” (R13, hospital physician).

Self-medication was another important factor contributing to delayed escalation of care. Healthcare workers reported that some women attempted to manage symptoms with home remedies or avoided antiviral medications due to concerns about fetal safety, often without informing their doctors.

“Some treated themselves at home, only drinking fluids and avoiding antivirals because they were afraid it could harm the baby” (R5, obstetrician-gynecologist).

Despite daily follow-up by primary care teams through phone calls and WhatsApp messages, delayed reporting and refusal of hospitalization remained persistent barriers to timely treatment.

“We message them every day in the chat, telling them not to think it’s just the flu and to call us if they have fever or a cough” (R9, midwife).

Pregnant and postpartum women

We next present findings obtained from pregnant and postpartum women, describing the way that they experienced COVID-19 illness, monitoring, and interactions with healthcare services. Three main themes were identified: symptom interpretation and self-treatment, self-monitoring and follow-up, and perceived quality of care. These themes reflect how women made sense of their symptoms, navigated follow-up during illness, and evaluated the support they received from healthcare providers. Verbatim quotations are used to illustrate each theme (Table 2B).

Symptom interpretation and self-treatment

Pregnant women described diverse ways of interpreting and responding to COVID-19 symptoms. In the early phase of the pandemic, many participants did not initially seek medical care because they attributed fatigue, weakness, and malaise to normal pregnancy-related changes or to a common respiratory infection. This led to delayed recognition of COVID-19 and, in several cases, to self-treatment at home.

Tabela 2B. Pregled tema i podtema identifikovanih među trudnicama i ženama u postporođajnom periodu

Tema	Podteme (kodovi)
Tumačenje simptoma i samolečenje	Tumačenje simptoma kao normalnih pojava u trudnoći Tretiranje KOVID-19 kao da je grip Samo-medikacija Odlaganje traženja medicinske pomoći
Samopraćenje i praćenje od strane zdravstvenih radnika	Nepostojanje svesti o potrebi za vođenjem dnevnika simptoma Nedostatak struktuiranog samopraćenja Oslanjanje na telefonske pozive i poruke
Percipirani kvalitet zdravstvene zaštite	Brza reakcija ginekologa Kućne posete i PCR testiranje Nedostatak kontinuiranog lekarskog praćenja Izbor da se ostane kod kuće

Trudnice i žene u postporođajnom periodu

Sledeće predstavljamo nalaze dobijene od trudnica i žena u postporođajnom periodu, opisujući način na koji su doživele obolevanje od KOVID-19 infekcije, lekarsko praćenje i interakcije sa zdravstvenim službama. Identifikovane su tri glavne teme: tumačenje simptoma i samolečenje, samopraćenje i praćenje od strane zdravstvenih radnika, i percipirani kvalitet zdravstvene zaštite. Ove teme odražavaju način na koji su žene tumačile svoje simptome, snalazile se u lekarskom praćenju tokom bolesti i procenjivale podršku koju su dobijale od zdravstvenih radnika. Za ilustraciju svake teme upotrebljeni su doslovni citati (Tabela 2B).

Tumačenje simptoma i samolečenje

Trudnice su opisale različite načine tumačenja i reagovanja na simptome KOVID-19 infekcije. U ranoj fazi pandemije, mnoge učesnice u početku nisu tražile medicinsku pomoć jer su umor, slabost i malaksalost pripisivale uobičajenim promenama povezanim sa trudnoćom ili običnoj respiratornoj infekciji. To je dovodilo do odloženog prepoznavanja KOVID-19 oboljenja i, u nekoliko slučajeva, do samolečenja kod kuće.

"For almost two weeks I experienced weakness, headaches, and fatigue. I thought it was just how my fourth pregnancy was going. But then my whole body started aching, I had chills and a low-grade fever. I felt so bad I thought I was dying" (R4, pregnant woman).

Some women initially attempted to manage symptoms on their own before contacting healthcare providers, even when symptoms progressed.

"I had body aches and chills, like I was catching a cold. I started treating myself the way I usually do. When my temperature went up to 38.5, I called my gynecologist. She told me to call an ambulance, but I said I would try to bring the fever down first" (R2, pregnant woman).

Others reported more immediate help-seeking behavior, particularly during periods of high community transmission.

"I got sick at the peak of COVID, so I wrote to my gynecologist right away" (R9, postpartum woman).

Overall, the findings indicate that symptom misinterpretation and initial self-treatment were common, especially early in the pandemic, and contributed to delays in professional assessment and care.

Table 2B. Outline of themes and sub-themes identified among pregnant and postpartum women

Theme	Sub-themes (codes)
Symptom interpretation and self-treatment	Interpreting symptoms as normal pregnancy Treating COVID-19 as the flu Self-medication Delayed help-seeking
Self-monitoring and follow-up	Lack of awareness about symptom diary No structured self-monitoring Reliance on phone calls and messaging
Perceived quality of care	Rapid response from gynecologists Home visits and PCR testing Lack of continuous follow-up Preference to stay at home

„Skoro dve nedelje sam osećala slabost, glavobolje i umor. Mislila sam da je to jednostavno tok moje četvrte trudnoće. Ali onda je celo telo počelo da me boli, imala sam jezu i blago povišenu temperaturu. Osećala sam se toliko loše da sam mislila da umirem" (R4, trudnica).

Neke žene su u početku pokušavale same da kontrolišu simptome pre nego što bi kontaktirale zdravstvene radnike, čak i kada su simptomi napredovali.

„Imala sam bolove u telu i jezu, kao da dobijam prehladu. Počela sam da se lečim onako kako to obično radim. Kada mi je temperatura porasla na 38,5, pozvala sam svojeg ginekologa. Rekla mi je da pozovem hitnu pomoć, ali sam rekla da ću prvo pokušati da spustim temperaturu" (R2, trudnica).

Druge žene su prijavljivale da su se brže obratile za pomoć, naročito u periodima visoke transmisije u zajednici.

„Razbolela sam se na vrhuncu KOVID-a, pa sam odmah pisala svojem ginekologu" (R9, žena u postporođajnom periodu).

U celini, nalazi ukazuju da su pogrešno tumačenje simptoma i početno samolečenje bili česti, naročito u ranoj fazi pandemije, a doprinosili su kašnjenju u dobijanju lekarskog mišljenja i ostvarivanju zdravstvene zaštite.

Samopraćenje i praćenje od strane zdravstvenih radnika

Većina trudnica i žena u postporođajnom periodu navela je da nisu bile informisane o potrebi vođenja dnevnika samopraćenja tokom oboljevanja od KOVID-19 infekcije. Iako su neke dobile opšti savet da se izoluju i prate svoje stanje, sistematsko praćenje simptoma, telesne temperature ili saturacije kiseonika retko je bilo sprovođeno od strane samih pacijentkinja.

„Moj ginekolog mi je rekla da se izolujem i pratim sebe, ali nije ništa rekla o dnevniku" (R1, trudnica).

„Ne, nisam vodila nikakav dnevnik. Sami lekari su me zvali da provere kako sam" (R5, trudnica).

Nekoliko učesnica je navelo da se praćenje od strane medicinskog kadra uglavnom oslanjalo na telefonske pozive ili poruke zdravstvenih radnika, a ne na strukturisano samoprijavljivanje pacijentkinja.

„Ne sećam se da mi je doktor rekao nešto o dnevniku" (R8, žena u postporođajnom periodu).

Kao rezultat toga, praćenje progresije bolesti u velikoj meri je zavisilo od inicijative kliničara, a ne od sistematskog dokumentovanja simptoma od strane pacijentkinja. To je ograničavalo mogućnost ranog otkrivanja pogoršanja i donošenja pravovremenih kliničkih odluka.

Ove prakse funkcionisale su kao neformalne ili *ad hoc* telemedicinske strategije koje su nastale kao

Self-monitoring and follow-up

Most pregnant and postpartum women reported that they were not informed about the need to keep a self-monitoring diary during COVID-19 illness. Although some received general advice to isolate and observe their condition, systematic tracking of symptoms, body temperature, or oxygen saturation was rarely implemented on the patient's part.

"My gynecologist told me to isolate and monitor myself, but she didn't say anything about a diary" (R1, pregnant woman).

"No, I didn't keep any diary. The doctors themselves called to check how I was doing" (R5, pregnant woman).

Several participants indicated that follow-up relied mainly on phone calls or messages from healthcare providers rather than on patient structured self-reporting.

"I don't remember my doctor telling me anything about a diary" (R8, postpartum woman).

As a result, disease progression monitoring depended largely on clinicians' outreach rather than on patients' systematic documentation of symptoms. This limited the ability to detect early deterioration and to guide timely clinical decisions.

These practices functioned as informal or ad hoc telemedicine strategies that emerged in response to reduced face-to-face contact and the absence of fully institutionalized digital care pathways.

Perceived quality of care

Pregnant and postpartum women reported mixed experiences in their interactions with healthcare providers during COVID-19 illness. Some participants described rapid responses from gynecologists and proactive follow-up, which gave them a sense of safety and support. Others, however, experienced limited or inconsistent contact after the initial consultation.

Several women highlighted prompt action by healthcare providers, including home visits, PCR testing, and continued communication after diagnosis.

"After I called my gynecologist, two doctors came to my home, took a PCR test, and the next day told me it was positive and to call an ambulance. After that, my gynecologist kept calling to check if everything was okay" (R3, pregnant woman).

In contrast, other participants reported minimal follow-up and lack of ongoing monitoring, even when symptoms persisted.

"Two weeks later I still felt weak, so I wrote to my doctor. She told me to rest more and stay home, but I wasn't given a PCR test and no one from the clinic checked on me again" (R6, postpartum woman).

odgovor na smanjeni broj neposrednih kontakata i odsustvo potpuno institucionalizovanih digitalnih puteva zdravstvene zaštite.

Percipirani kvalitet zdravstvene zaštite

Trudnice i žene u postporođajnom periodu prijavile su različita iskustva u interakciji sa zdravstvenim radnicima tokom oboljevanja od KOVID-19 infekcije. Neke učesnice su opisivale brze reakcije ginekologa i proaktivno praćenje, što im je davalo osećaj sigurnosti i podrške. Druge su, međutim, imale ograničen ili nedosledan kontakt nakon početne konsultacije.

Nekoliko žena je istaklo brzu reakciju zdravstvenih radnika, uključujući kućne posete, *PCR* testiranje i kontinuiranu komunikaciju nakon postavljanja dijagnoze.

„Nakon što sam pozvala svojeg ginekologa, dva lekara su došla kod mene kući, uzeli *PCR* test, a sledećeg dana su mi rekli da je pozitivan i da pozovem hitnu pomoć. Posle toga me je ginekolog stalno zvala da proveri da li je sve u redu“ (R3, trudnica).

Nasuprot tome, druge učesnice su prijavljivale minimalno dalje lekarsko praćenje i nedostatak kontinuiranog nadzora, čak i kada su se simptomi produžili.

„Dve nedelje kasnije i dalje sam se osećala slabo, pa sam pisala svom lekaru. Rekla mi je da se više odmaram i ostanem kod kuće, ali mi nije urađen *PCR* test i niko iz ambulante me više nije kontaktirao“ (R6, žena u postporođajnom periodu).

Neke žene su takođe dovodile u pitanje potrebu za hospitalizacijom, naročito kada su simptomi bili blagi, i radije su ostajale kod kuće.

„Nisam želela da budem hospitalizovana. Zašto bih? Delovalo je kao običan grip“ (R5, trudnica).

„Ostala sam kod kuće tokom cele trudnoće. Osećala sam slabost, ali nije bilo drugih komplikacija“ (R7, žena u postporođajnom periodu).

U celini, opaženi kvalitet zdravstvene zaštite u velikoj meri je zavisio od nivoa komunikacije i kontinuiteta koji su obezbeđivali zdravstveni radnici. Dok su neke žene osećale snažnu podršku, druge su doživljavale praznine u lekarskom praćenju i neizvesnost u vezi sa odgovarajućim zbrinjavanjem.

DISKUSIJA

Ova kvalitativna studija pruža uvid u to kako su zdravstvenu zaštitu trudnica obolelih od KOVID-19 infekcije doživljavali i zdravstveni radnici i same trudnice u Kazahstanu. Gledano iz obe perspektive, na organizaciju zdravstvene zaštite imali su uticaja odloženo prepoznavanje simptoma, limitirano strukturisano lekarsko praćenje i neizvesnost u vezi sa putevima hospitalizacije. Zdravstveni radnici su opisali veliko opterećenje poslom, smernice koje su se brzo menjale i odsustvo

Some women also questioned the need for hospitalization, particularly when symptoms were mild, and preferred to stay at home.

“I didn’t want to be hospitalized. Why should I? It seemed like just a regular flu” (R5, pregnant woman).

“I stayed at home throughout my pregnancy. I felt weak, but there were no other complications” (R7, postpartum woman).

Overall, the perceived quality of care depended largely on the level of communication and continuity provided by healthcare workers. While some women felt closely supported, others experienced gaps in follow-up and uncertainty about appropriate management.

DISCUSSION

This qualitative study provides insight into how care for pregnant COVID-19 patients was experienced by both healthcare professionals and the pregnant women themselves, in Kazakhstan. Across both perspectives, the organization of care was affected by delayed symptom recognition, limited structured follow-up, and uncertainty regarding hospitalization pathways. Healthcare professionals described heavy workloads, rapidly changing guidelines, and the absence of clear SOPs for managing pregnant COVID-19 patients, while pregnant women reported misinterpreting symptoms, relying on self-treatment, and experiencing variable levels of clinical follow-up. Together, these findings highlight the way that gaps in care pathways, communication, and operational guidelines influenced both help-seeking behavior and clinical decision-making during the pandemic.

Taken together, the findings obtained from healthcare professionals and pregnant women reveal a fragile and fragmented care pathway for COVID-19 in pregnancy. Women often delayed seeking care because they interpreted early symptoms as normal features of pregnancy or mild respiratory illness, while clinicians faced uncertainty about when and how to escalate care due to limited pregnancy-specific guidelines and unclear operational procedures. The absence of structured self-monitoring tools, such as symptom diaries, further reduced the clinicians’ ability to detect clinical deterioration at an early stage. As a result, both patient behavior and system-level constraints converged to produce delays in testing, referral, and hospitalization, increasing the risk of adverse maternal and fetal outcomes.

Our findings align with international qualitative evidence showing that maternal care during COVID-19 was frequently experienced as disrupted, uncertain, and emotionally demanding for both women and

jasnih SOP za zbrinjavanje trudnica obolelih od KOVID-19 infekcije, dok su trudnice prijavile pogrešno tumačenje simptoma, oslanjanje na samolečenje i različite nivoe kliničkog praćenja. Zajedno, ovi nalazi ističu način na koji su praznine u putevima zdravstvene zaštite, komunikaciji i operativnim smernicama uticale i na ponašanje pri traženju pomoći i na kliničko donošenje odluka tokom pandemije.

Posmatrano zajedno, nalazi dobijeni od zdravstvenih radnika i trudnica otkrivaju krhost i fragmentisanost puta zbrinjavanja trudnica obolelih od KOVID-19 infekcije. Žene su često odlagale da potraže lekarsku pomoć jer su rane simptome bolesti tumačile kao normalne karakteristike trudnoće ili blago respiratorno oboljenje, dok su se kliničari suočavali sa neizvesnošću o tome kada i kako eskalirati zdravstvenu zaštitu zbog ograničenih smernica specifičnih za trudnoću i nejasnih operativnih procedura. Odsustvo strukturisanih alata za samopraćenje, kao što su dnevnici simptoma, dodatno je smanjivalo mogućnost kliničara da u ranoj fazi uoče kliničko pogoršanje. Kao rezultat toga, i ponašanje pacijentkinja i sistemska ograničenja združeno su dovodila do toga da se kasni sa testiranjem pacijentkinja, upućivanjem na dalje lečenje i hospitalizacijom, čime se povećavao rizik od nepovoljnih ishoda za majku i fetus.

Naši nalazi su u skladu sa međunarodnim kvalitativnim dokazima koji pokazuju da je zdravstvena zaštita trudnica i porodilja tokom oboljevanja od KOVID-19 infekcije često percipirana kao narušena, neizvesna i emocionalno zahtevna i za žene i za zdravstvene radnike. Sinteze kvalitativnih dokaza i primarne studije dosledno su prijavljivale smanjen broj neposrednih kontakata, oslanjanje na komunikaciju na daljinu i povećanu anksioznost među trudnicama, uz značajnu reorganizaciju službi i opterećenje na službe za zdravstvenu zaštitu trudnica i porodilja [22–25]. Slično tome, zdravstveni radnici intervjuisani u našoj studiji opisivali su povećano radno opterećenje, administrativni teret i smernice koje su se rapidno menjale, što odražava izveštaje iz drugih okruženja gde su se zdravstveni radnici suočavali sa promenljivim politikama i operativnim izazovima dok su obezbeđivali zdravstvenu zaštitu trudnicama i porodiljama [18,26,27].

Povećana primena lekarskog praćenja zasnovanog na telefonskim razgovorima i porukama koja se uočava u našim nalazima u skladu je sa širim globalnim iskustvima brzog prelaska na telemedicinu u zdravstvenoj zaštiti trudnica i porodilja, a opisana je kao istovremeno neophodna ali i izazovna za održavanje kvaliteta i kontinuiteta zdravstvene zaštite [28–30]. Istovremeno, naša studija dodaje važnu perspektivu zemlje srednjeg dohotka iz Centralne Azije, providers. Qualitative evidence syntheses and primary studies have consistently reported reduced face-to-face contact, reliance on remote communication, and heightened anxiety among pregnant women, alongside major service reconfiguration and strain on maternity services [22–25]. Similarly, healthcare professionals interviewed in our study described an increased workload, administrative burden, and rapidly changing guidelines, mirroring reports from other settings where providers faced shifting policies and operational challenges while maintaining maternal care [18,26,27].

The increased use of phone-based and messaging-based follow-up in our data is also consistent with broader global experiences of a rapid shift toward telemedicine in maternal care, described as both necessary and challenging for quality and continuity [28–30]. At the same time, our study adds an important middle-income, Central Asian perspective by highlighting how gaps in pregnancy-specific operational guidelines (standard operating procedures – SOPs) and inconsistent implementation of structured monitoring tools (e.g., symptom diaries) intersected with women's symptom misinterpretation and self-treatment, contributing to delays in escalation of care and hospitalization decisions – issues that are less prominent in much of the high-income qualitative literature [22].

The findings of this study need to be interpreted within the specific context of the Kazakhstani health system during the COVID-19 pandemic. Unlike many high-income countries with stable and well-institutionalized maternal healthcare pathways, which maintained consistent clinical guidance during the pandemic, Kazakhstan experienced frequent revisions of national COVID-19 protocols and regulatory documents, creating uncertainty regarding the responsibility for referral and hospitalization of pregnant COVID-19 patients.

This type of policy flux has also been described as a challenge for maintaining continuity of care in other settings [31]. In the absence of consistently implemented standard operating procedures, healthcare professionals in our study relied on informal practices, messaging platforms, and remote communication to manage women in their homes, reflecting broader trends of telemedicine expansion and communication challenges observed internationally during the pandemic [28,32].

At the same time, pregnant women navigated care in an environment characterized by changing rules, fear of hospitalization, and limited structured follow-up, which amplified tendencies toward self-treat-

naglašavajući kako su nedostaci u operativnim smernicama specifičnim za trudnoću i nedosledna primena strukturisanih alata za praćenje (npr. dnevnici simptoma) u interakciji sa pogrešnim tumačenjem simptoma i samolečenjem kod žena doprinosili kašnjenjima u eskaliranju zdravstvene zaštite i donošenju odluka o hospitalizaciji – pitanjima koja su manje izražena u velikom delu kvalitativne literature iz zemalja sa visokim dohotkom [22].

Nalaze ove studije treba tumačiti u specifičnom kontekstu zdravstvenog sistema Kazahstana tokom KOVID-19 pandemije. Za razliku od mnogih zemalja sa visokim dohotkom, te stabilnim i dobro institucionalizovanim putevima zdravstvene zaštite trudnica i porodilja, koje su tokom pandemije održavale dosledne kliničke smernice, Kazahstan je doživljavao česte revizije nacionalnih KOVID-19 protokola i regulative, što je stvaralo neizvesnost u vezi sa odgovornošću za upućivanje na dalje lečenje i hospitalizaciju trudnica obolelih od KOVID-19 infekcije.

Ovakav tip promenljivosti politika takođe je opisan kao izazov za održavanje kontinuiteta zdravstvene zaštite u drugim sredinama [31]. U odsustvu dosledno primenjivanih standardnih operativnih procedura, zdravstveni radnici u našoj studiji oslanjali su se na neformalne prakse, platforme za razmenu poruka i komunikaciju na daljinu kako bi zbrinjavali žene u njihovim domovima, što odražava šire trendove širenja telemedicine i izazove u komunikaciji zabeležene na međunarodnom nivou tokom pandemije [28,32].

Istovremeno, trudnice su se snalazile u sistemu zdravstvene zaštite u okruženju obeleženom promenljivim pravilima, strahom od hospitalizacije i ograničenim strukturisanim lekarskim praćenjem, što je pojačavalo sklonost ka samolečenju i odlaganju traženja pomoći. Ove sistemske karakteristike pomažu da se objasni zašto su praznine u putevima zdravstvene zaštite uočene u ovoj studiji bile posebno izražene u kazahstanskom kontekstu.

Nalazi ove studije ukazuju na nekoliko prioriteta za jačanje organizacije zdravstvene zaštite trudnica obolelih od KOVID-19 infekcije i za buduće javnozdravstvene vanredne situacije. Prvo, odsustvo dosledno primenjivanih standardnih operativnih procedura specifičnih za trudnoću naglašava potrebu za jasnim i operativnim kliničkim putevima koji definišu odgovornosti za praćenje simptoma, testiranje, upućivanje na dalje lečenje i hospitalizaciju. Drugo, strukturisani alati za samopraćenje, kao što su dnevnici simptoma i standardizovani protokoli lekarskog praćenja, trebalo bi da budu integrisani u rutinsko ambulantno zbrinjavanje kako bi se obezbedilo rano otkrivanje kliničkog pogoršanja. Treće, ko-

ment and delayed help-seeking. These system-level features help explain why gaps in care pathways observed in this study were particularly pronounced in the Kazakhstani setting.

The findings of this study highlight several priorities for strengthening the organization of care for pregnant COVID-19 patients and for future public health emergencies. Firstly, the absence of consistently implemented, pregnancy-specific SOPs underscores the need for clear and operational clinical pathways that define responsibilities for symptom monitoring, testing, referral, and hospitalization. Secondly, structured self-monitoring tools, such as symptom diaries and standardized follow-up protocols, should be integrated into routine outpatient management to support early detection of clinical deterioration. Thirdly, communication strategies between primary care, hospitals, and pregnant women need to be strengthened to reduce uncertainty and fear surrounding testing and hospitalization.

The widespread use of phone calls, messaging applications, and chat-based communication observed in this study can be understood as forms of informal or ad hoc telemedicine. These practices emerged as adaptive responses to reduced face-to-face contact, uncertainty in referral pathways, and the absence of fully institutionalized digital care models. While such communication helped maintain continuity of care, its informal nature also contributed to variability in monitoring, documentation, and escalation of care decisions. This finding aligns with international evidence highlighting rapid but uneven digital health adaptation during the COVID-19 pandemic.

Finally, while remote communication through phone calls and messaging platforms proved essential during the pandemic, these tools should be embedded within formal care pathways rather than relying on informal or ad hoc practices. Together, these measures could improve continuity of care, reduce delays in escalation of care, and enhance the safety of maternal health services during infectious disease outbreaks.

STUDY STRENGTHS AND LIMITATIONS

This study has several strengths. It draws on in-depth qualitative data from two key stakeholder groups – pregnant and postpartum women and healthcare professionals – allowing triangulation of perspectives on COVID-19 care pathways. The use of verbatim interviews and thematic analysis has enabled a detailed exploration of real-world experiences in both primary care and hospital settings. In addition, the study provides rare qualitative evidence from a middle-income, Central Asian context, where such data are scarce.

munikacijske strategije između primarne zdravstvene zaštite, bolnica i trudnica moraju biti ojačane kako bi se smanjila neizvesnost i strah u vezi sa testiranjem i hospitalizacijom.

Široka upotreba telefonskih poziva, aplikacija za razmenu poruka i komunikacije zasnovane na "četovima" uočena u ovoj studiji može se razumeti kao oblik neformalne ili *ad hoc* telemedicine. Ove prakse su se pojavile kao adaptivni odgovori na smanjen broj neposrednih kontakata, neizvesnost u putevima upućivanja na dalje lečenje i odsustvo potpuno institucionalizovanih digitalnih modela zdravstvene zaštite. Iako je takva komunikacija pomagala u održavanju kontinuiteta zdravstvene zaštite, njena neformalna priroda takođe je doprinosila varijabilnosti u lekarskom praćenju, dokumentovanju i donošenju odluka o eskaliranju zdravstvene zaštite. Ovaj nalaz je u skladu sa međunarodnim dokazima koji ukazuju na brzu, ali neujednačenu digitalnu adaptaciju u zdravstvu tokom KOVID-19 pandemije .

Na kraju, iako se komunikacija na daljinu putem telefonskih poziva i platformi za razmenu poruka pokazala kao ključna tokom pandemije, ovi alati trebalo bi da budu ugrađeni u formalne puteve zdravstvene zaštite, umesto da se oslanjaju na neformalne ili *ad hoc* prakse. Zajedno, ove mere mogle bi da unaprede kontinuitet zdravstvene zaštite, smanje kašnjenja u eskaliranju zdravstvene zaštite i povećaju bezbednost službi za zdravstvenu zaštitu trudnica i porodilja tokom epidemija zaraznih bolesti.

KVALITETI I OGRANIČENJA STUDIJE

Ova studija ima nekoliko kvaliteta. Zasniva se na detaljnim kvalitativnim podacima dobijenim od dve ključne grupe aktera – trudnica i žena u postporođajnom periodu i zdravstvenih radnika – što omogućava triangulaciju perspektiva o putevima zbrinjavanja kod oboljevanja od KOVID-19 infekcije. Primena doslovnih transkripcija intervjua i tematske analize omogućila je detaljno istraživanje stvarnih iskustava u primarnoj zdravstvenoj zaštiti i bolničkim okruženjima. Pored toga, studija pruža retke kvalitativne dokaze iz konteksta zemlje srednjeg dohotka u Centralnoj Aziji, gde su takvi podaci oskudni.

Međutim, treba priznati i neka ograničenja. Svi učesnici su regrutovani iz jednog grada, što može ograničiti primenljivost nalaza na druge regione Kazahstana ili na ruralna područja. Iskustva se takođe mogu razlikovati u kasnijim fazama pandemije, kako su se kliničke smernice i organizacija zdravstvenih usluga razvijale. Ipak, doslednost tema među učesnicima sugeriše da nalazi obuhvataju ključne karakteristike puteva zbrinjavanja tokom obolevnja od KOVID-19 infekcije tokom perioda istraživanja.

However, some limitations should be acknowledged. All participants were recruited from a single city, which may limit the transferability of the findings to other regions of Kazakhstan or to rural settings. Experiences may also differ across later stages of the pandemic, as clinical guidelines and organization of health services evolved. Nevertheless, the consistency of themes across participants suggests that the findings capture key features of COVID-19 care pathways during the study period.

We found examples of dedicated and responsive care from healthcare professionals during the COVID-19 pandemic, and maternity staff should be acknowledged for their efforts to provide support under extremely challenging conditions. This qualitative study allowed both pregnant women and healthcare professionals to reflect on what was most important in the organization of COVID-19 care during pregnancy.

Future research should focus on how pregnancy-specific care pathways and digital follow-up tools can be integrated into routine maternal health services and sustained across different regions of Kazakhstan to improve continuity and timely escalation of care during public health emergencies.

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Pronašli smo primere posvećene i odgovorne zdravstvene zaštite od strane zdravstvenih radnika tokom KOVID-19 pandemije, te osoblju u službama za zdravstvenu zaštitu trudnica i porodilja treba odati priznanje za njihove napore da pruže podršku u izuzetno teškim uslovima. Ova kvalitativna studija omogućila je i trudnicama i zdravstvenim radnicima da se osvrnu na ono što je bilo najvažnije u organizaciji zdravstvene zaštite u vezi sa obolevanjem od KOVID-19 infekcije tokom trudnoće.

Buduća istraživanja trebalo bi da se fokusiraju na to kako se putevi zdravstvene zaštite specifični za trudnoću i digitalni alati za praćenje mogu integrisati u rutinske službe zdravstvene zaštite trudnica i porodilja i održati u različitim regionima Kazahstana kako bi se poboljšao kontinuitet i pravovremeno eskaliranje zdravstvene zaštite tokom javnozdravstvenih vanrednih situacija.

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