

NapoliSana Campania

ORGANO UFFICIALE ORDINE DELLE PROFESSIONI INFERMIERISTICHE DI NAPOLI
Anno XXXII - n° 3 - Settembre 2026

INSC
Infermieri
Ora anche su Scopus pg. 28,
di Nicola Serra

LAUREA INFERMIERISTICA

Si riaccende la passione



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PER LA VITA**

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è un lavoro
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Settembre 2026

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La bellezza del prendersi cura I giovani ne riscoprono il valore



La bellezza del prestare cure risiede nella sua capacità di trasformare un atto tecnico o biologico in una forma d'arte profondamente umana. Non si tratta semplicemente di somministrare una terapia farmacologica (to cure), ma di abbracciare la filosofia del prendersi cura (to care), accogliendo la persona nella sua interezza, con le sue fragilità e le sue imperfezioni. È questo in fondo il senso di numeri e cifre che raccontano il riaccendersi dell'attrattiva per la professione d'Infermiere da parte di tanti giovani sia che si tratti delle lauree triennali, sia di quelle specialistiche. All'interno del giornale diamo numeri e cifre di questo processo. E raccontiamo di come soprattutto Napoli sia protagonista di questo fenomeno che riporta finalmente il numero dei candidati ai test d'infermieristica sopra quello dei posti disponibili. Il risultato della Federico II mostra che, dove orientamento, università e professione riescono a comunicare, l'interesse dei giovani può tornare rapidamente.

L'aumento delle domande di ammissione al Corso di laurea in Infermieristica rappresenta un segnale molto incoraggiante. Particolarmente significativo è il dato dell'Università Federico II, dove le candidature sono state circa il doppio dei posti disponibili: una conferma del costante interesse dei giovani napoletani verso una professione essenziale, qualificata e ricca di opportunità, soprattutto alla luce della revisione del percorso formativo. Come Ordine continueremo a collaborare con scuole e università per far conoscere il valore dell'assistenza infermieristica e accompagnare le nuove generazioni in una scelta consapevole. Ora è fondamentale consolidare questa tendenza, investendo nella formazione, nella valorizzazione professionale e in prospettive di carriera realmente attrattive. Ma è anche sulle lauree specialistiche che va spesa una riflessione. Stiamo assistendo a una forte svolta

formativa. Un cambio di paradigma, sia nell'offerta accademica e quindi della formazione, sia per la professione infermieristica in se e dell'intero sistema sanitario nazionale. I numeri ci dicono che la Federazione nazionale degli ordini ha avuto la vista lunga e ha saputo recepire le esigenze della professione. L'obiettivo è formare professionisti con competenze avanzate, capaci di operare all'interno di équipe multiprofessionali sempre più complesse. Le grandi innovazioni che la professione infermieristica sta proponendo rappresentano una svolta anche, se non soprattutto, per quanto riguarda il futuro della sanità italiana, oggi in profonda crisi di sistema. Il ruolo cruciale che gli infermieri ricoprono oggi, e sempre più vorranno ricoprire in futuro, sarà uno stimolo anche per altre professioni. Avremo molto da lavorare, non c'è dubbio.

La possibilità di crescere professionalmente può contribuire a trattenere nel sistema pubblico operatori che oggi vedono carriere poco dinamiche e riconoscimenti insufficienti. La riprova sta nel fatto che ora anche le altre professioni sanitarie chiedono la stessa svolta formativa. Del resto la riforma della formazione avviata dagli infermieri nasce dall'esigenza di rispondere ai cambiamenti demografici ed epidemiologici del Paese e di rafforzare la capacità del sistema sanitario tout court nell'affrontare bisogni assistenziali sempre più complessi e diversificati. Ora ci aspettano altre sfide: trasformare i nuovi saperi e le eccellenze teoriche acquisite in opportunità e processi organizzativi adeguati. La specializzazione universitaria, dovrà essere accompagnata da assunzioni, condizioni di lavoro sostenibili e una programmazione fondata sui bisogni reali della popolazione. Ma non c'è altra strada per l'eccellenza.

di Teresa Rea

l'editoriale



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in questo numero



L'EDITORIALE di Teresa Rea

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I giovani ne riscoprono il valore

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In primo piano

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In primo piano

Infermieristica, i giovani riaccendono la passione

Record di candidati ai test per accedere ai corsi. Dall'Università Federico II alla Vanvitelli si è registrato quest'anno un incremento di domande del 63 per cento. Soddisfatta la presidente dell'Ordine di Napoli Teresa Rea: «Attratti da una professione rinnovata grazie soprattutto ai giovani»

di PINO DE MARTINO



Torna a crescere l'interesse dei giovani per la professione infermieristica. E il segnale più forte arriva da Napoli, in particolare dalla Federico II. Qui le domande per partecipare al test di ammissione sono passate dalle 621 dello scorso anno a 1.013: 392 in più, pari a un incremento del 63,1 per cento ma in significativa crescita anche le adesioni negli altri Atenei campani, alla Vanvitelli e a Salerno. Alla Federico II a fronte di 510 posti disponibili le candidature sono quasi il doppio: 1,99 per ogni posto dunque con 503 aspiranti oltre la capacità formativa programmata dall'Ateneo. Un'inversione di tendenza significativa dopo anni di progressiva perdita di attrattività del corso di laurea. «Un segnale incoraggiante», dice soddisfatta la presidente Opi Napoli Teresa Rea, per altro docente di Infermieristica della Federico II. «Siamo di fronte a un rinnovato interesse dei giovani napoletani verso una professione es-

senziale, qualificata e ricca di umanità. Un'inversione di tendenza che ci auguriamo persista per più cicli e si attesti in modo uniforme su tutto il territorio.»

Il lavoro dell'Ordine - Un risultato che premia anche il lavoro di orientamento. «Come Ordine – ha aggiunto la prof Rea in un comunicato – continueremo a collaborare con Scuole e Università per far conoscere il valore dell'assistenza infermieristica e accompagnare le nuove generazioni in una scelta consapevole. «Oggi si raccolgono i frutti delle importanti riforme avviate con i Ministeri della Salute e della Università e Ricerca, che hanno riconosciuto la necessità di consolidare il ruolo degli infermieri a tutti i livelli – prosegue la presidente Rea – Abbiamo molto apprezzato anche le misure messe in campo da singoli Atenei per agevolare le maggiori difficoltà nella fase di inserimento». Saranno

22mila gli studenti in tutta Italia che parteciperanno al test per accedere al corso di laurea abilitante in Infermieristica, a fronte di 20.672 posti messi a bando (+263 posti rispetto al 2025) grazie allo sforzo degli Atenei. «Sì, grazie all'impegno della Federazione e degli ordini professionali territoriali torna a crescere l'interesse per la professione infermieristica. Una professione rinnovata anche grazie al supporto e all'entusiasmo dei giovani».

Resta il nodo organici - Il dato positivo non risolve, tuttavia, l'emergenza degli organici di Asl e ospedali: i candidati che supereranno il test del 16 settembre potranno entrare nel sistema sanitario solo al termine dei tre anni di studio. La Campania, invece, ha bisogno di infermieri subito: negli ospedali, nel pronto soccorso, nell'assistenza domiciliare e soprattutto nella nuova rete territoriale finanziata dal Pnrr. Il programma

assegna alla regione 172 Case della comunità e 48 Ospedali di comunità, oltre alle Centrali operative territoriali. Ma completare gli edifici non basta: la vera sfida è dotarli di personale stabile. L'infermiere di famiglia e di comunità è chiamato a seguire anziani, malati cronici e persone non autosufficienti, controllare l'aderenza alle terapie, intercettare le ricadute e raccordare medici di famiglia, specialisti, assistenza domiciliare e servizi sociali. Negli Ospedali di comunità, destinati ai ricoveri a bassa intensità clinica, l'assistenza è prevalentemente infermieristica. Il problema è ancora più evidente nelle aree interne dell'Irpinia, del Sannio, del Cilento, del Matese e dell'Alto Casertano dove in alcuni casi le graduatorie sono state esaurite con tante rinunce e si è passati ai contratti libero professionali molto onerosi e non stabili. In questi territori alla carenza di organici si aggiungono distanze, collegamenti difficili, dispersione della popolazione e invecchiamento degli abitanti. Sono proprio i territori nei quali Case e Ospedali di comunità potrebbero fare la differenza, ridurre ricoveri impropri e viaggi verso i grandi centri. Ma sono anche le aree meno attrattive per i professionisti.

Le aree periferiche - Per popolare la nuova rete servono concorsi rapidi, contratti stabili e incentivi per chi sceglie le sedi disagiate. Retribuzioni, alloggi, trasporti, formazione e percorsi di carriera possono fare la differenza per evitare che i giovani laureati si spostino verso altre regioni o all'estero. Sono state presentate 21.907 domande per 20.672 posti, contro le 18.836 richieste per 20.409 posti del 2025.



Trend di crescita in tutta Italia

La seconda giornata dell'interessante convegno ha avuto un taglio più esperienziale e dialogico ed è stata dedicata al tema «Dalla scelta al successo: storie di infermieri liberi professionisti». La sessione è stata moderata da Luigi Pais De Mori, Antonio Sannino e Salvatore Musella. L'apertura è stata affidata ad Antonio Sannino, con un intervento dedicato alla libera professione come scelta consapevole, tra identità, autenticità e visione. Questo tema ha rappresentato il cuore culturale dell'intero percorso: essere libero professionista non significa soltanto aprire una partita Iva, ma costruire un progetto professionale fondato su competenze, responsabilità, autonomia, capacità organizzativa e visione del proprio ruolo nella comunità. Nel corso della mattinata sono state presentate diverse esperienze provenienti da differenti territori italiani. Tommaso Guido, infermiere olistico di Firenze, ha portato una testimonianza centrata su un approccio professionale orientato alla persona nella sua globalità. Luigi Bruno, con l'esperienza di Alpha a Napoli, ha contribuito a raccontare un modello sviluppato sul territorio. Gianluca Solitro, Presidente OPI Bergamo, ha presentato l'esperienza di 9care, mentre Vincenzo Faraone, infermiere specialista in accessi vascolari a Napoli, ha offerto un contributo su un ambito specialistico in forte crescita. La sessione è proseguita con Giulia Pitino, di Intuitiva Salute a Pavia, e con Alberto Rollo, di Kleos a Napoli, a conferma della

varietà dei percorsi possibili nella libera professione infermieristica.

Le testimonianze hanno mostrato concretamente come la libera professione possa svilupparsi in forme diverse: attività individuale, modelli organizzativi, servizi innovativi, collaborazioni strutturate, specializzazioni cliniche e percorsi territoriali. La giornata si è conclusa con una tavola rotonda con la faculty, pensata come spazio di confronto, domande e networking. Questo momento ha rappresentato un'occasione preziosa per favorire lo scambio di competenze tra professionisti, condividere esperienze, far emergere criticità e individuare possibili traiettorie comuni di sviluppo.

REGIONE PER REGIONE - In diversi atenei italiani si registrano incrementi particolarmente significativi nel numero di aspiranti infermieri rispetto al 2025: **Napoli Federico II** +392 domande (+63,1%), passando da 621 a 1.013 domande; **Università del Piemonte Orientale** +139 domande (+44,1%); **Milano Bicocca**, +118 domande (+51,3%), toccando 348 domande; **Chieti** +113 domande (+40,4%), per 393 domande su 253 posti; **Udine** +80 domande (+37,7%) per 292 domande su 204 posti. Il rapporto tra domande e posti disponibili supera il valore di 2 negli atenei di: **Foggia, Bari, Lecce, Napoli, Salerno, Cosenza**. L'**Università di Cagliari** registra il valore più alto: 3,2 domande per ogni posto disponibile.

In primo piano

Lauree magistrali cliniche

Una valanga di iscrizioni in tredici Atenei

Superano i 3.300 i candidati infermieri per 759 posti nei nuovi percorsi specialistici. Ora le altre professioni sanitarie chiedono la stessa svolta. Successo della Fnopi e forte soddisfazione della presidente Mangiacavalli che ha creduto fortemente in questo progetto.

di PINO DE MARTINO

«Le nuove lauree specialistiche rispondono a ciò che gli infermieri vogliono essere e, allo stesso tempo, a ciò di cui le persone hanno bisogno». Così la Presidente Fnopi Barbara Mangiacavalli ha accolto la notizia: sono 3.300 gli infermieri che il 5 ottobre (per i corsi in lingua italiana) e il 7 ottobre (in lingua inglese) hanno preso parte alle selezioni per i 759 posti messi a bando per conseguire la laurea magistrale a indirizzo specialistico, registrando una media nazionale superiore a 4 candidati per ogni posto disponibile. Un successo targato Fnopi che ha creduto fortemente in questo progetto recependo per tempo l'esigenza dilagante soprattutto tra i giovani di valorizzazione delle competenze avanzate e di aggiornamento della

formazione sulle nuove domande di salute avanzate dai cittadini.

La formazione - Boom di iscrizioni e d'interesse, dunque, a seguito dei decreti (n. 159/2026 e n. 177/2026) di riforma della classe di laurea, che oggi consentono a tutti gli infermieri, dopo aver conseguito la triennale abilitante, di scegliere tra quattro opzioni. Anzitutto, la Magistrale in Scienze infermieristiche - Profilo infermieristico, revisionata e rilanciata e che è orientata principalmente allo sviluppo di competenze manageriali, formative, di ricerca e di approfondimento della disciplina. A questa si aggiunge la laurea Magistrale in Scienze infermieristiche specialistiche articolata in tre percorsi clinici ad indirizzo specialistico: Cure primarie e Infer-

mieristica di famiglia e comunità, Cure neonatali e pediatriche, Cure intensive e nell'Emergenza. Quest'ultimo percorso raccoglie l'interesse maggiore da parte dei professionisti coinvolti nei test, il 60% del totale. Segue l'indirizzo in Cure Primarie, di Famiglia e Comunità, che convoglia il 30% delle domande presentate. E l'ambito delle Cure Neonatali e Pediatriche, con un rapporto di almeno 2 domande per posto disponibile.

Boom nelle metropoli - Le grandi aree metropolitane trainano al momento queste tendenze. Roma Sapienza guida la classifica nazionale, registrando il picco assoluto nell'indirizzo Cure Intensive e nell'Emergenza con 430 domande per 20 posti (rapporto record di 21,5 candidati per

posto). Milano (statale) non è da meno con rapporto domande/posti nello stesso ambito di oltre 11.

I dati - Nei 13 atenei "pionieri" va comunque evidenziata la tenuta del corso Magistrale "classico" in Scienze infermieristiche e ostetriche che regge bene il confronto e, con un rapporto di 3 domande per posto, si conferma una strada ambita da tutti gli infermieri interessati a sviluppare la propria carriera in ambiti disciplinari. I dati permettono di rintracciare in maniera chiara l'esigenza di valorizzazione delle competenze avanzate sul campo percepita negli anni dalla FNOPI e tradotta nel lavoro sinergico portato avanti insieme al Governo, alla Conferenza dei Rettori e alla Conferenza Permanente delle Classi di Laurea e Laurea Magistrale delle Professioni Sanitarie, i cui esiti sono diventati tangibili il 12 maggio scorso, con la pubblicazione in Gazzetta ufficiale delle tre nuove lauree e il riconoscimento for-



male del valore degli infermieri da parte del presidente della Repubblica, Sergio Mattarella, intervenuto, alle celebrazioni della Giornata internazionale dell'Infermiere.

Esulta la Fnopi - "Accogliamo con molta soddisfazione e senza stupore il successo di questa riforma accademica - commenta ancora la presidente della FNOPI, Barbara Mangiacavalli - che al primo banco di prova ufficiale raccoglie le esigenze di migliaia di infermieri pronti a mostrare il volto nuovo della professione. Le nuove lauree specialistiche rispondono così a ciò che gli infermieri vogliono essere, interpretando, allo stesso tempo, ciò di cui le persone hanno bisogno. Quando abbiamo intrapreso questo percorso eravamo coscienti dell'evoluzione sanitaria in atto e del ruolo chiave degli infermieri in un contesto in

continuo mutamento. L'avvio di questo nuovo percorso formativo è un risultato che scaturisce da un confronto reale, centrato sulle esigenze concrete, che le istituzioni hanno saputo avere con i rappresentanti delle professioni infermieristiche. L'infermiere oggi è chiamato ad affrontare bisogni di salute sempre più complessi e multidimensionali, molto spesso non solo sanitari ma sociosanitari. Il ruolo degli infermieri è, infatti, diventato fondamentale non solo nell'assistenza diretta, ma anche nella gestione dei percorsi di cura, nella prevenzione, nell'educazione sanitaria, nella continuità assistenziale. Con i tre nuovi percorsi si dà piena attuazione a un modello di assistenza costruito attorno alla persona, coerente con il dettato costituzionale, che definisce, non a caso, il diritto alla salute come un diritto fondamentale".

Il Nuovo Volto della Formazione Infermieristica: Lauree Magistrali 2026/2027

Dal 2026/2027 l'offerta formativa per infermieri si evolve con tre nuovi profili specialistici. 13 atenei sono pronti a partire immediatamente, garantendo una copertura nazionale focalizzata sui nuovi bisogni di salute dei cittadini.



Rea: Una svolta formativa e di sistema

“Stiamo assistendo a una forte svolta formativa. Un cambio di paradigma, sia nell'offerta accademica e quindi della formazione, sia per la professione infermieristica in se e dell'intero sistema sanitario nazionale. I numeri ci dicono che la Federazione nazionale degli ordini ha avuto la vista lunga e ha saputo recepire le esigenze della professione. L'obiettivo è formare professionisti con competenze avanzate, capaci di operare all'interno di équipe multiprofessionali sempre più complesse. Ma le grandi innovazioni che la professione infermieristica sta proponendo rappresentano una svolta anche, se non soprattutto, per quanto riguarda il futuro della sanità italiana, oggi in profonda crisi di sistema. Il ruolo cruciale che gli infermieri ricoprono oggi, e sempre più vorranno ricoprire in futuro, sarà uno stimolo anche per altre professioni. Avremo molto da lavorare, non c'è dubbio.

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Politica sanitaria

Rapporto AlmaLaurea

Infermieristica si conferma una certezza occupazionale

Secondo il Consorzio interuniversitario di Bologna, nonostante la forte crescita di contratti a tempo indeterminato, persiste una significativa quota di precariato contrattuale e una prevalenza del settore privato (54,0%) rispetto a quello pubblico (41,8%) nel primo anno post-laurea. Degna di nota la quota del 7,1% (in crescita) dei laureati che preferiscono aprire partita iva e impostare una carriera da libero professionista.

di GAETANO ARTIOLA

Il nuovo Rapporto AlmaLaurea, su dati relativi all'anno 2025, conferma l'elevata e rapida integrazione nel mercato del lavoro da parte dei laureati in Infermieristica. Con un tasso di occupazione dell'89,1% a un solo anno dalla laurea abilitante e un tempo medio di reperimento del primo impiego di soli 2,4 mesi dal conseguimento del titolo (che scendono a 1,8 mesi dall'inizio della ricerca), la classe L/SNT1 (professioni sanitarie infermieristiche e ostetriche) si conferma uno dei percorsi accademici a più alta efficacia occupazionale in Italia.

Efficacia occupazionale - I dati del Rapporto, confrontati con quelli dell'anno precedente, mostrano un consolidamento dell'efficacia occupazionale di questo percorso di studi; il tasso di occupazione passa dall'85,1% nel 2024 all'89,1% nel 2025 ad un anno dal titolo, con segnali di miglioramento sia in termini di tassi di occupazione che di inquadramento contrattuale.

La quasi totalità degli occupati (98,2%) svolge infatti professioni coerenti con il titolo conseguito, dichiarando che la laurea è "efficace/molto efficace" nel lavoro svolto (97,9%) e un alto livello di soddisfazione (8,1 su una scala di 10). L'88,9% degli occupati dichiara di utilizzare in misura elevata le competenze acquisite all'università. L'87,6%, inoltre, ritiene la formazione professionale accademica acquisita molto adeguata per lo svolgimento del proprio lavoro. L'analisi si basa su un collettivo di 11.671 neolau-

reati, con un tasso di risposta del 59,9%. L'età media alla laurea è di 25,2 anni, con un voto medio di 103,2 su 110. La durata media del percorso è di 3,9 anni, con un indice di ritardo contenuto, secondo AlmaLaurea, e nel 2025 solo il 6,8% dei neolaureati si è iscritto immediatamente a una laurea di secondo livello, rispetto all'8,9 dell'anno precedente. Appare evidente che questa tendenza sia motivata dall'attesa dell'attivazione delle tre nuove magistrali cliniche.

Tra chi non prosegue gli studi di secondo livello, la motivazione che ha portato a tale scelta è prevalentemente legata ad aspetti di natura lavorativa (64,5%), a conferma dell'attrattività immediata del mercato. L'11,1% degli intervistati si è iscritto a un master di primo livello. La ricerca del primo lavoro inizia quasi subito dopo la laurea (0,6 mesi di attesa media) e si conclude positivamente in meno di due mesi. Il 25,6% degli occupati a un anno dalla laurea lavora nel Nord-Ovest. La mobilità verso l'estero è limitata allo 0,6%, a un anno dalla laurea conseguita.

Precariato e Libera professione - Nonostante la forte componente di contratti a tempo indeterminato (52,4%, in crescita di circa un punto rispetto al 2024), persiste una significativa quota di precariato contrattuale (35,8% a tempo determinato) e una prevalenza del settore privato (54,0%) rispetto a quello pubblico (41,8%) nel primo anno post-laurea. Degna di nota la quota del 7,1% (in crescita) dei laureati che preferiscono aprire

partita iva e impostare una carriera da libero professionista. Sempre più giovani infermieri stanno quindi mettendo alla prova il proprio spirito imprenditoriale, optando per la flessibilità della libera professione preferendola al posto fisso, meno dinamico.

La retribuzione mensile netta media dichiarata dalla totalità degli intervistati è di 1.745 euro, rispetto ai 1.724 rilevati l'anno precedente. Si osserva tuttavia un gap di genere: gli uomini percepiscono mediamente 1.804 euro contro i 1.728 euro delle donne, che rappresentano il 79,1% dei neolaureati. È diminuita la quota di occupati che dichiara di essere alla ricerca di un altro impiego: dal 24,9% del 2024 al 22,7% del 2025. Tuttavia, persistono criticità locali, con punte superiori al 30% tra i laureati in atenei situati in regioni come Calabria, Campania, Sicilia e Umbria, suggerendo una potenziale insoddisfazione per le condizioni locali o contrattuali iniziali.

I nodi - Nonostante l'elevata occupabilità nel settore sanitario, il sistema Italia affronta infatti sfide strutturali che rischiano di compromettere la disponibilità di professionisti qualificati nel lungo periodo. Secondo il Rapporto Annuale Istat 2026, l'Italia continua a essere uno dei Paesi europei con la più bassa quota di laureati tra i giovani adulti. Nel 2024, solo il 31,6% dei giovani tra i 25 e i 34 anni possedeva un titolo di istruzione terziaria, a fronte di una media UE27 del 44,1%. Questa criticità è aggravata dal calo generaliz-

zato della popolazione giovanile dovuto alla denatalità (nel 2025 le nascite sono diminuite del 3,9% rispetto all'anno precedente, toccando il minimo storico di 1,14 figli per donna). Parallelamente alla scarsità di nuovi titoli, poi, si assiste a una crescente mobilità di chi ha già completato gli studi. Nel 2024, il saldo migratorio dei giovani laureati italiani è stato fortemente negativo, con una perdita complessiva netta di 21mila talenti in un solo anno in tutti i settori analizzati. Anche al di fuori dell'ambito sanitario, le ragioni principali sono la ricerca di retribuzioni migliori e di opportunità professionali più adeguate alle proprie competenze.



Contratto Sanità 2025-2027: aumenti fino a 240 euro per gli infermieri

È stata sottoscritta all'Aran lo scorso 29 luglio l'ipotesi di rinnovo del Ccnl Comparto Sanità 2025-2027, che interessa circa 600 mila dipendenti del Servizio sanitario nazionale. Dopo mesi di trattativa, tutte le principali organizzazioni sindacali rappresentative, Cisl FP, Uil FPL, FP Cgil, Nursind, Nursing Up e Fials, hanno firmato la preintesa, pur evidenziando differenti valutazioni sui risultati raggiunti e sulle criticità ancora aperte. Il rinnovo introduce incrementi economici,

nuove tutele normative e aggiornamenti dell'ordinamento professionale. Tra le principali novità figurano l'aumento delle indennità infermieristiche, nuovi profili professionali, la disciplina dell'intelligenza artificiale nei luoghi di lavoro e misure dedicate alla conciliazione tra vita privata e lavoro. Sul piano economico, il contratto prevede un incremento medio mensile di circa 240 euro per il personale infermieristico e di circa 209 euro per le altre categorie, con una crescita retributiva media

stimata intorno al 7,7%. Per gli infermieri l'aumento comprende sia la rivalutazione dello stipendio tabellare sia l'incremento dell'indennità di specificità infermieristica. Gli arretrati relativi al biennio 2025-2026 potranno superare i 3.000 euro, a seconda della categoria e della posizione economica. Il contratto incrementa inoltre il fondo della produttività e introduce la possibilità di rafforzare le risorse destinate al salario accessorio in presenza di un aumento stabile degli organici.

Politica sanitaria

LA SENTENZA

“Giusto che infermieri guidino strutture complesse”

Il Tar Lombardia respinge il ricorso promosso dalla Federazione nazionale Ordini dei Medici Chirurghi e Odontoiatri: Le attività della Struttura complessa (“Prevenzione, vigilanza e programmazione”) non richiedono competenze mediche, ma competenze di carattere gestionale ed organizzativo che possono far capo anche a dirigenti delle professioni sanitarie.

di PEPPE PAPA

Gli incarichi di struttura complessa non sono riservati ai soli dirigenti medici, ma possono essere conferiti anche ai dirigenti delle professioni sanitarie (infermieristiche, tecniche, della riabilitazione, della prevenzione e della professione di ostetrica), con il solo limite della specializzazione richiesta dall’incarico. In caso contrario si violerebbe l’articolo 15 del decreto legislativo n. 502 del 1992 (Riordino della disciplina in materia sanitaria), che disciplina in modo “unitario” la dirigenza medica e la dirigenza delle professioni sanitarie.

La sentenza - In questi termini il Tar Lombardia-Brescia (sentenza n. 1174 del 2026) ha respinto

il ricorso promosso dalla Federazione nazionale Ordini dei Medici Chirurghi e Odontoiatri e dagli Ordini provinciali dei medici lombardi contro la delibera con cui l’Agenzia di Tutela della Salute-Ats aveva indetto una procedura selettiva per il conferimento dell’incarico di dirigente della Struttura Complessa “Igiene e Sanità Pubblica, Salute Ambiente”. Procedura alla quale erano stati ammessi “i dirigenti medici nella disciplina Igiene, Epidemiologia e Sanità Pubblica e i dirigenti delle professioni sanitarie”.

Le motivazioni dei ricorrenti - I ricorrenti avevano sostenuto che: l’articolo 4 del decreto del Presidente della Repubblica n. 484 del 1997 (Re-

golamento recante la determinazione dei requisiti per l’accesso al secondo livello dirigenziale per il personale del ruolo sanitario) non menziona gli esercenti le professioni sanitarie; Competenze gestionali e organizzative. Tesi che non ha colto nel segno. Il Tar, da un lato, ha affermato che le attività della Struttura complessa (“Prevenzione, vigilanza e programmazione”) non richiedono competenze mediche, ma competenze di carattere gestionale ed organizzativo che possono far capo anche a dirigenti delle professioni sanitarie. Dall’altro, ha rilevato che l’articolo 4 del d.P.R. n.484 del 1997 è antecedente all’istituzione della dirigenza delle professioni sanitarie e pertanto

implicitamente abrogato “per incompatibilità, nella parte in cui mantiene una riserva anacronistica a favore dei dirigenti medici”. Il Tar ha ritenuto altrettanto priva di pregio la censura relativa alla presunta disparità di trattamento. Il Collegio ha evidenziato che il medico dipendente del SSN è automaticamente inquadrato nella qualifica dirigenziale, mentre per l’accesso alla dirigenza delle professioni sanitarie, oltre alla laurea magistrale e all’iscrizione all’albo, è necessario aver maturato un’anzianità di servizio di cinque anni nella professionalità oggetto di concorso presso enti del SSN o altre pubbliche amministrazioni.



Politica sanitaria

Pronto soccorso sotto assedio, Rea: Dignità violata, tuteliamo chi ci cura

Dopo i tanti casi di aggressione agli infermieri registrati quest'estate, la presidente dell'Opi Napoli e Consigliera nazionale Fnopi denuncia: «Il pronto soccorso sono lo specchio delle fragilità del SSN».



Dopo l'ennesimo episodio di aggressione al personale infermieristico, la presidente Teresa Rea, presidente dell'Ordine degli infermieri di Napoli sbotta e denuncia: “Il Pronto soccorso sono diventati lo specchio delle fragilità del sistema. Lunghe attese, sovraffollamento, carenza di personale, bisogni sociali, difficoltà di accesso alle visite e un’assistenza territoriale insufficiente. Il cittadino esasperato finisce spesso per sfogarsi sull’unico bersaglio che trova davanti: l’infermiere del triage». Sotto accusa per l'Ente di piazza Carità ci sono i grandi vuoti d'infermieri negli ospedali. “Servono personale, presidi di sicurezza e un territorio capace di intercettare i bisogni prima che arrivino in ospedale. Gli infermieri non sono responsabili della mancanza di posti letto, degli organici insufficienti o delle liste d’attesa. Anzi, sono spesso coloro che cercano di tenere insieme il sistema nonostante queste difficoltà», aggiunge la Rea. “Come Opi Napoli – dice infine la nota Opi - siamo indignati

per i tanti episodi occorsi quest'estate. Condanniamo con tutte le forze questi episodi e ringraziamo sempre le forze dell'ordine e il Prefetto Di Bari per la rapidità degli interventi e per la vicinanza. Un’aggressione a chi cura è un’aggressione all’intera comunità. Non possiamo accettare che chi presta cure venga colpito alle spalle. Colpire l’infermiere non abbrevia i tempi: ostacola l’assistenza. Il personale sanitario non decide arbitrariamente chi assistere per primo. Nel triage le priorità vengono stabilite sulla base della gravità clinica, non dall’ordine di arrivo. Dopo un’aggressione resta per tanto tempo un senso di paura, ansia, vulnerabilità e una profonda mortificazione. I nostri colleghi entrano in turno senza sapere se torneranno a casa indenni. Questa condizione logora, favorisce l’esaurimento professionale e può spingere infermieri esperti ad abbandonare i reparti più esposti o, addirittura, la professione».



**CHI CURA
MERITA CURA**

**Rispetta gli
operatori sanitari**



**Siamo qui con te
non contro di te**

Le Regioni chiedono oltre venticinquemila assunzioni

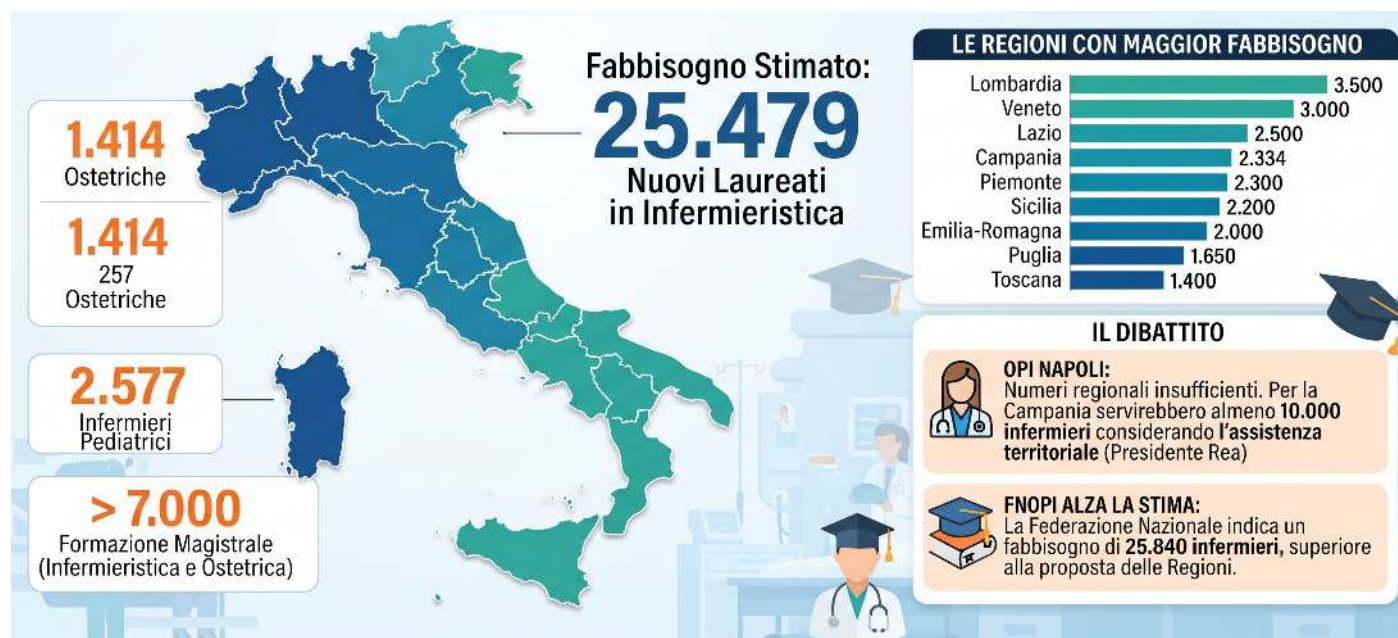
Nell'ultima conferenza Stato-Regioni gli enti locali indicano un fabbisogno di 25.479 infermieri.

La Campania, pur se uscita da poco da un blocco delle assunzioni durato oltre 10 anni ne chiede solo 2.334. Rea: "Considerando l'assistenza territoriale ne servirebbero almeno 10mila".

di NINA DE MARTINO

Le Regioni confermano che la carenza di infermieri resta una delle principali criticità del Servizio sanitario nazionale. Per l'anno accademico 2026/2027 il fabbisogno stimato raggiunge infatti 25.479 nuovi laureati in Infermieristica, ai quali si aggiungono 1.414 ostetriche, 257 infermieri pediatrici e oltre 7.000 posti per la formazione magistrale dell'area infermieristica e ostetrica. È quanto emerge dallo schema di accordo della Conferenza Stato-Regioni che dovrà orientare la programmazione nazionale degli accessi ai corsi di laurea delle professioni sanitarie. Il documento rappresenta uno dei passaggi più importanti della pianificazione del personale sanitario, perché costituisce la base sulla quale il Ministero dell'Università e della Ricerca definirà il numero dei posti disponibili nei corsi di laurea. Un dato che assume particolare rilievo in un contesto segnato da pensionamenti, difficoltà di reclutamento e crescente domanda di assistenza, soprattutto sul territorio.

Superata quota 25 mila - Si tratta della richiesta più elevata tra tutte le professioni sanitarie e conferma come l'Infermieristica continui a rappresentare il pilastro della programmazione del personale del SSN. Le richieste maggiori arrivano dalle Regioni con il più



elevato fabbisogno assistenziale: Lombardia:3.500 posti; Veneto:3.000; Lazio:2.500; Campania: 2.334; Piemonte:2.300; Sicilia:2.200; Emilia-Romagna:2.000; Puglia:1.650; Toscana: 1.400. Numeri che fotografano una necessità diffusa lungo tutto il territorio nazionale e che riflettono la crescente pressione sui servizi ospedalieri e territoriali.

Opi Napoli – Secondo la presidente dell'Ordine delle professioni infermieristiche di Napoli, i numeri richiesti dalla Campania sono del tutto insufficienti a coprire un fabbisogno annuo d'infermieri frutto anche di oltre un decennio di blocco del turnover: Rea: "Considerando l'assistenza territoriale ne servirebbero almeno 10mila".

Fnopi alza la stima – La federazione nazionale degli Ordini professionali stima un fabbisogno ancora più elevato. Accanto alle richieste formulate dalle Regioni, il documento riporta anche le proposte avanzate dalla Fnopi. Per la professione infermieristica la Federazione indica un fabbisogno di 25.840 nuovi infermieri, leggermente superiore rispetto alle 25.479 unità richieste dalle Regioni. Per gli infermieri pediatrici, invece, la Federazione propone 205 posti contro i 257 indicati dalle amministrazioni regionali, mentre per la formazione magistrale infermieristica e ostetrica il fabbisogno stimato dagli Ordini è pari a 6.201 posti, inferiore ai 7.072 previsti dalle Regioni.

IL VIAGGIO INTERROTTO DELLE RICETTE MEDICHE:

Solo una su due diventa prestazione in Italia



Fonte: Dati Agenas, Piattaforma Nazionale Liste d'Attesa (Elaborazione basata su dati 2025-2026).

LISTE D'ATTESA

Solo una su due ricette diventa visita o esame

Per Agenas il 50% delle prescrizioni non viene speso nelle strutture del SSN. Pesano i tempi e la scelta di andare dal privato. Grandi divari tra le Regioni.

Solo una ricetta medica su due diventa una visita o un esame. In pratica solo metà delle prescrizioni dei camici bianchi agli italiani si concretizza in una prestazione del Servizio sanitario. E il resto delle ricette? Difficile fare stime esatte, ma è sicuro che una parte di queste restano nei cassetti perché i pazienti hanno rinunciato a causa delle liste d'attesa troppo lunghe, mentre un'altra fetta di ricette è stata impiegata per andare dal privato pagando di tasca propria la prestazione, oppure facendosi rimborsare dalle casse sanitarie. Vanno poi contate quelle ricette non proprio necessarie ("non appropriate") tanto da spingere gli ita-

liani a non fare nulla. Resta il fatto che milioni di prescrizioni restano inutilizzate: si tratta di un dato significativo che racconta un problema che cova sotto la cenere. Per Agenas, l'Agenzia dei servizi sanitari regionali che ha pubblicato i dati al 2025 «una quota di mancata presa in carico tra il 25% e il 30% può essere considerata fisiologica» per il resto però è «opportuno effettuare ulteriori approfondimenti». Tra l'altro come sempre ci sono divari molto grandi tra le Regioni: il dato nazionale sulle prime visite tra "presa in carico" e "prescritto" è del 50,3% mentre per gli esami diagnostici la percentuale cresce di poco a 54,4%, ma sulle prime visite

si va dal 67,7% o al 59-58% di Emilia, Friuli e Veneto al 33,7% dell'Abruzzo e al 36,2% del Lazio, mentre sugli esami si passa dal 73,4% di Bolzano e il 66,6% del Friuli, al 37,3% del Lazio e del 39,3% dell'Abruzzo. Numeri questi che vanno presi in considerazione quando si leggono anche i recentissimi dati sulle liste d'attesa della Piattaforma nazionale che hanno mostrato come nei primi sei mesi del 2026 le strutture sanitarie hanno erogato nei tempi 1,6 milioni di visite mediche ed esami in più rispetto allo stesso periodo del 2025, ma con ancora 2,8 milioni di prestazioni fuori tempo.

I NUOVI LEA

Più di 800 prestazioni aggiuntive. Dubbi su risorse e personale

Pubblicati in Gazzetta Ufficiale i provvedimenti che aggiornano i Livelli essenziali di assistenza. Entrano nuovi screening neonatali, il Nipt sul DNA fetale, nuovi percorsi per il rischio ereditario di tumore della mammella e dell'ovaio e prestazioni per i disturbi dell'alimentazione. Si allarga anche il perimetro delle malattie croniche e rare esenti. Per gli interventi con nuovi oneri stanziati 149,5 milioni di euro l'anno. Le nuove regole entreranno in vigore dopo 30 giorni. Schillaci: "Un risultato storico". Prevenzione, tumori e malattie rare. Schillaci: "Accesso a tutti, stop sanità serie A e B"

di PINO DE MARTINO



“**G**arantire a tutti gli italiani, ovunque risiedano, l'accesso a prestazioni e servizi innovativi perché non ci siano una sanità di serie A e una di serie B, ma ci sia un Servizio Sanitario Nazionale più giusto per tutti”.

È questo l'obiettivo da raggiungere, indicato dal ministro della Salute Orazio Schillaci, attraverso i nuovi Livelli essen-

ziali di assistenza (Lea), aggiornati dopo anni attraverso un dpcm e un decreto ministeriale pubblicati a inizio ottobre sulla Gazzetta ufficiale.

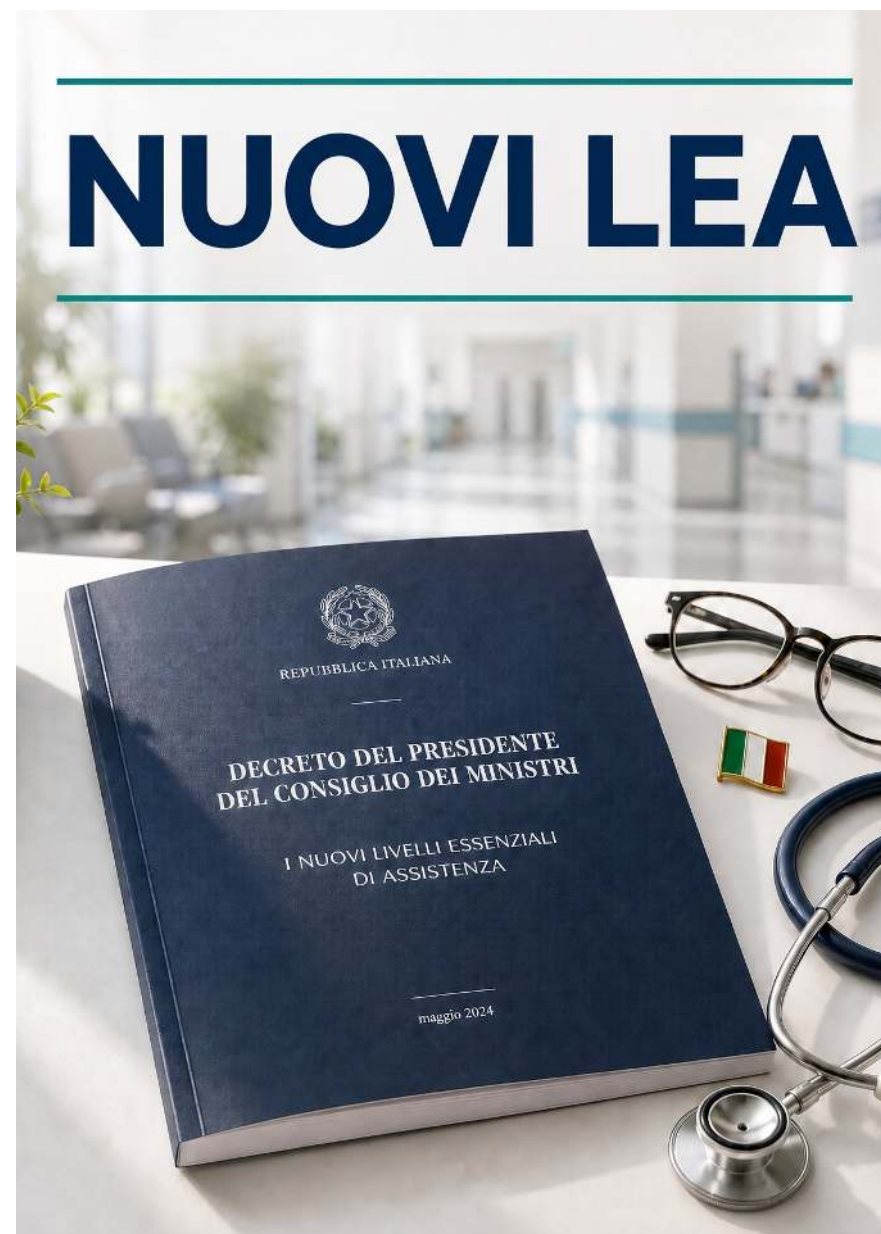
I punti essenziali - L'aggiornamento prevede circa 800 fra nuovi servizi, prestazioni e terapie. Con la pubblicazione dei nuovi Lea, afferma Schillaci, “scriviamo un capitolo decisivo per dare ai cittadini un SSN più moderno, equo e vi-

cino ai reali bisogni di salute”. Dall'ampliamento del programma di screening neonatale all'inserimento di prestazioni per una migliore caratterizzazione del tumore al seno fino a nuovi esami e cure in esenzione per le malattie croniche, l'aggiornamento dei Lea prevede circa 800 fra nuovi servizi e prestazioni attraverso interventi di modifica, sostituzione e revisione delle voci precedenti. Si inter-

viene, ad esempio, nel campo della prevenzione, oncologia e malattie rare e croniche, ma anche nell'ambito dei dispositivi medici e protesi.

Fermi dal 2017 - L'aggiornamento precedente dei Lea risale al 2017. Ma ha trovato piena attuazione solo nel 2024, con lo sblocco del necessario decreto tariffe. Il precedente dpcm era del 2001. “La volontà politica, chiarisce ancora il ministro, è di intervenire sui Lea in “tempi rapidi, assicurando alla sanità pubblica la capacità di tenere il passo con le innovazioni, che hanno valore solo se realmente accessibili davvero a tutti e senza dover attendere decenni”. Inoltre, l'eliminazione delle prestazioni ormai obsolete contribuirà a rafforzare la sostenibilità del Servizio sanitario.

Sostenibilità SSN - Sul fronte economico, per l'aggiornamento dei Lea sono previsti 200 milioni di euro l'anno. I Lea, sottolinea il sottosegretario alla Salute Marcello Gemmato, “non venivano rinnovati da 10 anni. Quanto all'applicazione omogenea da parte delle Regioni, stiamo cercando in maniera proattiva di omogeneizzarla sul territorio, superando quelle criticità storiche tra le regioni del Nord e il Sud”. Parlano di un “risultato importante” anche il presidente della Federazione delle aziende sanitarie e ospedaliere (Fiaso), Giuseppe Quintavalle, e l'Associazione italiana di oncologia medica (Aiom). Per il presidente della Federazione degli Ordini dei Medici (Fnomceo), Filippo Anelli, si tratta di un “segnale positivo per i cittadini che però va rafforzato con maggiori investimenti nella sanità pubblica, per garantire a tutti le stesse cure”.



I NUOVI LEA

Due provvedimenti, nuovi oneri e “isorisorse”

L'aggiornamento viaggia in realtà su due binari. Da una parte c'è il provvedimento con le misure che determinano nuovi oneri per il Servizio sanitario nazionale, quantificati in 149,5 milioni di euro annui. Le risorse, stabilisce il testo, sono coperte attraverso le disponibilità del fabbisogno sanitario nazionale standard già vincolate per l'aggiornamento dei Lea. Dall'altra parte c'è il decreto del Ministro della Salute, di concerto con il Mef, che contiene gli aggiornamenti realizzabili a invarianza finanziaria: le Regioni e le Province autonome sono cioè chiamate ad attuarli senza nuovi o maggiori oneri, all'interno della cornice finanziaria programmata per il SSN.



Screening neonatale: la Sma entra stabilmente nei Lea. Uno dei capitoli più significativi riguarda la prevenzione neonatale. Nel decreto “isorisorse” viene inserito stabilmente nei Lea lo screening neonatale per l’Atrofia muscolare spinale (Sma). Il testo modifica il capitolo dedicato alla prevenzione collettiva introducendo espressamente lo screening per la Sma tra le attività garantite dal Servizio sanitario. Si tratta di un passaggio importante perché trasforma in standard nazionale un’attività che negli anni scorsi era stata progressivamente avviata nei diversi territori. Il Dpcm amplia poi ulteriormente lo Screening neonatale esteso, affiancando alle patologie già comprese nuove malattie genetiche e metaboliche.

Altre novità - Nel nuovo elenco entrano le immunodeficienze combinate gravi (SCID), compresi il deficit di adenosina deaminasi e quello di purina nucleoside fosforilasi, l’iperplasia surrenalica congenita da deficit della 21-idrossilasi, la mucopolisaccaridosi di tipo I, l’adrenoleucodistrofia legata all’X, la malattia di Fabry, la malattia di Gaucher e la malattia di Pompe.

Tumore mammella e ovaio - Nasce il percorso nazionale BRCA. Un altro capitolo centrale riguarda l’oncologia e, in particolare, il rischio eredo-familiare per il tumore della mammella e dell’ovaio. Il nuovo Lea introduce un programma di screening e sorveglianza dei soggetti a rischio eredo-familiare, strutturato in due fasi. La prima riguarda l’identificazione delle varianti patogenetiche dei geni BRCA1 e BRCA2 nelle familiari di donne con tumore mammario o ovarico nelle quali tali varianti siano già state individuate. La seconda fase scatta per le donne sane risultate positive e prevede un percorso di sorveglianza attiva finalizzato alla diagnosi precoce.

Tumore al seno - Nuovi test per scegliere meglio le terapie. Entra nel nomenclatore anche lo stato mutazionale prognostico per il carcinoma mammario ormono-responsivo in stadio precoce. Il testo individua in particolare le pazienti con carcinoma mammario iniziale, stadio I-IIIa, con recettori ormonali positivi e HER2 negativo, dopo la stratificazione clinica, istopatologica e radiologica. L’obiettivo è affinare la caratterizzazione della neoplasia e quindi orientare in modo più appropriato le decisioni terapeutiche.

Gravidanza - Tra le novità destinate ad avere un impatto più diretto sui cittadini c’è poi l’ingresso del test prenatale non invasivo, Nipt, nel nomenclatore della spe-

cialistica ambulatoriale. Il decreto lo definisce come test sul Dna fetale libero presente nel sangue materno, finalizzato alla valutazione dei cromosomi 13, 18, 21, X e Y e sottoposto alle condizioni di erogabilità previste dal provvedimento. Vengono aggiornate anche le prestazioni specialistiche per il controllo della gravidanza fisiologica escluse dalla partecipazione al costo. Tra le integrazioni figura la ricerca degli anticorpi IgG e IgM contro il Citomegalovirus, con test di avidità delle IgG in determinate condizioni. In caso di negatività il testo prevede la possibilità di ripetere l’esame ogni 4-6 settimane fino al secondo trimestre.

Disturbi alimentari - Un altro fronte sul quale l’aggiornamento interviene in modo esplicito è quello dei disturbi dell’alimentazione e della nutrizione. Nel nomenclatore entrano due nuove prestazioni: la terapia psicoeducativa individuale e quella collettiva. Per entrambe il decreto prevede cicli di dieci sedute, con un massimo di venti sedute l’anno.

Nuova diagnostica - L’aggiornamento della specialistica ambulatoriale contiene una lunga serie di interventi tecnici, alcuni dei quali introducono prestazioni completamente nuove. Tra queste compare l’elastografia transiente epatica, metodica utilizzata per la valutazione non invasiva della fibrosi del fegato. Arrivano inoltre il dosaggio dell’attività funzionale di ADAMTS13, utilizzato in specifici percorsi ematologici, e l’analisi quantitativa dell’RNA del virus dell’epatite D.

Fibromialgia e micobatteriosi: Uno dei capitoli più attesi riguarda le malattie croniche e invalidanti che danno diritto all’esenzione dalla partecipazione alla spesa sanitaria. Il lavoro sui Lea riguarda inoltre condizioni che erano già comprese negli elenchi di



esenzione. Il provvedimento aggiorna infatti i pacchetti di prestazioni per diverse patologie croniche, tra cui asma grave, malattie epatiche, psicosi, malattia di Crohn, colite ulcerosa e disturbi dell’alimentazione. Nel caso dell’asma grave, ad esempio, vengono inseriti esami come la misurazione dell’ossido nitrico esalato, le IgE totali e la pulsossimetria; nelle epatopatie trova spazio l’elastografia. Il principio seguito è quello di riallineare il paniere delle prestazioni esenti alle nuove possibilità diagnostiche e ai percorsi assistenziali nel frattempo consolidati.

Malattie rare - Importante anche l’intervento sulle malattie rare, per le quali viene aggiornato l’elenco delle condizioni che danno diritto all’esenzione. Tra le nuove voci compaiono le encefalopatie di sviluppo ed epilettiche e la malattia di Kawasaki, quest’ultima limitatamente alle classi di rischio AHA III, IV e V e con necessità di riconfermare l’esenzione dopo cinque anni. Entra anche la sindrome sistemica da aumentata permeabilità capillare.

Il nuovo elenco comprende inoltre l’insufficienza intestinale cronica benigna nelle

forme cliniche indicate dal decreto, le malattie autoimmuni del fegato, alcune forme di spina bifida, in particolare meningocele e mielomeningocele, e le dermatosi acantolitiche autosomiche dominanti del calcio-ATPasi. Accanto alle nuove entrate, vengono aggiornate denominazioni, classificazioni, sinonimi e raggruppamenti di patologie già presenti, un intervento tecnico rilevante anche ai fini della corretta attribuzione dei codici di esenzione.

Protesica: nuovi ausili e aggiornamento delle modalità di erogazione

La revisione investe anche l’assistenza protesica e gli ausili. Gli allegati intervengono sugli elenchi dei dispositivi e sulle modalità di erogazione, correggendo denominazioni e descrizioni e introducendo nuove soluzioni. Tra gli esempi figurano anche nuovi ausili per persone con disabilità visiva, come l’orologio da polso consultabile tramite vibrazione e l’orologio tattile da taschino. Il decreto amplia inoltre la platea di alcuni dispositivi monouso: tra le modifiche al testo del 2017 figurano riferimenti agli assistiti

laringectomizzati e alle persone affette da malattie rare, nell’ambito delle condizioni previste dal nomenclatore.

Cambiano anche i ricoveri a rischio inappropriatezza

L’aggiornamento non si limita alle prestazioni ambulatoriali. Viene rivisto anche l’allegato relativo ai DRG ad alto rischio di inappropriatezza in regime di degenza ordinaria. È un tassello meno visibile per i cittadini ma rilevante sul piano organizzativo: la revisione serve ad aggiornare l’elenco delle prestazioni e degli interventi per i quali il ricorso al ricovero ordinario deve essere valutato con particolare attenzione rispetto ad altri setting assistenziali. Il decreto interviene inoltre sull’assistenza termale e sulle modalità di erogazione dei dispositivi medici monouso e delle prestazioni protesiche.

Non solo nuove prestazioni: via quelle obsolete e più vincoli di appropriatezza

È proprio questo uno degli elementi che caratterizzano maggiormente l’operazione. L’aggiornamento non consiste in una semplice aggiunta di nuove prestazioni a quelle già garantite. Il provvedimento modifica descrizioni e codici, introduce nuove condizioni di erogabilità, aggiorna le indicazioni di appropriatezza prescrittiva e, in diversi casi, elimina o sostituisce prestazioni considerate superate. La specialistica ambulatoriale viene quindi riorganizzata cercando di adeguarla all’evoluzione tecnologica e clinica maturata dopo il Dpcm del 2017. È la stessa impostazione richiamata dal Ministero: l’innovazione, nelle intenzioni del provvedimento, deve procedere insieme all’eliminazione di ciò che è diventato obsoleto, con l’obiettivo di liberare risorse e aumentare l’appropriatezza.

Politica sanitaria

PRESTAZIONI SANITARIE

La Campania strappa la sufficienza, ma...

I dati del ministero sulla valutazione dell'assistenza: sufficienza per ospedali e medicina di base, prevenzione a un passo dalla bocciatura. Pesano liste di attesa, mobilità passiva e i budget ridotti per i privati. Istat: troppi cittadini hanno rinunciato a curarsi. Solo tre le regioni inadempienti.

di PINO DE MARTINO

Griglia Lea, ossia la pagella delle regioni sui Livelli essenziali di assistenza: nell'ultimo certificato dal tavolo del Ministero, relativo al 2024, la Campania risulta adempiente su tutti i parametri (cure ospedaliere, distrettuali e prevenzione). Tuttavia, su quest'ultimo fronte incassa un punteggio appena sopra la soglia della sufficienza. Parliamo di stili di vita, di educazione alla salute, attività sportiva per la prevenzione primaria ma anche screening e procedure di secondo livello.

Ultimi tra i promossi - La Regione raggiunge in totale 209 punti ma è ultima tra quelle pienamente adempienti. Con lo stop dei privati accreditati, questo margine rischia ora di assottigliare l'offerta per colonscopie, biopsie, ricoveri e interventi chirurgici nell'ambito della rete oncologica regionale che pure è un fiore all'occhiello, giunta al terzo posto in Italia per procedure ed esiti secondo le valutazioni di Agenas.

La griglia - Secondo l'Istat, tuttavia, quasi 5,8 milioni di persone hanno rinunciato ad almeno una visita o un accertamento diagnostico prescritti dal medico. Un dato preoccupante per la Campania dove, per altro, resta elevata la mobilità passiva (insomma, chi può curarsi preferisce andare fuori regione). Per essere promossa, una Regione deve ottenere almeno 60 punti su 100 in ciascuno dei tre settori valutati: prevenzione collettiva e sanità pubblica, assistenza distrettuale e assistenza ospedaliera. Il giudizio del 2024 si basa su 27 indicatori scelti tra gli 88 che compongono l'intera griglia del Nuovo sistema di garanzia che ha sostituito i vecchi parametri. La Campania dunque supera l'esame ma con un risultato che presta il fianco ad una vulnerabilità di cui tenere conto nella gestione e programmazione delle cure. Ottiene 61 punti nella prevenzione, appena uno sopra la soglia minima; sale a 80 nell'assistenza distrettuale e si

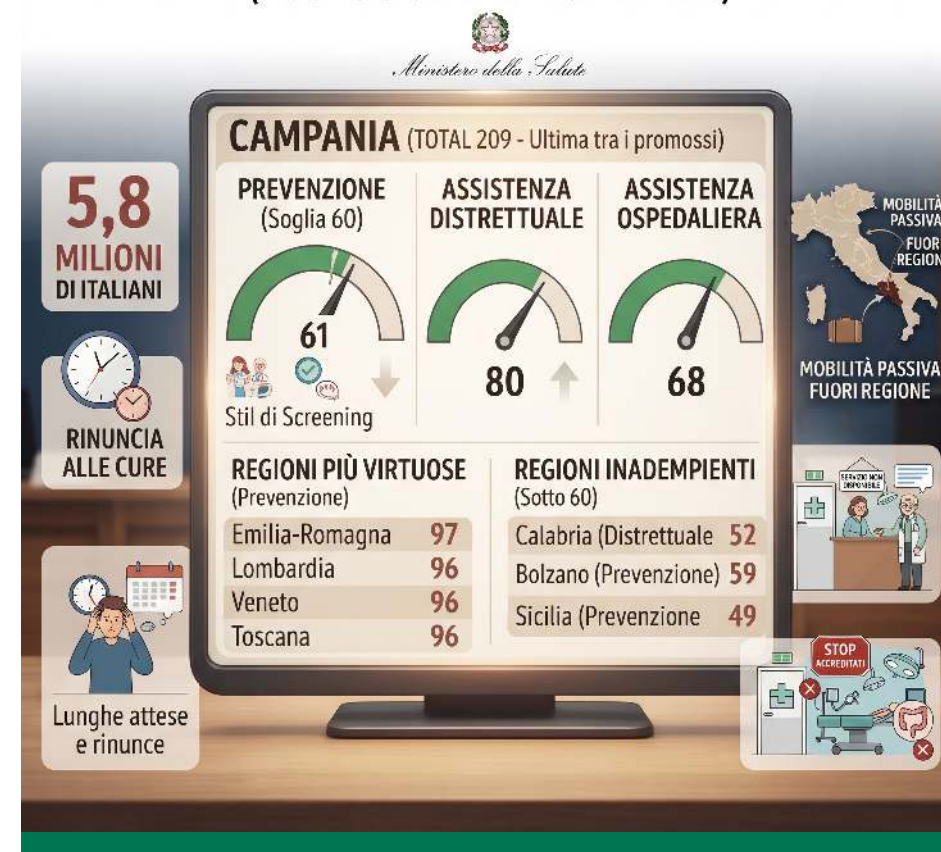
ferma a 68 in quella ospedaliera. Il totale di 209 è il più basso tra le Regioni che hanno raggiunto la sufficienza in tutte le aree. Proprio sulla prevenzione la Campania arretra rispetto al 2023 e resta indietro rispetto alle compagini più virtuose che guidano la classifica con Emilia-Romagna (97), Lombardia, Veneto e Toscana (96) che su questo parametro sono in vetta.

Le altre regioni - Sono 18 su 21 le Regioni promosse nell'erogazione dei Livelli essenziali di assistenza e soltanto tre inadempienti (Calabria che sconta i 52 punti nell'assistenza distrettuale, Provincia autonoma di Bolzano, ferma a 59 nella prevenzione e Sicilia, che nella stessa area totalizza appena 49 punti). Nel 2023 le realtà sotto la soglia in almeno una macroarea erano però ben otto, oggi preoccupano tuttavia quasi 5,8 milioni di italiani che rinunciarebbero a visite ed esami. Una fotografia che descrive un'Italia in netto miglioramento per le

cure sanitarie ma dietro la soglia amministrativa raggiunta da quasi tutto il Paese emerge il nodo irrisolto delle liste d'attesa, delle prestazioni non disponibili, delle differenze territoriali profonde e soprattutto il numero crescente di persone costrette a rinunciare alle cure. È questa la contraddizione messa in evidenza dalla Fondazione Gimbe analizzando i risultati del Nuovo sistema di garanzia forniti dal ministero della Salute. La griglia dei Lea fotografa un dato statico ma dice poco o nulla sulla accessibilità della popolazione ai servizi e sulla rinuncia alle cure se non tempestivamente erogate e lascia irrisolti i nodi delle liste di attesa e delle difficoltà di prenotazione per fragili e anziani che nella rete di prossimità, pubblica ed accreditata, farmacie comprese, vede un riferimento irrinunciabile.

Politica sanitaria

GRIGLIA LEA 2024: PAGELLA REGIONI (NUOVO SISTEMA DI GARANZIA)



Attivate altre 6 case e un ospedale di comunità

La Giunta regionale della Campania ha approvato una serie di provvedimenti in materia di Pnrr sanità e rete nefrologica. Ecco in dettaglio.

PNRR Sanità - La Giunta ha attestato l'attivazione di ulteriori 6 case di Comunità e 1 Ospedale di Comunità, che portano rispettivamente a 151 e 31 il numero totale di strutture in esercizio alla data del

30 agosto 2026, con uno stanziamento di circa 62 mln.

Rete nefrologica - La Giunta ha recepito l'Accordo Stato-Regioni relativo al Documento di indirizzo per il Percorso preventivo diagnostico terapeutico assistenziale della Malattia Renale Cronica, garantendo omogeneità assistenziale su tutto il territorio campano. È stata conte-

stualmente affidata alla Direzione Generale Tutela della Salute l'istituzione di un Tavolo Tecnico regionale per definire il Ppdt campano, promuovendo la gestione integrata tra i Medici di Medicina Generale e i medici specialisti nefrologi per l'istituzione della nuova Rete Nefrologica Campana.

Politica sanitaria

LEUCODISTROFIA

Screening neonatale per diagnosi precoce

Parte in Campania un nuovo test neonatale per la diagnosi precoce di leucodistrofia metacromatica (Mld), una rara e grave malattia genetica neurodegenerativa progressiva, caratterizzata da un grave e rapido deterioramento delle funzioni, motorie e cognitive. Grazie ad un progetto pilota attivo al Ceinge, Centro di ingegneria genetica e unico polo regionale per lo screening neonatale, il sistema sanitario regionale offre una nuova opportunità di prevenzione salvavita con l'attivazione del nuovo test. L'efficacia delle terapie geniche di ultima generazione ad oggi disponibili dipende esclusivamente dalla diagnosi precoce: i maggiori benefici si ottengono quando il bambino viene identificato e trattato prima della comparsa dei sintomi e del danno neurologico irreversibile. Riconoscere la malattia prima della comparsa dei sintomi può quindi consentire l'accesso alla terapia genetica nelle fasi in cui offre i risultati migliori. Lo screening per la Mld, non obbligatorio viene proposto ai nuovi nati in Campania nell'ambito di un progetto della durata di tre anni. L'adesione è volontaria e richiede la firma del consenso informato da parte dei genitori in ospedale. Non sono necessarie ulteriori punture: il test utilizza le stesse gocce di sangue

già prelevate dal tallone del neonato, tra le 48 e le 72 ore di vita, per gli screening di routine e raccolte sul cartoncino di Guthrie. Questo progetto rafforza il percorso di screening della Regione Campania, affiancando agli esami già previsti un'ulteriore possibilità di individuare precocemente la patologia. La leucodistrofia metacromatica è una malattia genetica rara, progressiva e neurodegenerativa, con un'incidenza stimata tra un caso ogni 40mila e uno ogni 160mila nati vivi. È causata dal deficit dell'enzima aril-sulfatasi A, che determina l'accumulo di sostanze chiamate sulfatidi e il conseguente danneggiamento del sistema nervoso. Nelle forme più precoci può provocare una rapida perdita delle capacità motorie e cognitive, con conseguenze gravissime per la vita del bambino. Oggi è disponibile una terapia genica autorizzata nell'Unione europea per specifiche forme e fasi della malattia, in grado di modificare il decorso. I maggiori benefici si osservano nei bambini trattati prima della comparsa dei sintomi. Il nuovo test si inserisce nella rete regionale dello screening neonatale, che ha nel Ceinge il proprio Centro Unico di riferimento.



OpiNapoli informa

Focus Cure sicure

Sicurezza delle cure e della persona assistita

Con la celebrazione dell'ottava giornata mondiale delle cure e della persona assistita, in adesione alle indicazioni dell'Organizzazione mondiale della sanità (OMS) non si è inteso sottolineare il giusto ruolo della prevenzione dagli errori durante l'assistenza. Ma si è voluto da parte dell'Opi Napoli anche riconoscere precocemente i rischi, promuovere comportamenti salutari, garantire interventi appropriati e accompagnare ogni persona lungo l'intero percorso di vita. In questa prospettiva, l'infanzia rappresenta il punto di partenza per prevenire molte ma-

lattie non trasmissibili dell'età adulta. Patologie cardiovascolari, diabete, tumori, malattie respiratorie croniche e obesità costituiscono una delle principali sfide per la salute pubblica. Sebbene si manifestino spesso in età adulta, le loro radici possono affondare nei primi anni di vita. Alimentazione, attività fisica, qualità del sonno, esposizione al fumo e condizioni sociali e ambientali contribuiscono infatti a definire la futura traiettoria di salute. Garantire cure sicure fin dall'infanzia significa, innanzitutto, non perdere occasioni di prevenzione.



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ASSISTENZA SICURA PER LA VITA
La sicurezza è un lavoro di squadra

IGIENE DELLE MANI UN GESTO SEMPLICE PER UN GRANDE IMPATTO

“Mani pulite salvano vite.”

Gli infermieri promuovono e aderiscono all'igiene delle mani per prevenire le infezioni correlate all'assistenza e proteggere la salute di tutti.

PREVENIRE LE INFEZIONI È UNA RESPONSABILITÀ DI TUTTI
PERSONE • PROFESSIONISTI • SISTEMA SANITARIO

World Health Organization

World Patient Safety Day 17 September 2025

CURE SICURE PER LE PERSONE, COMUNITÀ PIÙ SANE

CURE SICURE PER TUTTA LA VITA
PERCHÉ PRENDERSI CURA SIGNIFICA ESSERCI, OGGI E DOMANI.

OpiNapoli informa

Focus Cure sicure

Patologie croniche, un nuovo paradigma per l'assistenza

Accompagnare in Sicurezza: Il Ruolo Cruciale dell'Infermiere nelle Cure lungo tutto il corso della vita. Numeri da brividi: a livello globale, le patologie croniche rappresentano la prima causa di mortalità e disabilità, arrivando a causare circa 43 milioni di decessi all'anno, pari al 75% della mortalità complessiva nel mondo.

di PASQUALE PERFETTO

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ASSISTENZA SICURA PER LA VITA

La sicurezza è un lavoro di squadra

LA PREVENZIONE INIZIA OGGI

“Prevenire significa prenderci cura della salute prima che arrivi la malattia.”

Gli infermieri promuovono stili di vita sani, controlli regolari e informazioni corrette per ridurre il rischio di malattie e migliorare la qualità della vita.

PICCOLI GESTI, GRANDI RISULTATI
LA SICUREZZA È NELLE NOSTRE MANI, OGNI GIORNO



World Patient Safety Day
17 September 2025

CURE SICURE PER LE PERSONE, COMUNITÀ PIÙ SANE

CURE SICURE PER TUTTA LA VITA
PERCHÉ PRENDERSI CURA SIGNIFICA ESSERCI, OGGI E DOMANI.

Il progresso scientifico e le trasformazioni demografiche pongono i sistemi sanitari di fronte a una realtà epidemiologica ineludibile, dominata dalla crescente prevalenza delle malattie non trasmissibili (NCDs), quali il diabete, le cardiopatie croniche, le affezioni respiratorie e le patologie neurodegenerative. In questo scenario, l'assistenza infermieristica emerge come garanzia fondamentale di protezione e qualità della vita, in un territorio chiamato a colmare complessi e storici divari assistenziali. A livello globale, le patologie croniche rappresentano la prima causa di mortalità e disabilità, arrivando a causare circa 43 milioni di decessi all'anno, pari al 75% della mortalità complessiva nel mondo.

Mortalità prematura - Un elemento di forte criticità è rappresentato dalla mortalità prematura: oltre 18 milioni di decessi avvengono prima dei 70 anni e l'82% di queste morti si concentra nei Paesi a basso e medio reddito, evidenziando una profonda disuguaglianza nell'accesso alla prevenzione e ai trattamenti.

Patologie cardiache - Le malattie cardiovascolari si confermano il principale fattore di mortalità con circa 19 milioni di decessi annuali, seguite dai tumori (circa 10 milioni), dalle malattie respiratorie croniche come BPCO e asma (4 milioni) e dal diabete, con oltre 2 milioni di decessi compresi i danni renali correlati. A guidare questo quadro vi sono fattori di rischio metabolici ormai capillari, tra cui l'ipertensione arteriosa - responsabile da sola di un quarto delle morti per patologie croniche -, la glicemia elevata, l'iperlipidemia e l'obesità.

Nell'Unione Europea l'invecchiamento della popolazione accentua ulteriormente il carico di malattia, dove le NCD sono responsabili dell'86% dei decessi e dell'80% della disabilità complessiva. Le malattie cardiovascolari provocano quasi 1,8 milioni di morti all'anno nell'UE, con una prevalenza dell'ipertensione nettamente superiore rispetto a quella riscontrata in Nord America.

Oncologia - Sul fronte oncologico, l'Europa registra circa 2,6 milioni di nuove diagnosi e 1,2 milioni di decessi l'anno; pur ospitando solo un ottavo della popolazione glo-

bale, il continente assorbe circa un quarto dei casi mondiali di tumore. A ciò si aggiungono le problematiche legate al diabete di tipo 2 e alla malattia renale cronica, che colpiscono ciascuna oltre il 10% della popolazione adulta europea, alimentando un fenomeno di multimorbilità che vede oltre un terzo degli over 50 convivere con due o più patologie croniche contemporaneamente.

In Italia - Lungo lo Stivale il panorama epidemiologico riflette questa tendenza: il 40,5% dei cittadini soffre di almeno una patologia cronica e il 20,8% convive con due o più diagnosi simultanee. La situazione assume tratti ancora più complessi in Campania dove, a fronte della popolazione mediamente più giovane d'Italia (con un'età media di 44,2 anni) e di un indice di invecchiamento in rapida crescita (gli over 65 rappresentano il 20,8% degli abitanti), si registra la speranza di vita alla nascita più bassa del Paese: 79,7 anni per gli uomini e 83,8 anni per le donne.

Un nuovo paradigma - Queste condizioni di salute non possono più essere gestite come eventi clinici acuti e frammentati, ma richiedono percorsi di cura strutturati e continui che accompagnino la persona per l'intero arco dell'esistenza. In tale contesto, la sicurezza del paziente si trasforma da concetto statico ospedaliero a processo dinamico e diffuso sul territorio. Gli infermieri si configurano come i reali garanti di questo percorso di tutela, sostenendo i cittadini e le famiglie attraverso interventi di prevenzione, monitoraggio continuo e continuità assistenziale, per garantire cure sicure, eque e di qualità.

Bibliografia

European Commission & Eurostat

- European Commission. (2022–2023). Healthier Together – EU Non-communicable Diseases Initiative. European Commission Guidance.
- Eurostat. (2024–2025). Eurostat Regional Yearbook: Health statistics at regional level – Diseases of the circulatory system. Luxembourg: Publications Office of the European Union.
- OECD / European Union. (2024–2025). State of Health in the EU – Companion Report. Paris: OECD Publishing.

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ASSISTENZA SICURA PER LA VITA

La sicurezza è un lavoro di squadra

LA CONTINUITÀ DÀ PIÙ VALORE ALL'ASSISTENZA

“Continuità significa esserci anche dopo la diagnosi.”

Gli infermieri accompagnano le persone in ogni fase del percorso di cura, facilitando il passaggio tra ospedale e territorio e garantendo un'assistenza coordinata, sicura e personalizzata.

VICINI IN OGNI FASE DEL PERCORSO
OSPEDALE • TERRITORIO • PERSONA • CONTINUITÀ • QUALITÀ

European Chronic Disease Alliance (ECDA)

- ECDA. (2024). The Burden of Chronic Disease in Europe and Policy Priorities. ECDA Reports.

Institute for Health Metrics and Evaluation (IHME)

- IHME. (2024). Global Burden of Disease Study (GBD). Published in The Lancet.
- Istituto Nazionale di Statistica (Istat)
- Istat. (2025). Indicatori demografici e statistiche sulla salute e cronicità in Campania (Dati 2024-2025). Roma: Istat.

Osservatorio Nazionale sulla Salute nelle Regioni Italiane

- Osservatorio Nazionale sulla Salute nelle Regioni Italiane. (2025). Rapporto Osservasalute 2025: Stato di salute e qualità dell'assistenza nelle regioni italiane.

Roma: Università Cattolica del Sacro Cuore.

World Health Organization (WHO)

- World Health Organization. (2013). WHO Global Action Plan for the Prevention and Control of NCDs 2013–2030. Geneva: WHO.
- World Health Organization. (2021). Global Patient Safety Action Plan 2021–2030: Towards eliminating avoidable harm in health care. Geneva: WHO.
- World Health Organization. (2024–2025). Fact Sheet: Noncommunicable Diseases. Geneva: WHO.
- World Health Organization. (2025). Global Status Report on Noncommunicable Diseases & NCD Progress Monitor. Geneva: WHO.

OpiNapoli informa

Focus Cure sicure

Come proteggere i pazienti vulnerabili nel percorso di cura, sfide e strategie

L'Opi Napoli ha aderito con proprie iniziative alla giornata mondiale promossa dall'Oms. I messaggi riportati nelle locandine della Campagna 2026 "Cure Sicure per la vita" intendono sottolineare alcuni aspetti: prevenire, educare, monitorare, curare e accompagnare. Non lasciare sola la persona. Continuità significa esserci anche dopo la diagnosi. Prendersi cura significa esserci, oggi e domani.

di MARIAROSARIA ESPOSITO

Per entrare consapevolmente nel merito della questione è forse utile chiedersi retoricamente per quale motivo l'Organizzazione mondiale della sanità promuove fortemente la Campagna delle Cure sicure per la vita ai pazienti con malattie non trasmissibili? E proviamo darci delle risposte. Le persone affette da malattie non trasmissibili (NCD) sono particolarmente vulnerabili a causa della natura cronica delle loro patologie, delle continue necessità di trattamento e delle frequenti interazioni con il sistema sanitario. Questa esposizione ripetuta aumenta la probabilità di danni nel tempo. Per alcune patologie fino a 1 paziente su 3 sperimenta eventi avversi durante le cure. I pazienti con NCD necessitano di trattamenti lunghi, complessi e ricorrenti. Di conseguenza, possono essere interessati con maggiore intensità e frequenza da rischi per la sicurezza nel corso del trattamento. L'iniziativa invita a un'azione multisettoriale e multi-stakeholder per garantire che nessuno subisca danni durante le cure per le malattie non trasmissibili.

Gli obiettivi dell'Oms - Aumentare la consapevolezza a livello globale delle sfide relative alla sicurezza dei pazienti associate alle malattie non trasmissibili lungo tutto il percorso di cura, attraverso un approccio di assistenza sanitaria primaria, tenendo conto dei fattori correlati alla malattia, delle sfide del sistema sanitario e dei determinanti della salute che possono aumentare il rischio di danni. Promuovere il coinvolgimento attivo delle persone affette da malattie non trasmissibili e delle comunità nell'identificazione dei rischi per la sicurezza e nello sviluppo congiunto di soluzioni con operatori sanitari, leader di organizzazioni e responsabili politici. Incoraggiare le parti interessate a integrare i

principi di sicurezza del paziente nella legislazione, nelle politiche, nelle strategie e nei programmi relativi alle malattie non trasmissibili, ponendo l'accento sul rafforzamento dei sistemi sanitari orientati all'assistenza sanitaria primaria. Sostenere gli operatori sanitari nel rafforzamento delle pratiche di sicurezza del paziente, come diagnosi più sicure, sicurezza dei farmaci e un coinvolgimento significativo del paziente.

Infermieri e sicurezza – Ma quali strategie possono adottare gli infermieri per la sicurezza delle cure nelle NCD? Innanzitutto dando priorità a un coinvolgimento significativo: Collaborare con le persone affette da malattie non trasmissibili in qualità di membri esperti del team. Promuovere la condivisione delle decisioni: mettere le persone affette da NCD in condizione di riconoscere i rischi, gestire la propria assistenza in modo sicuro e identificare i segnali di allarme che richiedono un intervento. Promuovere la prevenzione e ridurre i rischi: Individuare e affrontare i fattori di rischio modificabili, sostenere stili di vita sani e fornire interventi preventivi basati su prove scientifiche. Garantire l'individuazione precoce e una diagnosi accurata: Ridurre i ritardi, evitare diagnosi mancate o errate mantenendo un elevato indice di sospetto sui rischi correlati alle malattie non trasmissibili e interpretare attentamente i test, soprattutto nelle persone con patologie multiple. Identificare i rischi e prevenire i danni: Adottare misure proattive per prevenire i danni lungo tutto il percorso di cura, come ad esempio le mancate opportunità di prevenzione, le diagnosi tardive o errate, gli errori nella somministrazione dei farmaci, i rischi procedurali e i danni correlati ai dispositivi. Garantire la continuità e il co-

OPI NAPOLI
ORDINE DELLE PROFESSIONI INFERMIERISTICHE DI NAPOLI

ASSISTENZA SICURA PER LA VITA
La sicurezza è un lavoro di squadra

PERSONE, RELAZIONI E UMANITÀ AL CENTRO DELLA CURA

“Ogni persona merita ascolto, rispetto e attenzione.”

Gli infermieri sono al fianco delle persone in ogni momento della loro vita, con competenza, empatia e umanità, per costruire percorsi di cura più sicuri, inclusivi e rispettosi della dignità di tutti.

PIÙ SICUREZZA, PIÙ UMANITÀ, PIÙ SALUTE PER TUTTI
ASCOLTO • RISPETTO • INCLUSIONE • QUALITÀ

World Health Organization

World Patient Safety Day 17 September 2025

CURE SICURE PER LE PERSONE, COMUNITÀ PIÙ SANE

CURE SICURE PER TUTTA LA VITA
PERCHÉ PRENDERSI CURA SIGNIFICA ESSERCI, OGGI E DOMANI.

ordinamento dell'assistenza: Comunicare in modo chiaro, gestire le transizioni in sicurezza e mantenere il follow-up tra i diversi operatori sanitari e contesti assistenziali. I messaggi principali degli Infermieri nella Giornata Cure sicure del 17 settembre 2026 riportano i pilastri fondanti della professione, concretizzando quanto richiamato dall'Oms per diffondere la conoscenza e sensibilizzare tutti verso la sicurezza delle cure, anche coinvolgendo il paziente.

Opi Napoli – I messaggi riportati nelle locandine della Campagna 2026 "Cure Sicure per la vita" dell'Opi Napoli intendono sottolineare alcuni aspetti: "l'impegno nella prevenzione e la cura delle malattie croniche iniziano da piccoli gesti, ma hanno bisogno di continuità. Noi infermieri siamo accanto alle persone in ogni fase della vita: per prevenire, educare, monitorare, curare e accompagnare." "Cure sicure per tutta la vita significa non lasciare sola la persona: prevenire prima, intervenire tempestivamente, curare in sicurezza e accompagnare nel tempo." "Prevenire significa prendersi cura della salute prima che arrivi la malattia". "Diagnosi precoce significa avere più possibilità di intervenire in tempo." "Cure sicure significa usare terapie appropriate e conoscere i propri farmaci". "Continuità significa esserci anche dopo la diagnosi". "Educare significa rendere la persona protagonista della propria salute". "Cure sicure per tutta la vita. Perché prendersi cura significa esserci, oggi e domani."



Cure Sicure per la vita

OpiNapoli informa

Speciale Enpapi

Conoscere la Cassa per ben operare in libera professione

La previdenza non deve essere percepita soltanto come un obbligo contributivo. Se conosciuta, partecipata e amministrata nell'interesse degli iscritti, può diventare un vero alleato dell'infermiere libero professionista.

di ANTONIO SANNINO

Negli ultimi anni la libera professione infermieristica è cresciuta e si è progressivamente differenziata. Accanto all'infermiere che apre uno studio professionale o presta assistenza direttamente al domicilio delle persone, troviamo professionisti che collaborano con strutture sanitarie private, cooperative, società, ambulatori, studi medici, farmacie dei servizi e organizzazioni impegnate nell'assistenza territoriale. È un mondo sempre più ampio, che offre opportunità professionali significative, ma che richiede anche competenze amministrative, fiscali e previdenziali non sempre possedute al momento dell'avvio dell'attività. Le continue richieste di chiarimento che arrivano agli Ordini provinciali ne sono la dimostrazione. Molti infermieri manifestano preoccupazione rispetto all'apertura e alla gestione della partita IVA. Chiedono quali contributi devono essere versati, come si calcolano, quali siano le scadenze, cosa accada quando si svolge contemporaneamente un'attività dipendente e una libero-professionale e quali conseguenze possano derivare da una dichiarazione errata o da un pagamento effettuato in ritardo. Queste preoccupazioni non devono essere sottovalutate. Non sono il segno di una scarsa propensione alla libera professione, ma l'effetto di una formazione ancora insufficiente su materie che incidono direttamente sulla sostenibilità del lavoro autonomo. L'infermiere viene formato per assistere, valutare i bisogni, pianificare gli interventi e assumere responsabilità clinico-assistenziali. Raramente, però, durante il proprio percorso formativo riceve una preparazione adeguata su fatturazione,



fiscalità, contribuzione, determinazione dei compensi, accantonamenti e previdenza professionale. Quando decide di aprire una partita IVA, si trova quindi a gestire un sistema che spesso non conosce e che, proprio per questo, può apparire più complesso e minaccioso di quanto realmente sia.

Che Cos'è - Enpapi è l'Ente Nazionale di Previdenza e Assistenza della Professione Infermieristica. È stato istituito il 24 marzo 1998 per garantire la tutela previdenziale obbligatoria agli infermieri che

esercitano l'attività in forma libero-professionale. Non si tratta di un organismo estraneo alla professione e neppure di un semplice soggetto incaricato di riscuotere contributi. Enpapi è la Cassa previdenziale degli infermieri liberi professionisti: raccoglie e gestisce i contributi, costruisce le posizioni previdenziali individuali ed eroga, al ricorrere dei requisiti previsti, pensioni, prestazioni e interventi assistenziali. Dal 1° gennaio 2012 è stata inoltre istituita la Gestione Separata ENPAPI, destinata a tutelare gli infermieri che svol-

gono attività professionale attraverso rapporti di collaborazione, anche di natura occasionale, nei casi previsti dalla disciplina dell'Ente. Abbiamo quindi due gestioni che rispondono a differenti modalità di esercizio professionale. La Gestione Principale riguarda l'infermiere che esercita autonomamente la libera professione. La Gestione Separata interessa, invece, il professionista che svolge attività mediante determinate forme di collaborazione, con obblighi contributivi posti anche in capo al committente. Comprendere in quale ge-

stione si rientra è fondamentale. Da questa distinzione dipendono le modalità di iscrizione, il calcolo dei contributi, gli adempimenti richiesti al professionista o al committente e le prestazioni alle quali è possibile accedere.

Fiscalità e previdenza - Non sono la stessa cosa. Una delle principali cause di confusione consiste nel sovrapporre la gestione fiscale della partita IVA con la posizione previdenziale ENPAPI. La partita IVA regola il rapporto fiscale del professionista con l'Amministrazione finanziaria. Riguarda, tra gli altri aspetti, il regime fiscale adottato, la fatturazione, la determinazione del reddito imponibile e il pagamento delle imposte. Enpapi si occupa, invece, della previdenza e dell'assistenza obbligatorie. I contributi previdenziali non sono imposte e non devono essere confuse con le somme dovute al fisco. Sono versamenti destinati a costruire la posizione pensionistica del professionista e a finanziare il sistema delle prestazioni previdenziali e assistenziali. Questa distinzione deve essere chiara fin dal primo giorno di attività. L'infermiere non può considerare tutto ciò che fattura o incassa come una disponibilità economica immediatamente utilizzabile. Una parte delle entrate deve essere programmata e accantonata per sostenere i costi professionali, gli obblighi fiscali e quelli previdenziali. La libertà organizzativa propria del lavoro autonomo comporta, infatti, una maggiore responsabilità nella gestione delle proprie risorse. Per questo la sostenibilità della libera professione non dipende soltanto dalla capacità di trovare assistiti o di erogare prestazioni, ma anche dalla possibilità di

determinare compensi adeguati e di programmare correttamente imposte e contributi.

Come funziona la contribuzione

- Per gli infermieri iscritti alla Gestione Principale, la documentazione Enpapi relativa al 2026 prevede un contributo soggettivo pari al 16% del reddito netto derivante dall'attività libero-professionale, un contributo integrativo pari al 4% del volume d'affari e un contributo di maternità determinato annualmente in misura fissa. È prevista, in ogni caso, una contribuzione minima composta da 1.600 euro per il contributo soggettivo, 150 euro per il contributo integrativo e dal contributo di maternità. Quando l'iscrizione avviene nel corso dell'anno, gli acconti minimi vengono frazionati in relazione ai mesi di effettiva iscrizione. Il professionista deve inoltre comunicare annualmente a Enpapi i dati relativi al reddito professionale netto e al volume d'affari prodotti nell'anno precedente. La comunicazione viene effettuata attraverso il Modello UNI disponibile nell'Area Riservata e, secondo il prontuario 2026, deve essere trasmessa entro il 10 settembre. La dichiarazione deve essere inviata anche quando il reddito sia pari a zero o negativo oppure quando la dichiarazione fiscale non sia stata ancora presentata. Questo è uno degli aspetti che più frequentemente genera equivoci: l'assenza di reddito non fa automaticamente venir meno l'obbligo di comunicazione. Il sistema contributivo prevede il pagamento di acconti minimi per l'anno in corso e il successivo conguaglio, calcolato sulla base del reddito e del volume d'affari dichiarati. Per tale ragione è indispensabile



OpiNapoli informa

controllare periodicamente la propria Area Riservata, verificare l'estratto conto contributivo e assicurarsi che i versamenti risultino correttamente registrati.

Gestione separata - Nella Gestione Separata il meccanismo è differente. Il committente deve comunicare mensilmente i dati retributivi e versare la contribuzione, posta per due terzi a proprio carico e per un terzo a carico dell'infermiere. La quota del professionista viene trattenuta direttamente dal compenso. Per il 2026 le aliquote indicate da ENPAPI sono pari al 33,72% per chi non è iscritto ad altre forme di previdenza obbligatoria e non è titolare di pensione, e al 24% per chi è contemporaneamente iscritto a un'altra forma previdenziale obbligatoria oppure è già titolare di un trattamento pensionistico.

Non solo costi - La contribuzione non deve essere vista soltanto come un costo. Quando il professionista riceve una richiesta di pagamento, soprattutto se non

l'aveva programmata, è naturale che percepisca Enpapi come un ulteriore costo della partita IVA. Questa sensazione aumenta quando gli importi si sommano alle imposte, alle assicurazioni, alla formazione, agli strumenti di lavoro e alle altre spese necessarie per esercitare. Tuttavia, continuare a considerare la contribuzione esclusivamente come una somma sottratta al proprio reddito significa non comprenderne pienamente la finalità. I contributi versati alimentano il montante previdenziale sul quale sarà calcolata la futura pensione e finanziano un sistema di protezione che può intervenire anche durante la vita lavorativa. È quindi corretto discutere dell'adeguatezza delle prestazioni, della sostenibilità dei contributi, della qualità dei servizi e dell'efficienza della gestione, ma è altrettanto importante riconoscere la funzione sociale e professionale della previdenza. La questione centrale non è evitare il contributo, ma conoscerlo, calcolarlo correttamente e programmarlo. Un contributo previsto e

accantonato può essere gestito; un contributo ignorato o scoperto troppo tardi rischia di trasformarsi in un problema economico.

E non solo previdenza - La funzione di ENPAPI non si esaurisce nel pagamento della pensione di vecchiaia. L'Ente eroga anche prestazioni di invalidità e inabilità, trattamenti ai superstiti e consente, nei casi previsti, di utilizzare strumenti come il cumulo, la totalizzazione e la ricongiunzione dei periodi contributivi. A queste prestazioni si aggiungono numerosi interventi assistenziali. Per gli iscritti alla Gestione Principale sono previsti, al ricorrere dei requisiti stabiliti, interventi per stato di bisogno, indennità di malattia, contributi per spese funebri, trattamenti economici speciali, borse di studio, sussidi per asilo nido, sostegni per familiari con disabilità, contributi per protesi terapeutiche e per l'acquisto di libri di testo. È la dimostrazione di come la Cassa possa intervenire non soltanto nel momento della pensione o della difficoltà, ma anche per ac-

OpiNapoli informa

compagnare la crescita professionale dell'iscritto. Molti infermieri, però, non conoscono questi strumenti, oppure ne vengono a conoscenza quando i termini per richiederli sono già trascorsi. Avere formalmente una prestazione e non riuscire a renderla conosciuta e accessibile significa ridurne concretamente il valore. La Cassa deve quindi rafforzare la propria capacità di informare gli iscritti, anticiparne i bisogni e accompagnarli nella presentazione delle domande. Non è sufficiente pubblicare un regolamento o un bando: occorre tradurre il contenuto in una comunicazione chiara, comprensibile e realmente fruibile.

Una Cassa non ostile - Dire che Enpapi deve essere un alleato dell'infermiere non significa negare le criticità o rinunciare alla necessaria funzione di controllo sulla sua gestione. Al contrario, significa pretendere una Cassa autorevole, trasparente, prudente nell'amministrazione delle risorse e capace di trasformare i contributi ricevuti in pensioni adeguate, assistenza concreta e servizi utili. Una Cassa alleata deve essere in grado di prevenire gli errori, non soltanto di sanzionarli. Deve informare l'iscritto prima delle scadenze, semplificare le procedure, rendere immediatamente comprensibile la posizione contributiva e fornire risposte coerenti e tempestive. Deve inoltre conoscere l'evoluzione del lavoro infermieristico. Oggi molti professionisti alternano o affiancano lavoro dipendente, libera professione, collaborazioni e incarichi temporanei. Le situazioni lavorative sono più complesse rispetto al passato e richiedono risposte altrettanto competenti. Il rapporto con gli iscritti non può iniziare e concludersi con una richiesta di pagamento. Deve svilupparsi durante l'intera vita professionale, dalla prima apertura della partita IVA fino alla pensione. Anche l'infermiere, tuttavia, deve assumersi la propria parte di responsabilità. L'autonomia professionale non può essere separata dalla consapevolezza amministrativa. Essere liberi professionisti significa saper

governare anche gli aspetti economici, fiscali e previdenziali del proprio lavoro.

La risposta è la formazione - Le domande che arrivano agli Ordini dimostrano la necessità di investire in una vera formazione previdenziale. Non è sufficiente spiegare come aprire una partita IVA. Bisogna aiutare l'infermiere a comprendere il funzionamento complessivo della libera professione: come determinare un compenso sostenibile, come distinguere fatturato e reddito, quali somme accantonare, quali adempimenti effettuare e quali tutele richiedere. Queste conoscenze dovrebbero essere inserite nei percorsi universitari, nella formazione continua e nei programmi di orientamento promossi dagli Ordini. Enpapi dovrebbe essere parte attiva di questo processo, attraverso incontri periodici, strumenti informativi semplici e un dialogo costante con i territori.

Formare significa prevenire. Un professionista informato commette meno errori, pianifica meglio i propri versamenti e sviluppa un rapporto più consapevole con la propria Cassa. Anche in presenza di un consulente competente, l'infermiere deve comunque mantenere il controllo della propria posizione. Delegare non significa disinteressarsi. Significa costruire una collaborazione nella quale il professionista conosce almeno gli elementi essenziali, condivide le scadenze e verifica periodicamente che gli adempimenti siano stati effettuati.

Le elezioni - Le elezioni Enpapi non devono essere considerate un appuntamento distante dalla vita quotidiana degli iscritti. Gli organi della Cassa assumono decisioni che incidono sull'amministrazione dei contributi, sulle prestazioni assistenziali, sui servizi e sulle strategie future dell'Ente. Partecipare significa contribuire alla costruzione del modello di previdenza che vogliamo per la professione infermieristica. Abbiamo bisogno di una Cassa capace di tutelare il futuro pensionistico degli iscritti, ma anche di soste-

nerli durante il percorso professionale. Una Cassa che sappia parlare ai giovani infermieri che iniziano l'attività, ai professionisti che affiancano la libera professione al lavoro dipendente e a coloro che hanno scelto di investire interamente nel lavoro autonomo. Le elezioni devono quindi diventare un'occasione di confronto sui contenuti: trasparenza, sostenibilità, assistenza, formazione, qualità dei servizi e capacità di ascolto.



LIBERA PROFESSIONE INFERMIERISTICA: CONSAPEVOLEZZA E PREVIDENZA.

IL NOSTRO RUOLO E LE SFIDE.



Lavoriamo in contesti diversi (domiciliare, strutture, ecc.). La nostra formazione richiede ora competenze gestionali.



GESTIONE FISCALE VS PREVIDENZIALE.



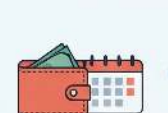
FISCALE
PARTITA IVA:
Gestione con Agenzia Entrate
(Fatture, Reddito, Imposte).



PREVIDENZIALE
ENPAPI: Tutela
Obbligatoria (Contributi,
Futura Pensione, Assistenza).

DISTINGUERE È FONDAMENTALE.

CONTRIBUIRE PER IL FUTURO.



**PAGAMENTI
REGOLARI**
(Acconti & Saldi).



**DICHIARAZIONE
ANNUALE (UNI).**



**FUTURA PENSIONE
& SERVIZI.**

BENEFICI, AUTONOMIA & FORMAZIONE.



SOSTEGNO
(Malattia, Maternità,
Borse di Studio).



**FORMAZIONE
PREVIDENZIALE
CONTINUA.**

INVESTIRE IN FORMAZIONE PER IL NOSTRO FUTURO.

Partecipare alle elezioni e gestire la propria posizione è un atto di responsabilità professionale.

OpiNapoli informa

NSC NURSING

La ricerca infermieristica che parla alla pratica clinica

Nata nel 2016, NSC Nursing, l'approfondimento scientifico curato dall'Opi Napoli è oggi indicizzata in importanti banche dati e sistemi di diffusione della letteratura scientifica, tra cui Scopus, NSC rappresenta un luogo d'incontro tra il sapere accademico e la pratica assistenziale quotidiana. La mission della rivista, fruibile anche come inserto scientifico del magazine Napolisana, consiste nel favorire il trasferimento delle conoscenze scientifiche nella pratica clinica. Il modello Diamond Open Access, ovvero contenuti sono liberamente accessibili a tutti senza costi per chi pubblica i propri lavori.

di NICOLA SERRA

In un contesto sanitario sempre più complesso, dove competenze cliniche, innovazione organizzativa e qualità dell'assistenza devono procedere insieme, la professione infermieristica è chiamata a fondare le proprie decisioni sulle migliori evidenze disponibili. È proprio in questo scenario che si colloca NSC Nursing, la rivista scientifica ufficiale dell'Ordine delle Professioni Infermieristiche (OPI) di Napoli. Nata nel 2016, grazie ad un gruppo di infermieri volenterosi, con l'obiettivo di promuovere e diffondere la cultura della ricerca infermieristica e dell'Evidence-Based Practice, NSC Nursing, fruibile direttamente sul sito ufficiale dell'Opi Napoli e come inserto scientifico del magazin Napolisana, non va considerata solo come una delle poche pubblicazioni specialistiche (sicuramente l'unica edita da un ordine provinciale). NSC Nursing rappresenta un luogo d'incontro tra il sapere accademico e la pratica assistenziale quotidiana. La mission della rivista consiste nel favorire il trasferimento delle conoscenze scientifiche nella pratica clinica, contribuendo al miglioramento continuo della qualità delle cure e della sicurezza dei pazienti.

Diffondere la conoscenza - Uno degli elementi che distingue NSC Nursing nel panorama editoriale è l'adozione del modello Diamond Open Access. Ciò significa che i contenuti sono liberamente accessibili a tutti e che gli autori non sostengono costi per la pubblicazione dei propri lavori. Una scelta che riflette una visione moderna e inclusiva della diffusione del sapere scientifico, abbattendo le barriere economiche che spesso limitano la circolazione della conoscenza. La rivista pubblica articoli originali, revisioni della letteratura, contributi metodologici, esperienze professionali e casi clinici, offrendo uno spazio qualificato per la condivisione di esperienze e risultati di ricerca provenienti dai diversi ambiti delle professioni sanitarie. Gli articoli sono pubblicati solo in lingua inglese,

ma la rivista offre la traduzione gratuita per gli autori che sottomettono i loro articoli in lingua italiana.

Qualità scientifica e riconoscibilità internazionale - La crescita di NSC Nursing non si misura soltanto nella qualità dei contenuti pubblicati, ma anche nella capacità della rivista di consolidare la propria presenza all'interno dei circuiti nazionali e internazionali della comunicazione scientifica.

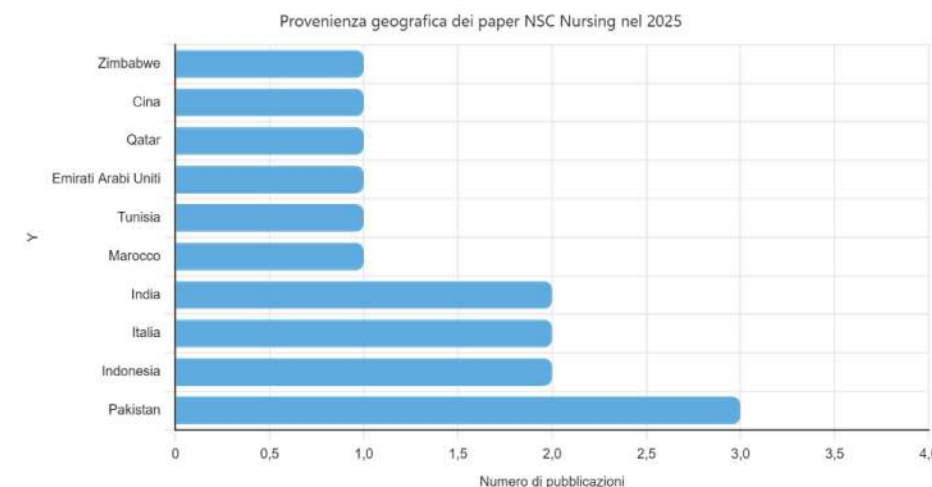
La rivista adotta un rigoroso processo di peer review, elemento fondamentale per garantire la qualità e l'affidabilità scientifica dei contributi pubblicati. La rivista è oggi indicizzata in importanti banche dati e sistemi di diffusione della letteratura scientifica, tra cui Scopus, DOAJ, CINAHL Complete, EMCARE, EBSCO Essentials, ROAD, ZDB, CrossRef, Semantic Scholar e Scilit, ampliando significativamente la diffusione e la reperibilità internazionale dei contributi pubblicati. Un traguardo particolarmente rilevante è rappresentato dal recente ingresso di NSC Nursing in Scopus, uno dei più autorevoli database bibliografici internazionali per la letteratura scientifica. L'inclusione è stata approvata dallo Scopus Content Selection & Advisory Board (CSAB), che ha valorizzato il percorso di sviluppo della rivista, testimoniato anche dalla presenza nelle banche dati DOAJ, EBSCO Essentials e CINAHL Complete. I revisori hanno inoltre evidenziato la chiarezza degli obiettivi editoriali, la coerenza tra mission scientifica e contenuti pubblicati, l'adeguatezza del processo di peer review e l'importante ruolo svolto a supporto della comunità professionale. Nella valutazione è stato inoltre segnalato il crescente interesse della comunità scientifica verso la rivista, testimoniato dall'aumento delle visualizzazioni e delle citazioni degli articoli pubblicati e dalla progressiva apertura verso una partecipazione internazionale sempre più ampia. L'indicizzazione in Scopus rappresenta un'importante attestazione

della qualità scientifica raggiunta da NSC Nursing e costituisce un'opportunità strategica per rafforzare il profilo internazionale, aumentarne l'impatto scientifico e favorire l'attrazione di contributi provenienti da comunità accademiche e professionali sempre più ampie. I dati bibliometrici evidenziano un percorso di crescita costante. Nel quinquennio 2021-2025 sono stati pubblicati 86 articoli scientifici, di cui 15 nel solo 2025, mentre il database Scilit censisce oltre 145 pubblicazioni complessive associate alla rivista (luglio 2026) con un totale di 60 citazioni. Sul fronte dell'impatto scientifico, NSC Nursing ha registrato 48 citazioni nel periodo 2021-2025, alle quali se ne sono aggiunte ulteriori nel corso del 2026, raggiungendo un totale di 60 citazioni censite ad oggi, confermando la progressiva crescita dell'attenzione della comunità scientifica verso i contributi pubblicati. Particolarmente interessante è la distribuzione degli argomenti trattati, che riflette la pluralità della ricerca infermieristica

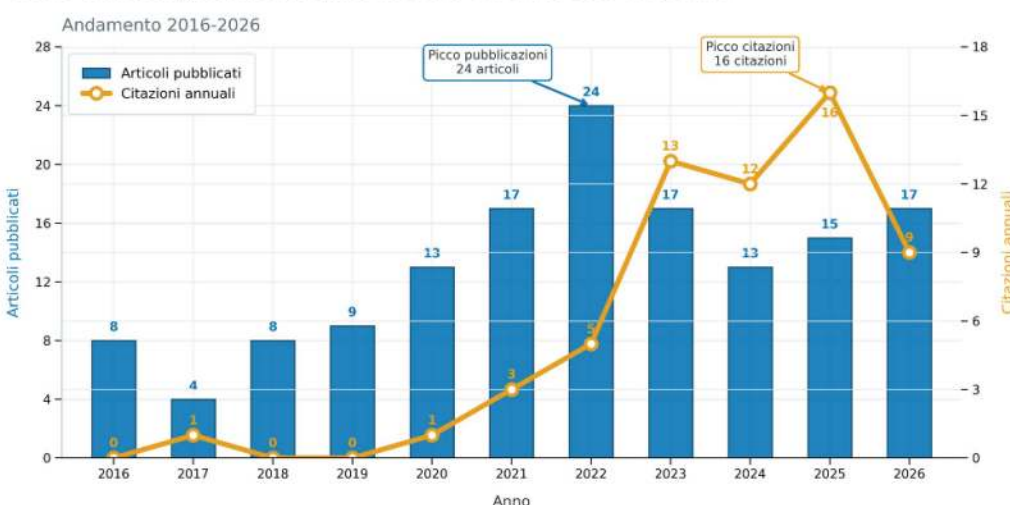
contemporanea. Le principali aree di pubblicazione riguardano l'assistenza al paziente, l'infermieristica ostetrico-ginecologica, le politiche sanitarie, la salute mentale, l'etica professionale e l'assistenza correlata alle malattie infettive, confermando la capacità della disciplina infermieristica di produrre evidenze scientifiche rilevanti in contesti clinici, organizzativi ed educativi. I dati relativi alla provenienza geografica degli autori mostrano inoltre una crescente apertura internazionale. Accanto all'Italia compaiono contributi provenienti da altri Paesi. Nel seguente grafico mostriamo la distribuzione degli articoli per area geografica degli articoli pubblicati solo nel 2025. L'analisi della provenienza dei contributi pubblicati su NSC Nursing conferma la sua doppia anima: una solida radice italiana, coerente con il ruolo della rivista come organo scientifico dell'Opi Napoli, e una progressiva apertura internazionale. Nel corso degli anni, accanto alla produzione nazionale, la rivista ha accolto contributi

provenienti da Indonesia, Stati Uniti, Zimbabwe, Pakistan, Nigeria, India, Qatar, Marocco, Giappone, Spagna, Cina ed altri Paesi. Anche l'analisi delle collaborazioni scientifiche evidenzia una rete

ziali. Significa anche entrare a far parte di una rete professionale che riconosce nella ricerca un motore fondamentale per l'evoluzione della professione infermieristica.



NSC Nursing: articoli pubblicati e citazioni annuali



Fonte: ricostruzione grafica su dati visualizzati nella scheda Scilit NSC Nursing.

di relazioni in progressivo consolidamento, con pubblicazioni sviluppate attraverso collaborazioni internazionali e inter-organizzative. Questo elemento, insieme alla crescente qualità degli indicatori bibliometrici e alla crescente presenza nei sistemi di indicizzazione, contribuisce a rafforzare l'autorevolezza di NSC Nursing nel panorama della ricerca infermieristica.

Un'opportunità per gli infermieri - Per gli infermieri di oggi, essere professionisti significa non solo assistere il paziente, ma anche contribuire alla crescita della disciplina attraverso la produzione e la condivisione di conoscenza. In questo senso, NSC Nursing offre un'importante opportunità di valorizzazione professionale. Pubblicare sulla rivista significa dare visibilità a progetti di ricerca, percorsi di miglioramento organizzativo, esperienze innovative e buone pratiche assien-

Un ponte verso il futuro - L'assistenza sanitaria del futuro richiede professionisti capaci di integrare esperienza clinica, competenze relazionali e conoscenze scientifiche aggiornate. NSC Nursing nasce proprio per sostenere questa evoluzione culturale, offrendo uno strumento autorevole di aggiornamento e confronto.

In un'epoca in cui la qualità delle cure dipende sempre più dalla capacità di tradurre la ricerca in pratica clinica, la rivista dell'Opi Napoli si propone come un punto di riferimento per chi crede in un'infermieristica moderna, competente e protagonista del cambiamento. Per consultare i numeri pubblicati, approfondire le linee editoriali o inviare un contributo scientifico è possibile visitare il sito ufficiale www.nscnursing.it. Una porta aperta sulla ricerca infermieristica e sul futuro della professione.



Ospedali & territorio

Un tablet al letto del paziente: così la terapia diventa digitale

All'Istituto Nazionale Tumori di Napoli i malati oncologici sono tracciati attraverso l'utilizzo di un semplice tablet.



Anche la medicina si avvia sempre più alla completa digitalizzazione: al Pascale di Napoli i pazienti oncologici sono tracciati attraverso l'utilizzo di un semplice tablet. Il medico arriva al letto del paziente, inquadra il braccialetto e sullo schermo del dispositivo compare la terapia. Non deve tornare alla postazione del computer, né cercare la cartella tra i fascicoli. Quando arriva il farmaco, anche quello viene identificato e associato al paziente: dose, lotto, scadenza e ora della somministrazione finiscono nello stesso sistema. È così che una parte delle terapie on-

cologiche vengono digitalizzate. Il progetto è partito da un reparto chirurgico ed è stato poi esteso man mano. Oggi riguarda circa il 90 per cento dei reparti dell'Istituto. Nei percorsi interessanti, la documentazione cartacea è stata eliminata e il tempo necessario per recuperare le informazioni sui pazienti si è dimezzato. Una cartella clinica digitale unica garantisce la piena tracciabilità della prescrizione e della somministrazione, consentendo di offrire a ogni paziente la terapia giusta, al momento giusto. Un cambiamento pratico che si vede soprattutto nel lavoro quotidiano. Il medico ve-

rifica la terapia direttamente al letto, mentre il personale infermieristico registra la somministrazione senza dover ricorrere a una successiva trascrizione su carta. Il farmaco viene identificato attraverso il codice a barre e associato al paziente, con la registrazione dei dati relativi anche a lotto e scadenza. La sperimentazione, intanto, continua ad allargarsi. Tra i prossimi sviluppi ci sono la gestione delle terapie con dosaggi calcolati in base al peso del paziente e una maggiore tracciabilità dei farmaci che vengono trasferiti da un reparto all'altro.

Monaldi, la rivoluzione della chirurgia ORL



Sono ormai circa 170 i pazienti provenienti da altre regioni, molti dei quali dal Nord Italia, che hanno scelto il Monaldi per affrontare interventi complessi per carcinoma della laringe. Un numero in costante aumento che conferma una mobilità sanitaria "al contrario", con cittadini che percorrono centinaia di chilometri per essere operati a Napoli. Un appeal cresciuto da quando l'équipe del professor Tortoriello ha eseguito, per la prima volta nel Mezzogiorno, una orofaringectomia robotica transorale con ricostruzione della faringe per un esteso carcinoma orofaringeo. Si è trattato di un intervento altamente complesso che ha combinato chirurgia tradizionale del collo e chirurgia robotica con sistema Da Vinci nello stesso tempo operatorio. L'obiettivo non era soltanto eliminare completamente il tumore e le metastasi linfonodali, ma anche preservare funzioni fondamentali come deglutizione e respirazione grazie alla ricostruzione robotica della faringe. Con quell'intervento il Monaldi ha ulterio-

mente consolidato la propria esperienza nella chirurgia robotica OR, arrivando a quindici procedure eseguite con la piattaforma Da Vinci. Poche settimane dopo, il riconoscimento è arrivato anche dalla comunità scientifica.

Il primato certificato - Secondo i dati Agenas, la struttura del Monaldi rappresenta oggi la prima Unità Operativa del Sud Italia per volume di chirurgia oncologica otorinolaringoiatrica. Dal 2023 il numero di pazienti extraregionali continua a crescere, segnale di una reputazione ormai consolidata anche oltre i confini della Campania.

Un centro che forma i chirurghi italiani

Il ruolo del Monaldi non si limita all'attività clinica. A giugno l'ospedale ha ospitato il Secondo Corso di Rinoplastica Estetica e Funzionale, richiamando oltre cinquanta specialisti provenienti da ospedali e università di tutta Italia.

In Campania la prima terapia genica per l'Emofilia B

Intervento eseguito all'AOU Federico II di Napoli. La Campania è la seconda regione in Italia a erogare il trattamento.

È stata eseguita con successo presso l'Azienda Ospedaliera Universitaria Federico II di Napoli la prima terapia genica in Campania per la cura dell'emofilia B, una rara patologia ereditaria della coagulazione che espone a un elevato rischio di emorragie, talvolta potenzialmente letali. La somministrazione è stata effettuata presso il Centro Hub per l'Emofilia e le Malattie Emorragiche Congenite, diretto dal prof. Matteo Di Minno, su un paziente cam-

pano di 40 anni. L'AOU Federico II si attesta come uno dei soli due centri in Italia - e tra i pochissimi a livello internazionale - autorizzati ed equipaggiati per effettuare questo trattamento ad altissima specializzazione. Le terapie finora disponibili richiedevano somministrazioni endovenose frequenti, con un forte impatto sulla quotidianità dei pazienti. La nuova terapia genica (Etranacogene Dezaparvovec) segna un cambio di paradigma: si basa, infatti, su un'unica infu-

sione in grado di ripristinare la produzione autonoma del Fattore IX nel fegato, garantendo una copertura terapeutica fino a 25 anni ed eliminando la necessità dei trattamenti tradizionali.





Fine vita, all'Ospedale CTO di Napoli c'è "La Stanza dei Sogni"

Fine vita, all'ospedale Cto di Napoli c'è "La Stanza dei Sogni". Sono 23 i pazienti che dal dicembre 2025 ad oggi sono stati presenti nei loro ultimi momenti nella Stanza dei Sogni dell'ospedale Cto di Napoli: uno spazio riservato nel quale è possibile tutelare la loro dignità e consentire ai familiari di restare accanto ai propri cari. Il progetto di umanizzazione delle cure è stato realizzato presso l'Unità Operativa Complessa di Medicina d'Emergenza-Urgenza dell'Ospedale Cto di Napoli. La stanza è separata dalle aree di degenza ordinaria e di terapia sub-intensiva ed è destinata all'accompagnamento nel fine vita

e, nei casi clinicamente indicati e previsti dalla normativa, alla sedazione palliativa proporzionata. L'obiettivo è assicurare privacy, serenità e vicinanza affettiva, trasformando un ambiente tradizionalmente ospedaliero in un luogo più intimo e familiare. Lo spazio è stato progettato secondo i principi delle cure palliative e dell'umanizzazione dell'assistenza, con particolare attenzione alla luce, al comfort e alla riduzione degli elementi tipicamente sanitari. Il progetto integra medicina, arte e letteratura. La sua ispirazione culturale nasce dal libro "Il Concerto dei Destini Fragili" dello scrittore Maurizio de Giovanni.



Nuova tecnica per parto operativo vaginale

È nato al Policlinico Luigi Vanvitelli di Napoli il primo bambino in Campania venuto alla luce con l'ausilio di una nuova tecnica progettata per supportare la fase espulsiva del parto vaginale, "Odon assist". Con questa applicazione, l'Azienda ospedaliera universitaria diventa il primo centro del Sud Italia selezionato per l'introduzione della nuova tecnica nella pratica clinica. L'intervento è stato eseguito favorendo il contenimento del ricorso al taglio cesareo e la bassa incidenza di complicanze fetali. La nuova tecnica, già validata e impiegata in numerosi centri di eccellenza europei, è stata finora adottata in Italia solo da un numero limitato di strutture, tra cui l'Azienda ospedaliero-universitaria di Parma, il Policlinico universitario Agostino Gemelli di Roma e la clinica Mangiagalli di Milano. La Campania è dunque la prima regione del Mezzogiorno a utilizzarla. Come funziona Nelle fasi finali del lavoro può rendere necessario un parto operativo per tutelare la sicurezza della madre o del feto, finora eseguito principalmente con la ventosa ostetrica. La nuova tecnica prevede invece una sottile guaina morbida e gonfiabile che avvolge delicatamente la testa del bambino, con-



AOV: AZIENDA OSPEDALIERA UNIVERSITARIA Luigi Vanvitelli

sentendo al medico di accompagnare la nascita con una trazione controllata e distribuita in maniera uniforme, anziché concentrata in un solo punto: l'intervento risulta così potenzialmente meno traumatico. "La nuova tecnica - sottolineano i professionisti del reparto - rappresenta uno strumento aggiuntivo nel campo del parto operativo vaginale, che in Italia fino a pochi mesi fa poteva essere eseguito esclusivamente mediante ventosa ostetrica". L'introduzione della nuova tecnica è stata preceduta da un percorso formativo rivolto a ginecologi, ostetriche e anestesisti, con esercitazioni pratiche e simulazioni su manichini dedicati sotto la supervisione di personale esperto nell'utilizzo della metodica. "Il nostro obiettivo - si legge in una nota del policlinico universitario - è offrire alle nostre pazienti i più elevati standard di assistenza al parto. La nascita di un bambino rappresenta un momento straordinario, spesso unico, per i futuri genitori. Per questo il nostro impegno quotidiano è fare in modo che avvenga nel modo più sicuro, sereno e rispettoso possibile, sia per la mamma sia per il bambino".



Boscotrecase, al Sant'Anna un centro d'eccellenza contro il diabete

È attivo a Boscotrecase un ambulatorio che si occupa delle principali complicanze del diabete come il piede diabetico, le lesioni, ferite ed ulcere diabetiche. Il laboratorio è attivo ogni martedì e ci si può avvalere del servizio tramite prescrizione medica, quindi pagando solo il ticket. Un servizio aperto alla popolazione che rappresenta oggi un importante punto di riferimento per il territorio e che registra un'affluenza settimanale di circa 30-35 pazienti. Numeri che testimoniano concretamente la crescente necessità di servizi specialistici dedicati a questa particolare patologia e l'importanza di offrire ai pazienti un percorso di cura strutturato e continuativo. L'obiettivo è quello di mettere il paziente al centro di un percorso di cura completo individuando le cause vascolari della lesione e scegliendo, caso per caso, il trattamento più appropriato. Un'attività che unisce competenza specialistica, esperienza clinica e attenzione alla persona, con l'obiettivo di favorire la guarigione, ridurre il rischio di compli-

canze e migliorare concretamente la qualità della vita dei pazienti. Questa eccellenza ha portato diversi chirurghi vascolari e di riparazione tissutale della Campania e d'Italia a creare l'associazione nazionale Airrt (Associazione italiana in rigenerazione riparazione tissutale) che sarà presentata prossimamente a Napoli. In Campania il diabete è molto diffuso: affligge 500mila persone con una prevalenza compresa tra il 7,3% e l'8,9% della popolazione regionale. Inoltre, molto diffuse sono anche le ferite croniche, le ulcere (spesso complicanze del diabete) e le piaghe da decubito che riguardano soprattutto gli anziani. L'Asl Napoli 3 Sud è dotata, negli ospedali di Gragnano e Sorrento, dei centri d'eccellenza per la chirurgia tissutale, tesa ad intervenire in patologie come le ferite croniche, le ulcere agli arti inferiori, le lesioni da piede diabetico e le piaghe da decubito, tanto da fare scuola anche a ricercatori esteri.





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Health Perceptions Among Citizens in the Province of Barletta-Andria-Trani (BAT), Southern Italy: A Cross-Sectional Study Using the Health Perception Questionnaire (QPS)

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ABSTRACT

Background: Health perception is increasingly recognized as a multidimensional concept encompassing physical, psychological, social, and lifestyle-related dimensions. Understanding how citizens conceptualize health is therefore essential for developing tailored public health strategies and community-based interventions. This study aimed to investigate perceptions of health among citizens and to examine associations with selected sociodemographic and clinical characteristics.

Methods: An observational cross-sectional study was conducted in the Italian province of Barletta-Andria-Trani (BAT), Puglia, Italy. A convenience sample of 257 adults (≥ 18 years) was recruited during public events in five municipalities (Andria, Barletta, Trani, Bisceglie, and Margherita di Savoia). Data were collected using the validated Health Perception Questionnaire (QPS), consisting of 35 Likert-scale items (1–4) addressing lifestyle, psychological, social, and biomedical aspects. Statistical analysis included descriptive analyses, reliability assessment using Cronbach's alpha, chi-square tests, and Fisher's exact tests.

Results: The Health Perception Questionnaire showed excellent internal consistency (Cronbach's $\alpha = 0.940$). Items related to lifestyle behaviors—physical activity, a balanced diet, and adequate sleep—showed the highest agreement rates ($>90\%$), whereas items reflecting a purely biomedical or disease-absence approach received the lowest agreement, particularly the association of a vegetarian diet with the concept of health (52.1%). Chi-square analysis of item-level agreement frequencies identified 28 statistically significant associations.

Conclusion: Citizens of the BAT Province conceptualize health predominantly in biopsychosocial and broadly holistic terms, rejecting a reductionist biomedical model. This study provides local data supporting community-based health promotion programs and nursing practice.

Keywords: health perception, Health Perception Questionnaire (QPS), cross-sectional study, public health, Southern Italy.

INTRODUCTION

Health represents one of the most widely investigated and, at the same time, most debated constructs in the field of public health sciences. The foundational definition of the World Health Organization (WHO)—“a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” [1]—marked a fundamental shift from a purely biomedical approach to a biopsychosocial one. This conceptual shift was further reinforced by the Ottawa Charter for Health Promotion [2], which framed health as a dynamic process constructed through everyday life habits and requiring individual empowerment and intersectoral action.

In recent decades, self-perceived health (SPH) has been regarded as a predictor of morbidity, mortality, and health service use, even after adjustment for objective clinical indicators [3]. SPH reflects not only biological conditions but also psychological resources, social connections, and lifestyle-related behaviors, thereby serving as a comprehensive indicator of population health status. Despite a substantial body of international literature, evidence at the local community level remains limited, particularly in Southern Italy, where socioeconomic and cultural factors may distinctively shape subjective representations and assessments of health.

The Health Perception Questionnaire (QPS) is a validated Italian-language instrument specifically designed to assess citizens’ multidimensional perceptions of health [4]. Unlike generic quality-of-life instruments, the QPS explores not only physical and psychological dimensions but also relational, spiritual, economic, and lifestyle-related aspects. This makes it particularly useful for investigating how populations perceive health at the community level.

The objective of public health initiatives should be to promote citizens’ empowerment, strengthen their agency with regard to their own health, and establish stable mechanisms for participation in decision-making processes that affect them [5]. This orientation is consistent with recent developments in the United Kingdom National Health Service, which, through community-centred and community-powered approaches, aims to build structural partnerships with communities by

involving citizens and local organizations in the design, implementation, and evaluation of services [5].

Healthcare systems and public health institutions should invest in robust social, economic, and professional engagement with community life, in order to develop choices that are as closely aligned as possible with citizens' lived experience. This means moving from "doing health for citizens" to "doing health with citizens" [5].

In this regard, nurses are ethically committed to transforming health policies and ensuring the systematic involvement of individuals and communities in health-related decisions [6]. Knowledge of health determinants makes it possible to direct professional actions toward modifiable factors, namely those susceptible to correction and transformation: individual lifestyles, social and community networks, living and working environments, and, finally, the political, social, economic, and cultural context [7]. Given the evolving and multidimensional nature of the concept under investigation and the need to intervene on factors influencing the health status of individuals and communities, it is essential to understand what the concept of "health" means for each individual. The international literature reviewed reports instruments for measuring outcomes related to subjective health, including those associated with quality of life [8] and perceived well-being [9]; however, in the specific population of the Province of Barletta-Andria-Trani (BAT), the available literature is currently extremely limited. The QPS is an instrument developed and validated by Bonetti et al. [4] with the aim of investigating the concept of health from the citizen's perspective; the present study applies it to this specific geographical population in order to understand which individual variables may influence this concept in the Italian population [4].

Objective

This study, promoted by the University and Research Committee of the Order of Nursing Professions

of BAT Province (OPI-BAT), aims to describe how citizens of the BAT Province conceptualize and perceive health using the Health Perception Questionnaire (QPS), and to explore possible associations between QPS scores and the main sociodemographic and clinical variables.

MATERIALS AND METHODS

Study design

The study used an observational cross-sectional design. Data were collected using a standardized self-administered digital questionnaire delivered via tablet. The questionnaire included the 35-item QPS instrument, organized according to the original validated structure, and an additional section dedicated to participants' sociodemographic and clinical characteristics.

Specifically, data were collected on age, sex, educational level, and occupational status. Clinical and medical-history information was also collected, including the presence of chronic diseases, any recent hospitalizations, and medication use. No additional psychometric instruments or scales other than the QPS were included.

Setting and participants

The study was conducted in five municipalities of the BAT Province in Puglia, Southern Italy, namely Andria, Barletta, Trani, Bisceglie, and Margherita di Savoia. Together, these municipalities account for the majority of the provincial population and provide adequate geographical and sociodemographic heterogeneity. Data were collected during public events, mainly on weekends, in order to maximize access to a heterogeneous adult population. Specifically, recruitment took place during health promotion and health-awareness initiatives organized by the Order of Nursing Professions (OPI-BAT), local health fairs, prevention campaigns, and community meetings open to citizens and organized in collaboration with the Local Health Authority of BAT.

Potential participants were recruited directly by the researchers, who were present at dedicated

information stands or data collection points, and were invited to take part in the study through a brief presentation of its aims and participation procedures. Enrollment was voluntary.

Before participation, all subjects were provided with a digital information sheet, available on the tablets supplied to the researchers, containing the study objectives, data collection and processing procedures, guarantees of anonymity and confidentiality, and the possibility of withdrawing at any time without consequences. Informed consent was therefore obtained electronically directly on the device before completion of the questionnaire.

Data collection took place between 1 February 2026 and 31 March 2026. The inclusion criteria were: age ≥ 18 years, residence or domicile in the BAT Province, voluntary participation, and provision of digital informed consent. The exclusion criteria were: age < 18 years, non-residence in the BAT Province, inability to understand Italian, and refusal to provide consent.

Sampling strategy

The sampling strategy adopted was non-probabilistic and based on quota convenience sampling, defined to proportionally reflect the age distribution of the adult population of the BAT Province according to ISTAT 2023 data [10]: 18–25 years (9.3%, $n = 24$), 26–44 years (30.7%, $n = 79$), 45–64 years (30.7%, $n = 79$), and ≥ 65 years (29.3%, $n = 75$), for a total sample of 257 participants. No formal a priori sample size calculation was performed, as the study was exploratory and descriptive in nature and aimed to provide an initial analysis of the phenomenon under investigation.

Data collection instrument

The QPS [4] is a validated 35-item self-report questionnaire that assesses individuals' perception of health across several dimensions, including lifestyle behaviors, psychological well-being, relational and social aspects, spiritual health, economic factors, and biomedical perspectives.

Each item is rated on a 4-point Likert scale, where 1 indicates strongly disagree and 4 indicates

strongly agree. The questionnaire was administered through the Microsoft Forms digital platform and could be accessed via a QR code. To ensure equitable participation among older adults and individuals with limited digital skills, the study authors were available during all data collection sessions to assist with questionnaire completion, including reading questions aloud when necessary.

Data analysis

Quantitative data were analyzed using Jamovi software (Version 2.6; [11]). Descriptive statistics, including means, standard deviations, and frequency distributions, were calculated for all QPS items and sociodemographic variables. Cronbach's alpha was calculated to assess internal consistency in a geographical and cultural context different from that of the original validation study and thus to evaluate psychometric properties in different populations [12]. Following the method adopted by Bonetti et al. [4], responses to each item were dichotomized into two groups. Ratings of 3 (partially agree) and 4 (strongly agree) were considered agreement and coded as 1. Conversely, ratings of 1 (strongly disagree) and 2 (partially disagree) were classified as disagreement and coded as 0. Agreement frequencies for each item were then analyzed across the following subgroups: sex, age group, regular medication use, and presence of chronic disease, the four variables examined in the original study [4]. The chi-square test (χ^2) was used for all comparisons, and Fisher's exact test was applied when expected cell frequencies were below 5 [13]. For contingency tables showing a statistically significant overall association, post-hoc analyses were conducted using adjusted standardized residuals (ASRs) to identify the specific categories contributing to the observed association. Absolute ASR values greater than 1.96 were considered statistically significant, indicating that the observed frequency differed from the expected frequency under the null hypothesis at a two-tailed significance level of $\alpha = 0.05$ [13]. Positive residuals indicated over-representation, whereas negative residuals indicated under-representation. Statistical significance was set at $\alpha = 0.05$ (two-tailed).

RESULTS

Sample characteristics

A total of 257 participants were included in the analysis. The sociodemographic and clinical characteristics of the sample are shown in Table 1.

Variable	N	%
Sex		
Female	138	53.7
Male	119	46.3
Age group		
18–25 years	24	9.3
26–44 years	79	30.7
45–64 years	79	30.7
≥65 years	75	29.3
Education		
Primary school	32	12.5
Lower secondary school	41	16.0
Upper secondary school	124	48.2
Bachelor's degree	27	10.5
Master's degree	30	11.6
PhD	3	1.2
Chronic disease		
Yes	108	42.0
No	149	58.0
Regular medication use		
Yes	124	48.2
No	133	51.8
Hospitalizations in the previous year		
Yes	38	14.8
No	219	85.2

Table 1. Sociodemographic and clinical characteristics of the sample ($N = 257$).

The sample included 138 women (53.7%) and 119 men (46.3%). The largest age groups were those aged 26–44 years and 45–64 years, with 79 participants in each group, corresponding to 30.7% of the total. Most participants had completed education up to upper secondary school level, with 124 participants, representing 48.2% of the sample. Chronic disease was reported by 108 participants, corresponding to 42.0% of the group. Of the total sample, 124 individuals, or 48.2%, reported regular medication use. In addition, 38 participants, equal to 14.8%, had been hospitalized in the previous 12

months.

Internal reliability

The QPS showed very strong internal consistency across all 35 items (Cronbach's $\alpha = 0.940$), supporting its use as a measure of health perception in this sample.

Descriptive analysis of QPS items

Response distributions for each item (I1–I35) are reported in Table 2.

N	Item	Strongly disagree n (%)	Partially disagree n (%)	Partially agree n (%)	Strongly agree n (%)
1	Health is the desire to live	9 (3.5)	2 (0.8)	103 (40.1)	143 (55.6)
2	A healthy person feels free	8 (3.1)	18 (7.0)	103 (40.1)	128 (49.8)
3	A healthy person is active	8 (3.1)	17 (6.6)	104 (40.5)	128 (49.8)
4	Good sleep promotes health	7 (2.7)	18 (7.0)	79 (30.7)	153 (59.5)
5	A healthy person is able to ask for help	13 (5.1)	21 (8.2)	119 (46.3)	104 (40.5)
6	Physical activity is good for health	6 (2.3)	11 (4.3)	86 (33.5)	154 (59.9)
7	If I need ongoing care, I am ill	9 (3.5)	42 (16.3)	120 (46.7)	86 (33.5)
8	A balanced diet promotes health	6 (2.3)	13 (5.1)	87 (33.9)	151 (58.7)
9	Healthy people are physically fit	12 (4.7)	26 (10.1)	126 (49.0)	93 (36.2)
10	Health is influenced by social relationships	11 (4.3)	30 (11.7)	124 (48.2)	92 (35.8)
11	Healthy people follow a vegetarian diet	60 (23.3)	63 (24.5)	85 (33.1)	49 (19.1)
12	A healthy person is in harmony with themselves and with others	9 (3.5)	20 (7.8)	115 (44.7)	113 (44.0)
13	Taking medication is a sign of illness	28 (10.9)	59 (23.0)	106 (41.2)	64 (24.9)
14	The absence of worries is health	22 (8.6)	45 (17.5)	109 (42.4)	81 (31.5)
15	Family support promotes health	5 (1.9)	25 (9.7)	109 (42.4)	118 (45.9)
16	Having a satisfying sex life is an important component of health	7 (2.7)	26 (10.1)	122 (47.5)	102 (39.7)
17	Relationship difficulties can affect health	8 (3.1)	31 (12.1)	129 (50.2)	89 (34.6)
18	Being healthy means being independent	18 (7.0)	33 (12.8)	99 (38.5)	107 (41.6)
19	Health is influenced by economic well-being	19 (7.4)	27 (10.5)	132 (51.4)	79 (30.7)
20	Spiritual health is important	14 (5.4)	31 (12.1)	110 (42.8)	102 (39.7)
21	Being healthy means being free from worries	26 (10.1)	54 (21.0)	120 (46.7)	57 (22.2)
22	The absence of pain is a sign of good health	31 (12.1)	53 (20.6)	106 (41.2)	67 (26.1)
23	Paying attention to one's environment promotes health	6 (2.3)	26 (10.1)	130 (50.6)	95 (37.0)
24	Psychological problems are a sign of illness	15 (5.8)	44 (17.1)	123 (47.9)	75 (29.3)
25	If I have no physical signs or symptoms, I am healthy	30 (11.7)	48 (18.7)	120 (46.7)	59 (23.0)
26	A healthy person prevents disease	21 (8.2)	31 (12.1)	117 (45.5)	88 (34.2)
27	A healthy person has an active social life	17 (6.6)	28 (10.9)	123 (47.9)	89 (34.6)

28	Healthy people do not have harmful habits (drug use, alcohol misuse, smoking, or gambling)	34 (13.2)	39 (15.2)	112 (43.6)	72 (28.0)
29	Being healthy means being free from disease	19 (7.4)	42 (16.3)	115 (44.7)	81 (31.5)
30	Having a healthy body weight means being healthy	15 (5.8)	26 (10.1)	119 (46.3)	97 (37.7)
31	A healthy person takes care of themselves	9 (3.5)	18 (7.0)	118 (45.9)	112 (43.6)
32	Having a job influences health	8 (3.1)	25 (9.7)	128 (49.8)	96 (37.4)
33	Sharing with others promotes health	9 (3.5)	18 (7.0)	117 (45.5)	113 (44.0)
34	Being depressed means being ill	20 (7.8)	34 (13.2)	114 (44.4)	89 (34.6)
35	Poor health increases vulnerability	7 (2.7)	20 (7.8)	120 (46.7)	110 (42.8)

Table 2. *Distribution of responses to the 35 items of the Health Perception Questionnaire (QPS) (N = 257).*

The five items with the highest level of agreement, corresponding to ratings of 3–4, were: I6—physical activity promotes health (93.4%), I8—a balanced diet promotes health (92.6%), I1—health is the desire to live (95.7%), I4—good sleep promotes health (90.3%), and I3—a healthy person is active (90.3%). Conversely, the items with the lowest levels of agreement were those reflecting a purely biomedical or reductionist view of health: I21—being healthy means being free from worries (68.9%), I22—absence of pain is a sign of good health (67.3%), I25—absence of physical symptoms means health (69.6%), I13—taking medication is a sign of illness (66.1%), and I11—healthy people follow a vegetarian diet (52.1%).

Inferential Analysis

Following the approach of Bonetti et al. [4], agreement frequencies for each QPS item (ratings 3–4) were compared across four sociodemographic and clinical subgroups: sex, age group, regular medication use, and presence of chronic diseases. The chi-square test was applied, while Fisher's exact test was used when expected cell frequencies were below 5 [13]. Statistically significant results ($p < 0.05$) are presented in Table 3. Specifically, the table reports only those items showing at least one significant association ($p < 0.05$) among the items discussed in the text.

Item	Variable	Category	Agree n (%)	Disagree n (%)	χ^2	df	p	Standardized residue (z) [†]
I6) Physical activity promotes health	Sex	Female	124 (48.2%)	14 (5.4%)	6.013	1	0.014	-2.45 ↓
		Male	116 (45.1%)	3 (1.2%)				+2.45 ↑
I11) Healthy people follow a vegetarian diet	Age group	18–25 years	6 (2.3%)	18 (7.0%)	19.416	3	< 0.001	-2.80 ↓
		26–44 years	35 (13.6%)	44 (17.1%)				-1.68
		45–64 years	40 (15.6%)	39 (15.2%)				-0.32
		≥65 years	53 (20.6%)	22 (8.6%)				+3.82 ↑
	Chronic disease	Yes	65 (25.3%)	43 (16.7%)	4.832	1	0.028	+2.20 ↑
		No	69 (26.8%)	80 (31.1%)				-2.20 ↓
I13) Taking medications is a sign of illness	Age group	18–25 years	11 (4.3%)	13 (5.1%)	17.259	3	< 0.001	-2.21 ↓
		26–44 years	47 (18.3%)	32 (12.5%)				-1.50
		45–64 years	49 (19.1%)	30 (11.7%)				-0.93
		≥65 years	63 (24.5%)	12 (4.7%)				+3.88 ↑
	Chronic disease	Yes	79 (30.7%)	29 (11.3%)	4.077	1	0.043	+2.02 ↑
		No	91 (35.4%)	58 (22.6%)				-2.02 ↓
I14) Being free from worries means being healthy	Sex	Female	95 (37.0%)	43 (16.7%)	4.005	1	0.045	-2.00 ↓
		Male	95 (37.0%)	24 (9.3%)				+2.00 ↑
	Age group	18–25 years	9 (3.5%)	15 (5.8%)	22.620	3	< 0.001	-4.27 ↓
		26–44 years	55 (21.4%)	24 (9.3%)				-1.05
		45–64 years	63 (24.5%)	16 (6.2%)				+1.42
		≥65 years	63 (24.5%)	12 (4.7%)				+2.36 ↑
	Regular medication use	Yes	99 (38.5%)	25 (9.7%)	4.340	1	0.037	+2.08 ↑
		No	91 (35.4%)	42 (16.3%)				-2.08 ↓
	Chronic disease	Yes	88 (34.2%)	20 (7.8%)	5.512	1	0.019	+2.35 ↑
		No	102 (39.7%)	47 (18.3%)				-2.35 ↓
I18) Being healthy means being independent	Age group	18–25 years	13 (5.1%)	11 (4.3%)	12.422	3	0.006	-3.35 ↓
		26–44 years	65 (25.3%)	14 (5.4%)				+0.57
		45–64 years	63 (24.5%)	16 (6.2%)				-0.11
		≥65 years	65 (25.3%)	10 (3.9%)				+1.68
	Regular medication use	Yes	106 (41.2%)	18 (7.0%)	4.277	1	0.039	+2.07 ↑
		No	100 (38.9%)	33 (12.8%)				-2.07 ↓
I21) Being healthy means being free from worries	Age group	18–25 years	9 (3.5%)	15 (5.8%)	23.072	3	< 0.001	-3.49 ↓
		26–44 years	48 (18.7%)	31 (12.1%)				-1.87
		45–64 years	56 (21.8%)	23 (8.9%)				+0.46
		≥65 years	64 (24.9%)	11 (4.3%)				+3.66 ↑
	Regular medication	Yes	93 (36.2%)	31 (12.1%)	4.198	1	0.040	+2.05 ↑

Item	Variable	Category	Agree n (%)	Disagree n (%)	χ^2	df	p	Standardized residue (z) [†]
	use							
		No	84 (32.7%)	49 (19.1%)				-2.05 ↓
	Chronic disease	Yes	86 (33.5%)	22 (8.6%)	10.056	1	0.002	+3.17 ↑
		No	91 (35.4%)	58 (22.6%)				-3.17 ↓
I22) Absence of pain is a sign of good health	Age group	18–25 years	9 (3.5%)	15 (5.8%)	29.001	3	< 0.001	-3.27 ↓
		26–44 years	47 (18.3%)	32 (12.5%)				-1.78
		45–64 years	50 (19.5%)	29 (11.3%)				-0.92
		≥65 years	67 (26.1%)	8 (3.1%)				+4.83 ↑
	Regular medication use	Yes	94 (36.6%)	30 (11.7%)	7.852	1	0.005	+2.80 ↑
		No	79 (30.7%)	54 (21.0%)				-2.80 ↓
	Chronic disease	Yes	82 (31.9%)	26 (10.1%)	6.278	1	0.012	+2.51 ↑
		No	91 (35.4%)	58 (22.6%)				-2.51 ↓
I24) Psychological problems are a sign of illness	Age group	18–25 years	14 (5.4%)	10 (3.9%)	16.751	3	< 0.001	-2.29 ↓
		26–44 years	60 (23.3%)	19 (7.4%)				-0.28
		45–64 years	55 (21.4%)	24 (9.3%)				-1.88
		≥65 years	69 (26.8%)	6 (2.3%)				+3.66 ↑
	Chronic disease	Yes	90 (35.0%)	18 (7.0%)	4.168	1	0.041	+2.04 ↑
		No	108 (42.0%)	41 (16.0%)				-2.04 ↓
I25) If I have no physical signs or symptoms, I am healthy	Age group	18–25 years	8 (3.1%)	16 (6.2%)	24.009	3	< 0.001	-4.06 ↓
		26–44 years	53 (20.6%)	26 (10.1%)				-0.59
		45–64 years	54 (21.0%)	25 (9.7%)				-0.30
		≥65 years	64 (24.9%)	11 (4.3%)				+3.51 ↑
	Regular medication use	Yes	95 (37.0%)	29 (11.3%)	5.496	1	0.019	+2.34 ↑
		No	84 (32.7%)	49 (19.1%)				-2.34 ↓
	Chronic disease	Yes	84 (32.7%)	24 (9.3%)	5.822	1	0.016	+2.41 ↑
		No	95 (37.0%)	54 (21.0%)				-2.41 ↓
I26) A healthy person engages in disease prevention	Sex	Female	103 (40.1%)	35 (13.6%)	4.858	1	0.028	-2.20 ↓
		Male	102 (39.7%)	17 (6.6%)				+2.20 ↑
	Regular medication use	Yes	106 (41.2%)	18 (7.0%)	4.853	1	0.028	+2.20 ↑
		No	99 (38.5%)	34 (13.2%)				-2.20 ↓
	Chronic disease	Yes	93 (36.2%)	15 (5.8%)	4.646	1	0.031	+2.16 ↑
		No	112 (43.6%)	37 (14.4%)				-2.16 ↓
I27) A healthy person has an active social life	Chronic disease	Yes	97 (37.7%)	11 (4.3%)	6.919	1	0.009	+2.63 ↑
		No	115 (44.7%)	34 (13.2%)				-2.63 ↓
I28) Healthy people have no vices (drugs,	Age group	18–25 years	12 (4.7%)	12 (4.7%)	10.825	3	0.013	-2.46 ↓

Item	Variable	Category	Agree n (%)	Disagree n (%)	χ^2	df	p	Standardized residue (z) [†]
alcohol, smoking, gambling)		26–44 years	53 (20.6%)	26 (10.1%)				-1.07
		45–64 years	57 (22.2%)	22 (8.6%)				+0.13
		≥65 years	62 (24.1%)	13 (5.1%)				+2.53 ↑
	Regular medication use	Yes	96 (37.4%)	28 (10.9%)	3.996	1	0.046	+2.00 ↑
		No	88 (34.2%)	45 (17.5%)				-2.00 ↓
	Chronic disease	Yes	89 (34.6%)	19 (7.4%)	10.708	1	0.001	+3.27 ↑
		No	95 (37.0%)	54 (21.0%)				-3.27 ↓
I29) Being healthy means the absence of disease	Age group	18–25 years	14 (5.4%)	10 (3.9%)	10.816	3	0.013	-2.17 ↓
		26–44 years	59 (23.0%)	20 (7.8%)				-0.40
		45–64 years	57 (22.2%)	22 (8.6%)				-1.03
		≥65 years	66 (25.7%)	9 (3.5%)				+2.84 ↑
	Regular medication use	Yes	102 (39.7%)	22 (8.6%)	4.755	1	0.029	+2.18 ↑
		No	94 (36.6%)	39 (15.2%)				-2.18 ↓
	Chronic disease	Yes	91 (35.4%)	17 (6.6%)	6.577	1	0.010	+2.56 ↑
		No	105 (40.9%)	44 (17.1%)				-2.56 ↓
I30) Having a healthy weight means being healthy	Chronic disease	Yes	97 (37.7%)	11 (4.3%)	4.622	1	0.032	+2.15 ↑
		No	119 (46.3%)	30 (11.7%)				-2.15 ↓
I34) Being depressed means being ill	Age group	18–25 years	16 (6.2%)	8 (3.1%)	11.511	3	0.009	-1.56
		26–44 years	63 (24.5%)	16 (6.2%)				+0.20
		45–64 years	56 (21.8%)	23 (8.9%)				-2.12 ↓
		≥65 years	68 (26.5%)	7 (2.7%)				+2.95 ↑
	Chronic disease	Yes	94 (36.6%)	14 (5.4%)	7.271	1	0.007	+2.70 ↑
		No	109 (42.4%)	40 (15.6%)				-2.70 ↓

Table 3. Statistically significant associations between QPS items and sample characteristics ($N = 257$). Chi-square test (or Fisher's exact test, where appropriate); percentages were calculated on the total sample.

In the last column of Table 3, the Adjusted standardized residuals (z) derived from post-hoc residual analysis were reported. Absolute values of $|z| > 1.96$ indicate categories that were significantly overrepresented (↑) or underrepresented (↓) relative to expected frequencies ($\alpha = 0.05$, two-tailed test); these values are shown in bold.

Of the 140 combinations tested, comprising 35 items each evaluated across four variables, 28 associations (20.0%) were found to be statistically significant. Age group showed the strongest association, with 11 items displaying significant differences (I11, I13, I14, I18, I21, I22, I24, I25, I28, I29, I34). Items reflecting biomedical or symptom-free conceptions of health exhibited a consistent gradient of increasing agreement across older age groups: I22—absence of pain as an indicator of good health (18–25 years: 37.5% vs. ≥ 65 years: 89.3%), I21—being healthy means being free from worries, I14—absence of worries is health, and I25—absence of physical symptoms indicates good health (all $p < 0.001$). Item I11—healthy people follow a vegetarian diet—showed the steepest age-related gradient, with agreement increasing from 25.0% in the 18–25 age group to 70.7% among participants aged ≥ 65 years ($p < 0.001$).

The presence of a chronic disease was associated with significantly higher agreement on 11 items (I11, I14, I21, I22, I25, I26, I27, I28, I29, I30, I34). Regular medication use was associated with four significant items (I22, I25, I26, I29). Sex differences were limited to two items: I6—physical activity promotes health ($p = 0.028$; males: 97.5% vs. females: 89.9%) and I26—a healthy person engages in disease prevention ($p = 0.041$).

DISCUSSION

The findings of this survey provide a clear picture of how health is conceptualized among residents of the BAT Province. Most participants did not conceptualize health as a narrowly biomedical construct. For most participants, being healthy means being active, maintaining social relationships, eating well, sleeping well, and feeling free, rather than simply being free from disease diagnoses. This perspective is consistent with the World Health Organization's definition of health [1] and with Antonovsky's salutogenic model [14], which conceptualizes health in terms of the resources individuals draw upon to cope with everyday challenges rather than the mere absence of pathology. The QPS showed excellent reliability in this sample. A Cronbach's alpha of 0.940 indicates excellent

internal consistency and confirms the value reported in the Italian validation study [4]. This finding is encouraging, as it suggests that the instrument performs well not only in Northern Italy, where it was originally tested, but also in Southern Italian populations. The five items receiving the highest levels of agreement—physical activity, balanced nutrition, adequate sleep, vitality, and active self-care—indicate a conception of health as an active process, something that is cultivated and maintained rather than simply experienced.

These findings are consistent with a growing body of evidence showing that health beliefs among citizens, both in Italy and internationally, are increasingly oriented toward behavioral determinants of health, moving away from passive and exclusively disease-centred models [15,16]. The fact that 95.7% of respondents agreed with the statement “health is the desire to live” (I1) effectively summarizes this perspective: for the participants in this study, health is not merely the absence of disease but, more importantly, an attitude toward life and the way it is lived [17].

The item generating the greatest disagreement, namely “healthy people follow a vegetarian diet” (I11; 47.9% disagreement), warrants brief consideration. Southern Italy, characterized by one of the world’s most deeply rooted Mediterranean dietary traditions, may have led participants to distinguish between healthy eating and adherence to a specific vegetarian dietary pattern. This finding should not necessarily be interpreted as a rejection of healthy nutrition, but rather as a culturally shaped reluctance to equate health with a single dietary model. Results such as these highlight the importance of interpreting health perception instruments within their cultural context. However, the low level of agreement with this item may not be attributable solely to cultural factors. It may also reflect an inherent limitation in the item’s wording, which appears to imply a direct and exclusive association between health and vegetarianism. This ambiguity has already been noted in the literature [4], and its recurrence in the present sample suggests a potential limitation of the instrument that should be considered in future revision and adaptation processes.

Age emerged as the variable most strongly associated with differences in health perceptions. Older

adults consistently showed higher levels of agreement with items defining health in terms of the absence of symptoms, pain, medication use, or visible signs of illness. This generational difference likely reflects two complementary factors. On the one hand, many individuals aged 65 years and older were socialized within a more traditional conception of health. On the other hand, they have direct experience of age-related physical decline. As individuals experience increasing age-related physical limitations, the absence of symptoms may indeed come to be perceived as synonymous with good health.

Post-hoc analysis of adjusted standardized residuals (ASRs) [14], conducted for all associations found to be significant in the chi-square analyses, provided insight beyond the overall statistical significance by identifying the specific categories contributing most strongly to each association. An adjusted standardized residual measures, for each cell in a contingency table, the difference between observed and expected frequencies under the assumption of independence, expressed in standard deviation units. Absolute values greater than 1.96 indicate a statistically significant deviation ($\alpha = 0.05$), with positive values indicating over-representation and negative values indicating under-representation relative to expected frequencies.

In the present sample, for nearly all items reflecting a biomedical conception of health (I11, I14, I21, I22, and I25), individuals aged ≥ 65 years consistently displayed the highest positive residuals (ASRs ranging from +2.36 to +4.83), whereas participants aged 18–25 years showed the most pronounced negative residuals (ASRs ranging from –2.80 to –4.27). Therefore, it was specifically the oldest age group, rather than a generic age-related trend, that primarily drove the significance of these associations. This level of detail, obtainable only through residual analysis rather than the overall chi-square p -value, strengthens the clinical interpretation that the lived experience of ageing is specifically associated with a symptom-oriented view of health.

Sex differences were limited but interpretable. Men showed higher agreement with items relating to physical activity as a health-promoting behavior (I6) and to the belief that a healthy person actively

prevents disease (I26). These patterns are consistent with previous literature reporting sex-specific health behaviors, whereby men tend to associate health more strongly with physical performance and preventive actions [4]. The absence of significant sex differences across most other items suggests that, at least within this sample, men and women share broadly similar conceptions of health.

Participants with chronic diseases showed higher levels of agreement with biomedical-oriented items (I21, I22, I28, and I29) compared with participants without chronic conditions. At first glance, this finding may appear counterintuitive, as individuals living with chronic illness might be expected to develop a more complex understanding of health. However, the result is consistent with the findings reported by Bonetti et al.; the lived experience of disease may reinforce symptom-centred conceptions of health rather than challenge them. Similarly, individuals who reported regular medication use were more likely to agree that health is characterized by the absence of physical symptoms (I25) and pain (I22). This further suggests that the daily experience of managing health conditions influences—and may sometimes narrow—the way health itself is conceptualized.

From a nursing perspective, perhaps the most noteworthy finding is that participants rarely defined health as merely the absence of disease. Several concepts traditionally emphasized in nursing health education—including physical activity (I6), maintaining a healthy weight (I30), avoiding substance misuse (I28), and practicing active self-care (I31)—received widespread support. This provides nurses with a concrete starting point for health promotion interventions. By encouraging healthy behaviors, nurses can build upon individuals' existing understanding of health rather than attempting to challenge deeply rooted biomedical beliefs. Understanding what health means to each person is not an ancillary aspect of care but a fundamental prerequisite for delivering genuinely person-centred nursing practice.

These findings should also be considered within the broader context of evidence concerning territorial health inequalities in Italy. National studies based on data from the ISTAT Multipurpose Household Survey have consistently shown that self-rated health is less favorable in Southern Italy than in

Central and Northern regions, with this disparity becoming more pronounced in recent years and particularly affecting women [19]. Similar geographic gradients are also reflected in ISTAT indicators of healthy life expectancy, which document a structural disadvantage for Southern Italy compared with the North. This national picture is broadly consistent with the present findings. Despite living in a southern Italian context, residents of the BAT Province reported high levels of agreement with items related to active and health-promoting lifestyles. This suggests that subjective conceptions of health do not necessarily align with objective population health indicators but may instead be shaped by local cultural factors, including the Mediterranean dietary tradition and the strong social and community networks typically found in small- and medium-sized Southern Italian settings. However, it should be noted that, to our knowledge, no other Italian studies have applied the QPS instrument in different provinces or regions. Consequently, direct comparison with the original validation study conducted in Northern Italy [4] remains the only instrument-specific benchmark currently available.

Limitations

Several limitations should be considered when interpreting the findings of this study. First, although the quota convenience sampling strategy was designed to reflect the age distribution of the BAT Province according to ISTAT 2023 data, participants were not selected through random sampling. This introduces a potential risk of selection bias and limits the generalizability of the findings to the entire adult population of the province (approximately 300,000 inhabitants).

Second, the cross-sectional design provides a snapshot of participants' health perceptions at a single point in time and does not allow causal inferences to be drawn regarding the relationships between sociodemographic characteristics and health perceptions.

Third, the dichotomization of Likert-scale responses (1–2 vs. 3–4), although consistent with the methodological approach adopted by Bonetti et al. [4], may have resulted in some loss of information and reduced the discriminative capacity of the analyses.

Additional sources of bias should also be acknowledged. These include social desirability bias, particularly among participants who received assistance from study personnel while completing the questionnaire, potentially leading to unintentional influence on responses; non-response bias, whereby individuals who declined participation may systematically differ from those who took part; and possible incidence–prevalence bias resulting from the over- or under-representation of individuals with chronic diseases or polypharmacy compared with the resident adult population.

Finally, the absence of a formal a priori sample size calculation represents a further limitation. Although this may be justified by the exploratory nature of the study, future research should aim to overcome this limitation through probabilistic sampling strategies and adequately powered study designs.

CONCLUSIONS

In conclusion, residents of the BAT Province generally conceptualize health in a holistic manner, considering not only the body but also lifestyle, interpersonal relationships, and mental well-being as essential components of overall health. A purely biomedical perspective, defining health simply as the absence of disease or symptoms, was endorsed by only a minority of participants. Most respondents recognized that an individual may still perceive themselves as healthy while living with a chronic condition or undergoing ongoing treatment.

This finding is particularly relevant, as it has direct implications for how nurses and other healthcare professionals interact with patients and develop care plans [4]. Future research should employ probabilistic sampling methods across different Italian provinces to determine whether these patterns are consistent nationwide and to explore potential regional differences. Longitudinal studies may also help clarify whether individuals' perceptions of health change over time, for example following significant health-related experiences or as a consequence of ageing. Finally, the QPS appears to be a useful instrument for nursing assessment, as it captures what health means to each individual—

precisely the type of information required to support person-centred care [4].

Ethical Statements

The study protocol received formal approval from the Ethics Committee of the University Hospital of Foggia (Approval No. 17/CE/2026) on 26 February 2026. The study was conducted in accordance with the principles of the Declaration of Helsinki (2013 revision) [18] and the General Data Protection Regulation (GDPR—EU Regulation 2016/679). Digital informed consent was obtained from all participants prior to data collection. Participation in the study was voluntary and completely anonymous. No personally identifiable data were collected from participating subjects.

Conflicts of Interest

The authors declare that they have no conflicts of interest related to this study.

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Author Contributions

Conceptualization: D.P., Data curation: G.G., E.B., D.P., B.D. Formal analysis: E.B. Supervision: F.R., E.B., D.P. Visualization: M.B., G.P., F.R. Writing – original draft: G.G., E.B., V.S. Writing – review & editing: E.B., D.P., G.G. All authors critically revised the manuscript for important intellectual content and approved the final version for submission. E.B. is the corresponding author.

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REFERENCES

1. World Health Organization. Constitution of the World Health Organization. Geneva: WHO; 1948.
2. World Health Organization. Ottawa Charter for Health Promotion. Geneva: WHO; 1986.
3. Idler EL, Benyamini Y. Self-rated health and mortality: a review of twenty-seven community studies. *J Health Soc Behav.* 1997;38(1):21-37. doi:10.2307/2955359
4. Bonetti L, Demarchi A, Terzoni S, et al. *Cos'è la salute per te? Sviluppo e validazione del Questionario sulla Percezione della Salute (QPS) nella popolazione italiana* [What is health for you? Development and validation of the Health Perception Questionnaire (QPS) in the Italian population]. *L'Infermiere.* 2023;60(4):e178-89.
5. South J. A guide to community-centred approaches for health and wellbeing. London: Public Health England/NHS England; 2015. Available from:
<https://www.gov.uk/government/publications/health-and-wellbeing-a-guide-to-community-centred-approaches>
6. Federazione Nazionale degli Ordini delle Professioni Infermieristiche (FNOPI). Commentario al Codice Deontologico delle Professioni Infermieristiche. Roma: FNOPI; 2019. Available from:
<https://www.fnopi.it/wp-content/uploads/2020/06/Commentario-CD-.pdf>
7. International Council of Nurses (ICN). The ICN Code of Ethics for Nurses. Geneva: ICN; 2019. Available from:
https://www.icn.ch/sites/default/files/inline-files/ICN_Code-of-Ethics_EN_Web.pdf.
8. Ware JE, Gandek B. Overview of the SF-36 Health Survey and the International Quality of Life Assessment (IQOLA) Project. *J Clin Epidemiol.* 1998;51(11):903-12. doi:10.1016/S0895-4356(98)00081-X
9. Topp CW, Østergaard SD, Søndergaard S, et al. The WHO-5 Well-Being Index: a systematic review of the literature. *Psychother Psychosom.* 2015;84(3):167-76. doi:10.1159/000376585

10. Istituto Nazionale di Statistica (ISTAT). Dati demografici territoriali—Provincia Barletta-Andria-Trani. Rome: ISTAT; 2023 [cited 2026 Jun 6]. Available from: <https://www.istat.it>
11. The jamovi project. *jamovi* (Version 2.6) [computer software]. 2024 [cited 2026 Jun 6]. Available from: <https://www.jamovi.org>.
12. Nunnally JC, Bernstein IH. Psychometric theory. 3rd ed. New York: McGraw-Hill; 1994.
13. Sheskin DJ. *Handbook of Parametric and Nonparametric Statistical Procedures*. 4th ed. Boca Raton: Chapman & Hall/CRC; 2004.
14. Antonovsky A. Unraveling the mystery of health: how people manage stress and stay well. San Francisco: Jossey-Bass; 1987.
15. Blaxter M. Health and lifestyles. London: Tavistock/Routledge; 1990.
16. Huber M, Knottnerus JA, Green L, et al. How should we define health? BMJ. 2011;343:d4163. doi:10.1136/bmj.d4163.
17. Botter C, Nobile S, Arcadi P, et al. *Cos'è la salute per te? Studio qualitativo sul significato di salute percepito dai cittadini* [What is health for you? A qualitative study on citizens' perceived meaning of health]. *L'Infermiere*. 2019;56:e81-e93. Available from: <https://www.infermiereonline.org/2019/12/13/cose-la-salute-per-te-studio-qualitativo-sul-significato-di-salute-percepito-dai-cittadini/>
18. World Medical Association. Declaration of Helsinki: ethical principles for medical research involving human subjects. JAMA. 2013;310(20):2191-4. doi:10.1001/jama.2013.281053.
19. Piazzoni C, Terraneo M. Le disuguaglianze territoriali di salute in Italia. In: Perocco F, Pirina G, editors. *Le disuguaglianze territoriali in Italia: cause, forme, conseguenze*. Venezia: Edizioni Ca' Foscari; 2025. doi:10.30687/978-88-6969-991-7/005.

INTENTION TO LEAVE AMONG COMMUNITY, HOME CARE AND PRIMARY HEALTH CARE NURSES: A SCOPING REVIEW

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ABSTRACT

Introduction: Intention to leave (ITL) is a relevant predictor of nurse turnover and workforce instability. While extensively studied in hospital settings, evidence in community, home care, and primary health care remains limited despite the growing relevance of these services.

Objective: To map the available evidence on ITL among nurses working in community, home care, and primary health care settings and to identify associated factors.

Materials and Methods: A scoping review was conducted and reported according to the PRISMA-ScR framework. Six electronic databases were searched, applying a publication-date restriction from January 2016 to May 2026. Studies focusing on ITL among nurses working in out-of-hospital settings were included and analyzed using a narrative synthesis approach.

Results: Thirty studies were included. Findings indicate that ITL is influenced by a complex interaction of factors, which can be grouped into two main domains: management factors (e.g., leadership, organizational support, professional autonomy) and context factors (e.g., workload, burnout, moral distress, work environment characteristics).

Conclusion: These findings suggest that ITL emerges when job demands exceed available resources, in line with the Job Demands–Resources model. Unlike evidence derived predominantly from hospital settings, this review suggests that intention to leave in community and home care is shaped not only by common organizational factors but also by setting-specific characteristics, including the dual role of professional autonomy, professional isolation, and delegation practices. These findings extend current evidence by providing a context-specific framework for interpreting ITL in out-of-hospital nursing services.

Keywords: intention to leave; community nursing; home care nursing; nurse retention; organizational support

INTRODUCTION

Over recent decades, intention to leave (ITL) is regarded as an important predictor of professional turnover. This concept refers to the intentional, yet not enacted, decision to leave one's current job or, in some cases, the profession itself. ITL represents an intermediate stage between job dissatisfaction and actual turnover and is therefore relevant for understanding and potentially preventing the loss of qualified nursing personnel [1].

Although research on nursing turnover has developed substantially in hospital settings [2,3], evidence on nurses working in community, primary health care and home care settings remains limited. This gap is increasingly relevant given the growing shift of healthcare systems towards community-based models of care in response to population ageing, the growing prevalence of chronic conditions, and the need for greater continuity of care [2,4,5].

Although terminology and service organization vary across healthcare systems, these settings share the provision of nursing care outside hospital environments. Community, primary health care and home care nurses play an essential role in health promotion, integrated care pathway management, care of frail people and family support [6].

Working in these settings often involves substantial professional autonomy, limited direct supervision, physical distance from teams, and the management of complex situations in non-standardized environments such as patients' homes [4,7]. When adequate organizational and professional support is lacking, these characteristics may contribute to professional isolation, stress, and ITL [8].

Objective

The aim of this review was to map the available evidence on ITL among nurses working in community, home care, and primary health care settings and to identify associated factors, addressing a gap in the literature on out-of-hospital nursing contexts.

MATERIALS AND METHODS

This study is a scoping review conducted and reported in accordance with the JBI methodology for scoping reviews [9] and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) [10,11]. This approach was chosen due to the exploratory nature of the research question and the heterogeneity of the available evidence in terms of study designs, settings, and definitions of ITL, which required a broad mapping of the literature rather than a narrowly focused synthesis. In line with JBI guidance, the review adopted the PCC (Population, Concept, Context) framework to define the research question and eligibility criteria.

Search Strategy

The final literature searches were conducted on May 26, 2026, across six electronic databases: PubMed, Scopus, CINAHL (via EBSCOhost), Web of Science Core Collection, PsycINFO (via EBSCOhost), and the Cochrane Library, using the database-specific search strategies reported in Table 1. The publication-date restriction (January 2016 to May 2026) was applied using the database interface filters rather than being incorporated into the search strings. To identify keywords to be included in the search strategy, two researchers (EL, FM) independently performed a preliminary review of the literature on the topic. Any disagreements between reviewers were resolved by discussion with a third researcher (ARM). The search strategy primarily relied on free-text terms to maximize sensitivity across databases with different indexing systems, in a field characterized by heterogeneous terminology. A consistent core search strategy was applied across databases to ensure comparability, with minor adaptations where appropriate. The use of multiple databases with complementary indexing systems was intended to enhance overall coverage and reduce the risk of missing relevant studies. Grey literature was not included because the primary aim of this review was to map evidence derived from peer-reviewed scientific literature. Restricting the review to peer-reviewed sources was considered appropriate to ensure methodological

consistency and comparability across studies.

Search Strategy	Database	Search date	Results
((nurs*[tiab] OR nurse[tiab] OR nurses[tiab] OR "Nurses"[Mesh] OR "Community Health Nursing"[Mesh] OR "Public Health Nursing"[Mesh]) AND (turnover[tiab] OR "turnover intention"[tiab] OR "turnover intentions"[tiab] OR "intention to leave"[tiab] OR "intent to leave"[tiab] OR "intention-to-leave"[tiab] OR "intention to stay"[tiab] OR "intent to stay"[tiab] OR retention[tiab] OR attrition[tiab] OR resignation[tiab] OR "intention to quit"[tiab] OR "intent to quit"[tiab] OR "Personnel Turnover"[Mesh]) AND ("community care nursing"[tiab] OR "primary health care nursing"[tiab] OR "home healthcare nursing"[tiab] OR "transitional care"[tiab] OR "care continuum"[tiab] OR "hospital to home"[tiab] OR "community nursing"[tiab] OR "community health nursing"[tiab] OR "primary care nursing"[tiab] OR "primary healthcare nursing"[tiab] OR "primary health care"[tiab] OR "home care nursing"[tiab] OR "home health care nursing"[tiab] OR "home nursing"[tiab] OR "home care"[tiab] OR "domiciliary care"[tiab] OR "district nursing"[tiab] OR "community-based care"[tiab] OR "community-based nursing"[tiab] OR "community healthcare"[tiab] OR "community health services"[tiab] OR "local health services"[tiab] OR "out-of-hospital care"[tiab] OR "ambulatory care"[tiab] OR "continuity of care"[tiab] OR "Primary Health Care"[Mesh] OR "Home Care Services"[Mesh] OR "Home Nursing"[Mesh] OR "Community Health Services"[Mesh] OR "Community Health Nursing"[Mesh] OR "Continuity of Patient Care"[Mesh] OR "Transitional Care"[Mesh] OR "Ambulatory Care"[Mesh]))	PubMed	May 26, 2026	1643 results
((MH "Nurses+") OR (MH "Community Health Nursing+") OR (MH "Public Health Nursing+") OR TI nurs* OR AB nurs*) AND ((MH "Personnel Turnover+") OR TI (turnover OR "turnover intention" OR "turnover intentions" OR "intention to leave" OR "intent to leave" OR "intention to stay" OR "intent to stay" OR retention OR attrition OR quitting OR "leaving the profession" OR resignation OR "intention to quit" OR "intent to quit") OR AB (turnover OR "turnover intention" OR "turnover intentions" OR "intention to leave" OR "intent to leave" OR "intention to stay" OR "intent to stay" OR retention OR attrition OR quitting OR "leaving the profession" OR resignation OR "intention to quit" OR "intent to quit")) AND ((MH "Primary Health Care+") OR (MH "Home Health Care+") OR (MH "Home Nursing+") OR (MH "Community Health Services+") OR (MH "Community Health Nursing+") OR (MH "Continuity of Patient Care+") OR (MH "Transitional Care+") OR (MH "Ambulatory Care+") OR TI ("community care nursing" OR "primary health care nursing" OR "home healthcare nursing" OR "territorial nursing care" OR "transitional care" OR "care continuum" OR "hospital to home" OR "community nursing" OR "community health nursing" OR "primary care nursing" OR "home care nursing" OR "home nursing" OR "home care" OR "district nursing" OR "public health nursing" OR "family nursing" OR "visiting nurses" OR "visiting nurse" OR "domiciliary care" OR "community-based care" OR "community health services" OR "out-of-hospital care" OR "continuity of care" OR	CINAHL	May 26, 2026	915 results

Search Strategy	Database	Search date	Results
"primary health care") OR AB ("community care nursing" OR "primary health care nursing" OR "home healthcare nursing" OR "territorial nursing care" OR "transitional care" OR "care continuum" OR "hospital to home" OR "community nursing" OR "community health nursing" OR "primary care nursing" OR "home care nursing" OR "home nursing" OR "home care" OR "district nursing" OR "public health nursing" OR "family nursing" OR "visiting nurses" OR "visiting nurse" OR "domiciliary care" OR "community-based care" OR "community health services" OR "out-of-hospital care" OR "continuity of care" OR "primary health care"))			
((nurs* OR nurse OR nurses) AND (turnover OR "turnover intention" OR "turnover intentions" OR "intention to leave" OR "intent to leave" OR "intention-to-leave" OR "intention to stay" OR "intent to stay" OR retention OR attrition OR resignation OR "intention to quit" OR "intent to quit") AND ("community care nursing" OR "primary health care nursing" OR "home healthcare nursing" OR "transitional care" OR "care continuum" OR "hospital to home" OR "community nursing" OR "community health nursing" OR "primary care nursing" OR "primary healthcare nursing" OR "primary health care" OR "home care nursing" OR "home health care nursing" OR "home nursing" OR "home care" OR "domiciliary care" OR "district nursing" OR "community-based care" OR "community-based nursing" OR "community healthcare" OR "community health services" OR "local health services" OR "out-of-hospital care" OR "ambulatory care" OR "continuity of care"))	Cochrane Library	May 26, 2026	7 results
((nurs* OR nurse OR nurses) AND (turnover OR "turnover intention" OR "turnover intentions" OR "intention to leave" OR "intent to leave" OR "intention-to-leave" OR "intention to stay" OR "intent to stay" OR retention OR attrition OR resignation OR "intention to quit" OR "intent to quit") AND ("community care nursing" OR "primary health care nursing" OR "home healthcare nursing" OR "transitional care" OR "care continuum" OR "hospital to home" OR "community nursing" OR "community health nursing" OR "primary care nursing" OR "primary healthcare nursing" OR "primary health care" OR "home care nursing" OR "home health care nursing" OR "home nursing" OR "home care" OR "domiciliary care" OR "district nursing" OR "community-based care" OR "community-based nursing" OR "community healthcare" OR "community health services" OR "local health services" OR "out-of-hospital care" OR "ambulatory care" OR "continuity of care"))	Scopus	May 26, 2026	698 results
((DE "Nurses" OR DE "Community Health Nursing" OR TI(nurs* OR nurse OR nurses) OR AB(nurs* OR nurse OR nurses)) AND (DE "Employee Turnover" OR TI(turnover OR "turnover intention" OR "turnover intentions" OR "intention to leave" OR "intent to leave" OR "intention-to-leave" OR "intention to stay" OR "intent to stay" OR retention OR attrition OR resignation OR "intention to quit" OR "intent to quit") OR AB(turnover OR "turnover intention" OR "turnover intentions" OR "intention to leave" OR "intent to leave" OR "intention-to-leave" OR "intention to stay" OR "intent to stay" OR retention OR attrition OR resignation OR "intention to quit" OR "intent to quit")) AND (DE "Primary Health Care" OR DE "Home Care" OR DE "Community Health Services" OR TI("community care nursing" OR "primary health care nursing" OR "home healthcare nursing" OR "transitional care" OR "care continuum" OR "hospital to home" OR "community nursing" OR	PsycInfo	May 26, 2026	128 results

Search Strategy	Database	Search date	Results
"community health nursing" OR "primary care nursing" OR "primary healthcare nursing" OR "primary health care" OR "home care nursing" OR "home health care nursing" OR "home nursing" OR "home care" OR "domiciliary care" OR "district nursing" OR "community-based care" OR "community-based nursing" OR "community healthcare" OR "community health services" OR "local health services" OR "out-of-hospital care" OR "ambulatory care" OR "continuity of care") OR AB("community care nursing" OR "primary health care nursing" OR "home healthcare nursing" OR "transitional care" OR "care continuum" OR "hospital to home" OR "community nursing" OR "community health nursing" OR "primary care nursing" OR "primary healthcare nursing" OR "primary health care" OR "home care nursing" OR "home health care nursing" OR "home nursing" OR "home care" OR "domiciliary care" OR "district nursing" OR "community-based care" OR "community-based nursing" OR "community healthcare" OR "community health services" OR "local health services" OR "out-of-hospital care" OR "ambulatory care" OR "continuity of care")))			
((nurs* OR nurse OR nurses) AND (turnover OR "turnover intention" OR "turnover intentions" OR "intention to leave" OR "intent to leave" OR "intention-to-leave" OR "intention to stay" OR "intent to stay" OR retention OR attrition OR resignation OR "intention to quit" OR "intent to quit") AND ("community care nursing" OR "primary health care nursing" OR "home healthcare nursing" OR "transitional care" OR "care continuum" OR "hospital to home" OR "community nursing" OR "community health nursing" OR "primary care nursing" OR "primary healthcare nursing" OR "primary health care" OR "home care nursing" OR "home health care nursing" OR "home nursing" OR "home care" OR "domiciliary care" OR "district nursing" OR "community-based care" OR "community-based nursing" OR "community healthcare" OR "community health services" OR "local health services" OR "out-of-hospital care" OR "ambulatory care" OR "continuity of care")))	Web of Science	May 26, 2026	375 results

Table 1. Search strategy.

Inclusion and Exclusion Criteria

The review question was developed according to the JBI methodology for scoping reviews [9] using the Population, Concept and Context (PCC) framework, which guided the definition of review objectives and inclusion and exclusion criteria.

Population: Studies involving nurses who provide direct patient care in community, home care, and primary health care settings were included. Studies conducted on samples composed of students, other healthcare professionals or hospital staff were excluded.

Concept: This scoping review examined the relationship between the work setting and ITL.

Regarding the organizational context, all studies investigating predictive or protective factors associated with ITL were included, without restriction to specific variables.

Context: This scoping review included studies investigating intention to leave in community, home care, and primary health care settings, excluding hospital-based or residential institutional care contexts. For the purpose of this review, setting classification was based primarily on the characteristics of the service and care delivery model described in the full text, rather than solely on the terminology used by the original authors, given the variability of definitions across healthcare systems. For classification purposes, home care referred to nursing care delivered primarily in patients' homes; primary health care to nursing care delivered within first-contact, community-based primary care services; and community care to nursing services delivered outside hospital and residential institutional settings to individuals or populations within the community. Mixed-setting studies were considered eligible when the community, home care, or primary health care component was clearly identifiable. When setting-specific findings could not be separately extracted, these findings were not interpreted as direct evidence specific to out-of-hospital nursing. Studies conducted in long-term care facilities, nursing homes, residential aged-care settings, or other institutional care environments were excluded, as these settings are characterized by organizational structures, workforce models, and care processes that differ substantially from community-based nursing services. To enhance the applicability of findings to routine community nursing practice, studies conducted exclusively on working conditions during the acute COVID-19 emergency and whose findings were confined to the pandemic crisis context were excluded. Studies examining experiences across the pandemic and the subsequent transition or recovery period were considered eligible when they provided findings relevant to intention to leave or workforce retention beyond the acute emergency phase. Studies focused on highly specific rural or remote community contexts were also excluded, given the exceptional circumstances and contextual factors that may limit transferability to broader community care settings.

Evidence Sources and Selection

Primary and secondary studies were considered for inclusion, regardless of methodological design, provided they were published in English or Italian. Potential overlap between primary studies included directly in the review and primary studies represented within the included secondary evidence sources was assessed by cross-checking the studies included in each review against the primary studies included in the present scoping review. To ensure the inclusion of contemporary evidence relevant to current community nursing practice and workforce dynamics, only studies published between January 2016 and May 2026 were considered eligible. Studies involving populations other than nurses, editorials and articles published in languages other than English or Italian were excluded. In addition, backward and forward citation tracking (snowballing) was undertaken for all included studies to enhance the comprehensiveness of the search process and reduce the risk of missing relevant evidence. Records identified through citation tracking were screened independently by two reviewers and assessed against the same eligibility criteria applied to studies retrieved from electronic databases.

Study Selection

Results retrieved from database searches were uploaded to Rayyan [12], which enabled the removal of duplicates and the initial screening of titles and abstracts by two reviewers (EL and FM). Any disagreements were resolved through consultation with a third independent reviewer (ARM). Full-text eligibility assessment was subsequently conducted independently by the same two reviewers (EL and FM) against the predefined inclusion and exclusion criteria. Disagreements at this stage were resolved through discussion and, when necessary, consultation with the third reviewer (ARM). A complete list of reports excluded after full-text assessment, including reports identified through database searching and citation tracking, together with the primary reason for exclusion, is provided in Table 2 (Appendix, pp. 51–55). The screening process was subsequently reported using the

PRISMA flow diagram [13].

Data Extraction

Data were extracted from the included studies in accordance with the JBI Manual [9]. A structured data extraction form was used, and the process was conducted independently by two reviewers, with discrepancies resolved through discussion with a third reviewer. Extracted data included author(s), year, aim, study design, setting, sample, factors associated with ITL, and key findings relevant to the review objective.

Data Synthesis

The extracted data were synthesized using a narrative approach and presented in tables, as recommended by the JBI Manual [9]. Thematic categories were developed through an iterative process of grouping and comparison of the extracted data. Factors associated with ITL were first examined for conceptual similarity and then compared across studies. Similar factors were iteratively grouped into broader thematic categories through discussion among the reviewers until consensus was reached. Data were finally aggregated and summarized within the identified thematic areas according to their conceptual similarity and relevance to the review objective.

RESULTS

By applying the previously described selection criteria, of the 3,766 articles initially identified through the database search, 1,236 duplicates retrieved from multiple sources were removed. Therefore, a total of 2,530 records remained. Blind screening of titles and abstracts led to the exclusion of 2,468 studies. Of the 62 articles that met the criteria based on title and abstract, a further 38 were excluded after full-text review because they did not meet the inclusion criteria and were not consistent with the review question (wrong outcome, 12; wrong population, 22; wrong

publication type, 4). Twenty-four studies met the eligibility criteria following full-text assessment. An additional six studies were identified through citation tracking and met the eligibility criteria, resulting in a total of 30 studies included in the final synthesis (Figure 1, Appendix, p. 50).

Study Characteristics

Among the 30 articles included, 21 were primary studies and 9 were secondary evidence sources [14–22], including systematic, integrative, and qualitative reviews. No primary study included directly in the present review was also represented within the included secondary evidence sources. The publication period ranged from 2016 [14,23–26] to 2026 [15,27,28].

The geographical area most represented among the primary studies was the United States, with seven studies [23,24,28–32]. The remaining studies were conducted in Canada [25,26,33], United Kingdom [27,34], Australia [35], Brazil [36], China [37], Italy [38], Sweden [39], Japan [40], North Macedonia [41] and Portugal [42], while one study [43] was conducted across healthcare institutions in multiple European countries and included a community/home care subgroup. Most primary studies were conducted in community or primary health care settings [24,27,30–32,34,37], four studies were carried out in home care settings [26,36,38,40], while ten studies analyzed data from multiple care settings [23,25,28,29,33,35,39,41–43].

Regarding study design, most of the primary studies (sixteen studies) were cross-sectional surveys [23–28,30–32,36–42]. In addition, two qualitative research [33,34], a mixed-methods study was identified [35], a retrospective analysis [29] and one longitudinal study [43] were identified. The sample sizes ranged from 107 participants [35] to 1,625,288 participants [28]. The main characteristics of the included studies are reported in Table 3 (Appendix, pp. 56–62).

The main factors associated with higher ITL among community and home care nurses were low job satisfaction [18]; burnout, particularly emotional exhaustion [19,36]; excessive workload, demanding shifts, and operational or care-related difficulties [16,19,21,28,34,38]; unfavorable

organizational contexts and inadequate management practices [16,19,21]; insufficient organizational and managerial support [16,34,35,37]; difficulties in collaboration, poor teamwork, and professional isolation [21,35]; moral distress and disillusionment with the profession [19,21,34]; low organizational commitment [18,42]. Conversely, the protective factors against ITL identified across the included studies were high job satisfaction [18]; organizational support, perceived fairness, and work engagement [16,37]; organizational commitment [18,42]; supportive leadership, mentoring, orientation, and structured preceptorship programs [14,24,34]; decision-making autonomy and opportunities for delegation [29]; a better work-life balance, positive work experiences, and the meaningfulness of relationships with patients and families [35]; and nurses' participation in organizational processes, better scheduling management, and adequate employment benefits [23]. Based on the narrative synthesis and the iterative grouping process described in the Methods section, the factors associated with ITL were organized into two main thematic domains: Management Factors and Context Factors. These domains were used to organize and summarize the factors identified across the included studies according to their conceptual similarity.

Management Factors

Management-related factors were frequently reported across the included studies. Leadership [21], organizational support [14], professional empowerment, participation in organizational processes [21,29], professional development and career progression [14,16,34] and organizational commitment emerged as factors associated with ITL or retention [42]. Across the available evidence, supportive leadership, structured orientation, mentoring, preceptorship, teamwork, and perceived organizational support were associated with lower ITL, whereas inadequate management practices, limited support, poor recognition, and perceived unfairness were associated with higher ITL. In home care settings, opportunities for appropriate task delegation were also reported as a factor associated with lower ITL and turnover [29]. Job satisfaction was also reported as a relevant

factor associated with ITL. The included studies linked job satisfaction to organizational support, professional autonomy, participation in organizational processes, perceived fairness, and the extent to which the nursing role was valued, and opportunities for professional growth and career development. Job satisfaction was associated with lower ITL or greater retention across the included evidence, while some studies also reported persistent operational challenges and missed care [16,18,23,37,38].

Context Factors

Regarding contextual factors, one of the most recurrent themes in the included studies was nurses' workload, considered in both quantitative and qualitative terms. This construct referred not only to the number of tasks to be performed, but also to the complexity of care needs, the inadequacy of human and material resources, the presence of additional duties, role ambiguity, professional isolation, and the need to work in non-standardized home care environments such as patients' homes [21,28,34,35,38]. Across the included studies, workload was described in relation to task volume, organizational constraints, care complexity, and resource inadequacy, and was associated with higher ITL [21,28,35,36,38]. Burnout, particularly emotional exhaustion, was reported as a factor associated with higher ITL [19,36] and with poorer perceived quality of care. Emotional strain, stress, excessive responsibility, and fear of failure were also described among the conditions contributing to nurses' intention to leave [19,34]. Moral distress was reported in relation to ethical dilemmas, difficulties in interprofessional collaboration, unclear role boundaries, and the perception of being unable to provide care consistent with professional values, and was associated with higher ITL [19,21,35]. Overall, the included evidence described a range of management-related and contextual factors associated with ITL among community and home care nurses. The identified factors reflected organizational, professional, and contextual characteristics reported across the included studies.

DISCUSSION

The findings suggest that ITL among community and home care nurses arises from the interplay of organizational, contextual, and professional factors rather than from a single determinant. ITL tends to increase when care-related and organizational demands exceed available resources and to decrease when nurses perceive support, recognition, autonomy, and opportunities for professional development [18,19,21,36,37]. The findings are consistent with an interpretation based on the Job Demands-Resources (JD-R) model, according to which high job demands contribute to professional strain and increased ITL, whereas adequate professional and organizational resources exert a protective effect. Within this framework, workload, emotional demands, and moral distress can be interpreted as job demands, whereas organizational support, leadership, autonomy, and delegation opportunities may function as job resources. The imbalance between these dimensions appears to play a central role in shaping intention to leave [19,29].

Organizational and Management Factors

Retention in community services appears to be associated not only with the nature of the work, but also with the quality of the organizational environment [16,19,30]. Supportive leadership, mentoring, structured orientation pathways, participation in organizational processes, and the perception of being supported by the organization all emerge as factors associated with retention [14,24,34]. Similarly, Noguchi-Watanabe et al. found that regular opportunities for communication with nurse managers and colleagues were independently associated with home care nurses' intention to remain [40]. These findings are further supported by Tourangeau et al. [26], who identified positive relationships with supervisors as an independent predictor of home care nurses' intention to remain employed, and by Watts Isley et al. [32], who found that nurses intending to remain reported significantly higher perceptions of recognition, professional support, and mentoring within their organizations. The review by Halter showed that organizational interventions based on

preceptorship, teamwork, and leadership oriented toward group cohesion are associated with reduced ITL and longer employment retention [14]. Similarly, Huang [37] found that organizational support and perceived fairness were associated with lower ITL through work engagement, while Callado [42] reported an association between greater organizational commitment and lower ITL. Consistent with these findings, Orava identified positive administration–nurse practitioner relationships and work–life balance as significant predictors of intention to remain in primary care [25]. This interpretation is further supported by Karlsson et al. [39] who found that poor leadership climate, limited collegial support, change fatigue, poor health, and working more than 40 hours per week were independently associated with high turnover intention and low job satisfaction among primary healthcare nurses. In addition, stronger structural capabilities within primary care practices were associated with lower burnout, higher job satisfaction, and lower intention to leave [31]. Job satisfaction also appears to function more as an intermediate outcome of the balance between demands and resources than as an isolated factor. Al Zamel [18] identified it as one of the main elements associated with either retention in community settings or ITL, whereas Ashley [35] linked positive experiences following transition to primary health care with greater autonomy, the meaningfulness of relationships with patients and families, and an improved work-life balance. Similarly, Tourangeau et al. [26] demonstrated that meaningfulness of work, work–life balance, income stability, and satisfaction with salary and benefits independently predicted nurses’ intention to remain in home care employment. Job satisfaction may be negatively affected by limited organizational and professional support, poorly structured orientation pathways, and the perception of losing competencies previously developed in acute care [24,34,35]. Charlie [23] reported that greater participation in organizational processes was associated with lower levels of burnout and job dissatisfaction. In contrast, among home care nurses, specific concerns persist about employment conditions, particularly work schedule organization and the limited adequacy of employment benefits [23,34].

Workload, Burnout, and Moral Distress

Workload was among the factors most frequently associated with ITL. Across the included studies, workload encompassed not only task volume but also care complexity, resource adequacy, role ambiguity, additional duties, and work in non-standardized environments such as patients' homes [19,21,28,34,36,38]. Candon adds a particularly relevant element for the home care context, showing that greater opportunities to delegate tasks to support staff are associated with lower turnover. This finding suggests that task redistribution may represent a relevant component of workload management in home care settings [29]. Burnout, particularly emotional exhaustion, was also consistently associated with ITL. Lorenz [36] found that emotional exhaustion was associated with greater ITL and poorer perceived quality of care among family health nurses. Bahlman-van Ooijen [19] similarly identified stress, exhaustion, and excessive responsibility among nurses' motivations for leaving the profession. Together, these findings support interpreting burnout as a potential consequence of a persistent imbalance between job demands and available professional and organizational resources [19,36,41]. Moral distress also emerged as a factor associated with ITL, particularly in relation to ethical dilemmas, high responsibility, unclear role boundaries, and the perceived inability to provide care consistent with professional values and patients' needs [19,21]. These findings suggest that moral distress may reflect a mismatch between professional values and the conditions under which community nursing practice is carried out [19,21,35].

Setting-Specific Characteristics of Out-of-Hospital Nursing

A further theme concerns characteristics specific to community and home care settings. Ashley [35] described transition to primary health care as offering greater autonomy, improved work-life balance, and meaningful relationships with patients and families, while also involving limited support, challenging role transition, and perceived loss of acute-care competencies. McCreary [17] similarly identified autonomy, flexibility, and long-term relationships with patients as factors

supporting retention in home health nursing. These characteristics are consistent with broader evidence describing community nursing as a distinct practice environment, where professional roles, organizational structures, and patterns of care differ substantially from hospital settings [15]. Taken together, these findings suggest that professional autonomy may play a dual role in out-of-hospital nursing, acting as a valuable resource while potentially contributing to professional isolation when organizational support is insufficient. Tourangeau et al. [26] also identified continuity of patient care as an independent predictor of home care nurses' intention to remain employed. Working in community and home care settings may also involve relative professional isolation and additional organizational demands [15,34]. Qualitative evidence also identified staffing shortages and professional isolation as challenges to retention in community services [33]. These findings support considering out-of-hospital nursing as a distinct organizational context when examining ITL and retention [34,35]. Overall, the evidence suggests that ITL reflects a dynamic interaction between management-related and contextual factors, in which organizational resources may buffer, but not fully offset, workload, isolation, emotional strain, and poor professional recognition. In this sense, the Job Demands-Resources model appears particularly useful not only for interpreting the findings of this review, but also for guiding future retention strategies and efforts to improve professional well-being. Recent meta-analytic evidence further supports this interpretation, showing that higher job embeddedness is consistently associated with lower turnover intention among nurses, particularly through organizational dimensions that strengthen employees' attachment to their workplace [22].

Implications for Retention and Future Research

From a practical and managerial perspective, supportive leadership, structured orientation and mentoring programs, continuing professional development, and sustainable workload management may represent relevant areas for organizational attention in community and home care settings

[14,20,24,27,29,34,37]. However, given the exploratory nature of this scoping review and the heterogeneity of the included evidence, these considerations should be interpreted as potential directions for organizational practice rather than evidence-based recommendations. Specific approaches identified across the included studies included strengthening team coordination, providing structured mentorship for newly recruited nurses, and promoting appropriate delegation practices within existing professional and regulatory frameworks [14,24,29,37]. These approaches warrant further evaluation in future primary studies before firm recommendations can be made.

CONCLUSION

This scoping review provides a structured synthesis of the factors associated with intention to leave among nurses working in community, home care, and primary health care settings, offering a context-specific perspective on an area that has received considerably less attention than hospital-based nursing. The available evidence suggests that ITL in out-of-hospital settings is associated with a combination of management-related and contextual factors while also highlighting characteristics that appear to be particularly relevant in these settings, including the dual role of professional autonomy, professional isolation, and delegation practices. Given the limited number and heterogeneity of the available studies, these findings should be interpreted as an exploratory mapping of the current evidence rather than as definitive evidence of causal relationships. Nevertheless, this review provides a context-specific framework for interpreting ITL in out-of-hospital nursing and may inform future research aimed at testing and refining these emerging patterns through more robust and context-sensitive study designs.

Limitations

This study has some limitations that should be considered when interpreting the findings. First, the search and selection process was limited to publications in Italian and English, with the potential

risk of excluding relevant contributions published in other languages. This restriction may have introduced a language bias and limited the representativeness of the evidence, particularly in non-English-speaking contexts. Furthermore, the included studies were heterogeneous in terms of design, care settings, sample characteristics, and definitions of ITL. This heterogeneity may have limited the comparability of findings and influenced the narrative synthesis, which should therefore be interpreted with caution. In accordance with the scoping review methodology, no formal critical appraisal of the included evidence sources was undertaken. Consequently, the inclusion of individual findings should not be interpreted as an indication of their methodological quality, strength, or reliability. Furthermore, the exclusion of grey literature may have limited the comprehensiveness of the evidence mapping, particularly with regard to organizational reports, workforce documents, and policy-related evidence relevant to community and home care nursing. Consequently, the findings should be interpreted as a synthesis of the peer-reviewed scientific literature rather than as a comprehensive representation of all available evidence. Finally, although the Job Demands–Resources model provided a useful interpretative framework, it may not fully capture the complexity of ITL in community and home care settings, particularly with regard to contextual, cultural, and system-level factors.

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Informed Consent Statement

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Conflict of Interest

The authors report no conflict of interest.

Authors' Contribution

E.L.: Writing - original draft, Writing - review & editing. F.M.: Supervision, Writing - review & editing. F.Z.: Supervision. F.S.: Writing - review & editing. A.R.M.: Conceptualization. All authors have read and agreed to the published version of the manuscript.

Data Availability Statement

No new data were generated or analyzed in this study. All data supporting the findings of this study are included in this article.

REFERENCES

1. Trinkoff AM, Han K, Storr CL, Lerner N, Johantgen M, Gartrell K. Turnover, Staffing, Skill Mix, and Resident Outcomes in a National Sample of US Nursing Homes. *J Nurs Adm* 2013;43:630–6. <https://doi.org/10.1097/NNA.0000000000000004>.
2. Poghosyan L, Norful AA, Fleck E, Bruzzese J-M, Talsma A, Nannini A. Primary Care Providers' Perspectives on Errors of Omission. *J Am Board Fam Med* 2017;30:733–42. <https://doi.org/10.3122/jabfm.2017.06.170161>.
3. Poghosyan L, Norful AA, Liu J, Shaffer J. Cognitive and Initial Psychometric Testing of the Errors of Care Omission Survey: A New Patient Safety Tool for Primary Care. *J Nurs Meas* 2019;27:16–32. <https://doi.org/10.1891/1061-3749.27.1.16>.
4. Chapman H, Matthews R, Farndon L, Stephenson J, Fowler-Davis S. The Sheffield Caseload Classification Tool: testing its inter-rater reliability. *Br J Community Nurs* 2019;24:362–7. <https://doi.org/10.12968/bjcn.2019.24.8.362>.
5. Veenstra M, Gautun H. Nurses' assessments of staffing adequacy in care services for older patients following hospital discharge. *J Adv Nurs* 2021;77:805–18. <https://doi.org/10.1111/jan.14636>.
6. Federazione Nazionale degli Ordini delle Professioni Infermieristiche. Position statement: L'infermiere di famiglia e di comunità. Roma: Federazione Nazionale degli Ordini delle Professioni Infermieristiche; 2020.
7. McCabe TJ, Sambrook S. Psychological contracts and commitment amongst nurses and nurse managers: A discourse analysis. *Int J Nurs Stud* 2013;50:954–67. <https://doi.org/10.1016/j.ijnurstu.2012.11.012>.
8. De Sul SIR, Lucas PRMB. Translation and validation of the anticipated turnover scale for the Portuguese cultural context. *Nurs Open* 2020;7:1475–81. <https://doi.org/10.1002/nop2.521>.
9. Aromataris E, Lockwood C, Porritt K, Pilla B, Jordan Z, editors. *JBIC Manual for Evidence*

- Synthesis. JBI; 2024. <https://doi.org/10.46658/JBIMES-24-01>.
10. Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart LA, PRISMA-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Syst Rev* 2015;4:1. <https://doi.org/10.1186/2046-4053-4-1>.
11. Peters MDJ, Godfrey C, McInerney P, Munn Z, Tricco AC, Khalil H. Chapter 11: Scoping Reviews (2020 version). In: Aromataris E, Munn Z, editors. *JBIM Manual for Evidence Synthesis*, JBI; 2020. <https://doi.org/10.46658/JBIMES-20-12>.
12. Ouzzani M, Hammady H, Fedorowicz Z, Elmagarmid A. Rayyan—a web and mobile app for systematic reviews. *Syst Rev* 2016;5:210. <https://doi.org/10.1186/s13643-016-0384-4>.
13. Haddaway NR, Page MJ, Pritchard CC, McGuinness LA. PRISMA2020: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and Open Synthesis. *Campbell Syst Rev* 2022;18:e1230. <https://doi.org/10.1002/cl2.1230>.
14. Halter M, Pelone F, Boiko O, Beighton C, Harris R, Gale J, Gourlay S, Drennan V. Interventions to Reduce Adult Nursing Turnover: A Systematic Review of Systematic Reviews. *Open Nurs J* 2017;11:108–23. <https://doi.org/10.2174/1874434601711010108>.
15. Drennan VM, Coll Ferrer J, Thurgate C, Wu L, Halter M, Alkan E. Successful Retention Strategies for Nurses in Home Visiting Nursing Services: A Scoping Review. *J Adv Nurs* 2026;82:2539–50. <https://doi.org/10.1111/jan.70020>.
16. Chamanga E, Dyson J, Loke J, McKeown E. Factors influencing the recruitment and retention of registered nurses in adult community nursing services: an integrative literature review. *Prim Health Care Res Dev* 2020;21:e31. <https://doi.org/10.1017/S1463423620000353>.
17. McCreary DDJ. Home Health Nursing Job Satisfaction and Retention: Meeting the Growing Need for Home Health Nurses. *Nurs Clin North Am* 2020;55:121–32. <https://doi.org/10.1016/j.cnur.2019.11.002>.

18. Al Zamel LG, Lim Abdullah K, Chan CM, Piau CY. Factors influencing nurses' intention to leave and intention to stay: An integrative review. *Home Health Care Manag Pract* 2020;32:218–28. <https://doi.org/10.1177/1084822320931363>.
19. Bahlman-van Ooijen W, Malfait S, Huisman-de Waal G, Hafsteinsdóttir TB. Nurses' motivations to leave the nursing profession: A qualitative meta-aggregation. *J Adv Nurs* 2023;79:4455–71. <https://doi.org/10.1111/jan.15696>.
20. Bass S, Scholes K, Smith D. Preventing nurse burnout to improve nurse retention in primary care. *Nurs Manage* 2023;54:26–33. <https://doi.org/10.1097/nmg.0000000000000077>.
21. Lessi L, De Barbieri I, Danielis M. Addressing Nursing Resignation: Insights From Qualitative Studies on Nurses Leaving Healthcare Organisations and the Profession. *J Adv Nurs* 2025;81:2290–315. <https://doi.org/10.1111/jan.16546>.
22. Wang X, Liu M, Leung AYM, Jin X, Dai H, Shang S. Nurses' job embeddedness and turnover intention: A systematic review and meta-analysis. *Int J Nurs Sci* 2024;11:563–70. <https://doi.org/10.1016/j.ijnss.2024.10.003>.
23. Charlie ML. Ensuring the Continuation of the Public Health Nurses Workforce: Comparison of Work Outcomes with Nurses in Other Sectors of Healthcare. Doctoral dissertation. University of Pennsylvania, 2017.
24. Faraz A. Novice nurse practitioner workforce transition and turnover intention in primary care. *J Am Assoc Nurse Pract* 2017;29:26–34. <https://doi.org/10.1002/2327-6924.12381>.
25. Orava B. Retention of Primary Health Care Nurse Practitioners. Doctoral dissertation. University of Toronto, 2017.
26. Tourangeau AE, Patterson E, Saari M, Thomson H, Cranley L. Work-related factors influencing home care nurse intent to remain employed. *Health Care Manage Rev* 2017;42:87–97. <https://doi.org/10.1097/HMR.0000000000000093>.
27. Alkan E, Drennan VM, Thurgate C, Wu L, Halter M, Wang C. Experience and Perceptions of

- Retention Strategies in District Nursing Services: A Web-Based Mixed Methods Cross-Sectional Survey. *J Adv Nurs* 2026;82:3767–78. <https://doi.org/10.1111/jan.70108>.
28. Samson Z, Wagner LM, Hunt LJ, Muench U. Predictors of job turnover among home health versus hospital nurses: An observational study using the National Sample Survey of Registered Nurses. *Int J Nurs Stud* 2026;174:105301. <https://doi.org/10.1016/j.ijnurstu.2025.105301>.
29. Candon M, Bergman A, Rose A, Song H, David G, Spetz J. The Relationship Between Scope of Practice Laws for Task Delegation and Nurse Turnover in Home Health. *J Am Med Dir Assoc* 2023;24:1773-1778.e2. <https://doi.org/10.1016/j.jamda.2023.07.023>.
30. Poghosyan L, Ghaffari A, Liu J, McHugh MD. Organizational Support for Nurse Practitioners in Primary Care and Workforce Outcomes. *Nurs Res* 2020;69:280–8. <https://doi.org/10.1097/NNR.0000000000000425>.
31. Schlak A, Poghosyan L, Rosa WE, Mathew S, Liu J, Martsolf G, Flandrick K, Chen JL. The Impact of Primary Care Practice Structural Capabilities on Nurse Practitioner Burnout, Job Satisfaction, and Intent to Leave. *Med Care* 2023;61:882–9. <https://doi.org/10.1097/MLR.0000000000001931>.
32. Watts Isley J, Little SH, Sha S, Vaughan E, Wingate K, Aleshire ME. To stay or leave: Public health nurse workforce retention in North Carolina. *Public Health Nurs* 2022;39:609–17. <https://doi.org/10.1111/phn.12991>.
33. Nizzer S, Baliga S, McKay SM, Holness DL, King EC. Sustaining a Workforce: Reflections on Work from Home and Community Care Nurses Transitioning out of the COVID-19 Pandemic. *SAGE Open Nurs* 2024;10:23779608241264162. <https://doi.org/10.1177/23779608241264162>.
34. Chamanga E, Dyson J, Jarrett M, McKeown E. Investigating factors influencing recruitment and retention of adult community nurses: an exploratory qualitative study across NHS trusts in England. *Prim Health Care Res Dev* 2025;26:e87. <https://doi.org/10.1017/S1463423625100480>.

35. Ashley C, Peters K, Brown A, Halcomb E. Work satisfaction and future career intentions of experienced nurses transitioning to primary health care employment. *J Nurs Manag* 2018;26:663–70. <https://doi.org/10.1111/jonm.12597>.
36. Lorenz VR, Sabino MO, Corrêa Filho HR. Professional exhaustion, quality and intentions among family health nurses. *Rev Bras Enferm* 2018;71:2295–301. <https://doi.org/10.1590/0034-7167-2016-0510>.
37. Huang X, Li Z, Wan Q. From organisational justice to turnover intention among community nurses: A mediating model. *J Clin Nurs* 2019;28:3957–65. <https://doi.org/10.1111/jocn.15031>.
38. Bagnasco A, Alvaro R, Lancia L, Manara DF, Rasero L, Rocco G, Burgio A, Di Nitto M, Zanini M, Mangiacavalli B, Sasso L. Studio osservazionale dell’Assistenza Infermieristica Domiciliare in Italia-AIDOMUS-IT: condizione lavorativa, cure mancate e le esperienze degli assistiti. *L’Infermiere* 2023;60:e190–208. <https://doi.org/10.57659/SSI.2023.016>.
39. Karlsson E, Karlsson N, Fernemark H, Seing I, Skagerström J, Brulin E, Nilsen P. A Cross-Sectional Survey of Swedish Primary Healthcare Nurses’ Discontent With Their Current Job. *J Nurs Manag* 2024;2024:2786600. <https://doi.org/10.1155/2024/2786600>.
40. Noguchi-Watanabe M, Yamamoto-Mitani N, Nagami Y, Eltaybani S, Inagaki A, Taniguchi Y. Homecare nurses’ length of conversation and intention to remain at the workplace: A multilevel analysis. *J Nurs Manag* 2021;29:721–30. <https://doi.org/10.1111/jonm.13212>.
41. Stefanovska-Petkovska M, Stefanovska VV, Bojadjieva S, Bojadjiev MI. Psychological distress, burnout, job satisfaction and intention to quit among primary healthcare nurses. *Health Serv Manage Res* 2021;34:92–8. <https://doi.org/10.1177/0951484820971444>.
42. Callado A, Teixeira G, Lucas P. Turnover Intention and Organizational Commitment of Primary Healthcare Nurses. *Healthcare (Basel)* 2023;11:521. <https://doi.org/10.3390/healthcare11040521>.
43. Van Der Heijden BIJM, Peeters MCW, Le Blanc PM, Van Breukelen JWM. Job characteristics

and experience as predictors of occupational turnover intention and occupational turnover in the European nursing sector. *J Vocat Behav* 2018;108:108–20. <https://doi.org/10.1016/j.jvb.2018.06.008>.

Appendix: The figures and tables included in this section are provided as supplementary material to support the main text.

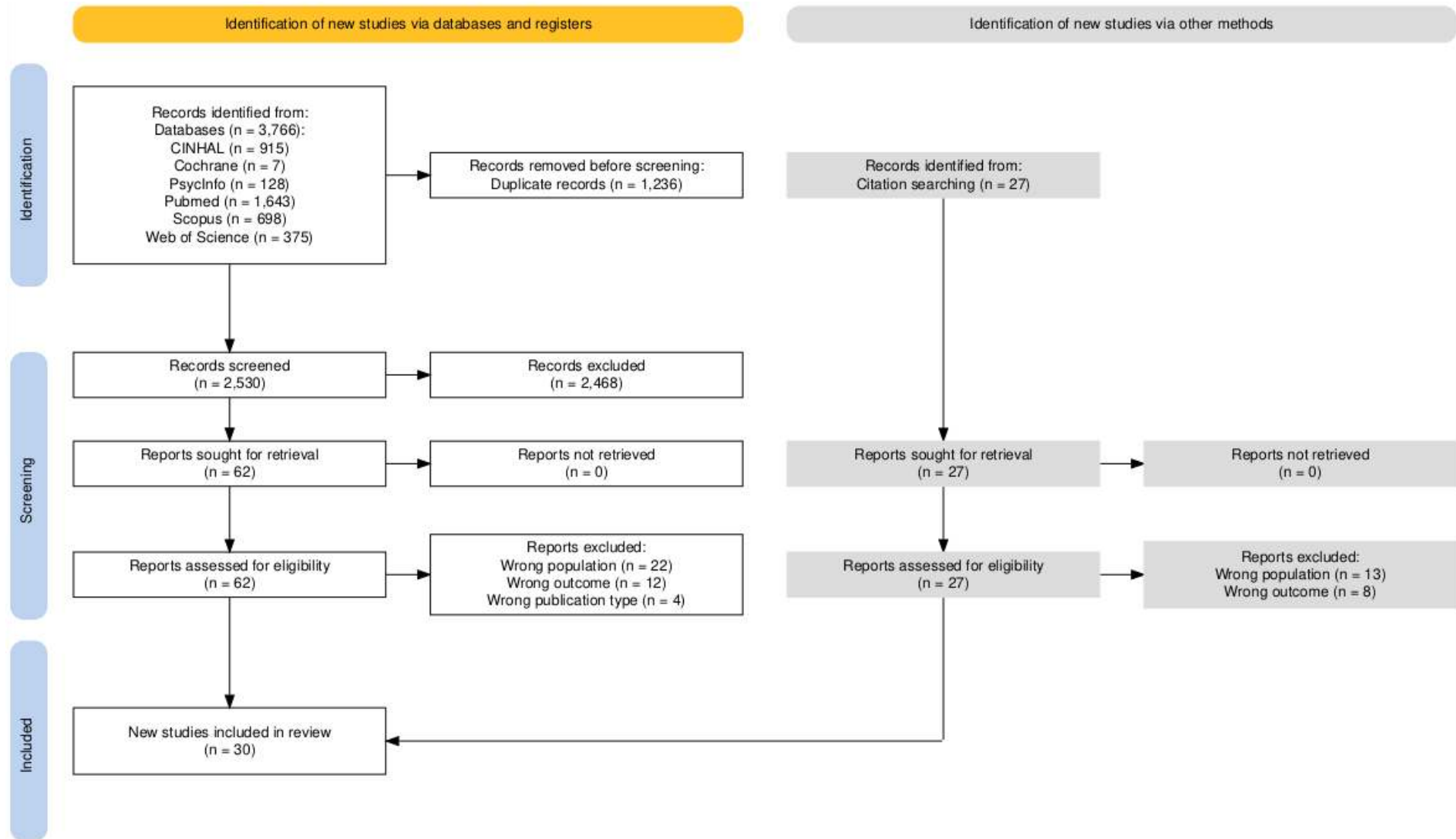


Figure 1. PRISMA Flow Diagram.

Full bibliographic reference	Identification source	Primary reason for exclusion
Akosa Antwi Y, Bowblis JR. The Impact of Nurse Turnover on Quality of Care and Mortality in Nursing Homes: Evidence from the Great Recession. <i>American Journal of Health Economics</i> . 2018;4(2):131–163. https://doi.org/10.1162/ajhe_a_00096 .	Database search	Wrong outcome
Ashley C, Brown A, Halcomb E, Peters K. Registered nurses transitioning from acute care to primary healthcare employment: A qualitative insight into nurses' experiences. <i>Journal of Clinical Nursing</i> . 2018;27(3):661–668. https://doi.org/10.1111/jocn.13984 .	Database search	Wrong outcome
Bergman A, Song H, David G, Spetz J, Candon M. The Role of Schedule Volatility in Home Health Nursing Turnover. <i>Medical Care Research and Review</i> . 2022;79(3):382–393. https://doi.org/10.1177/10775587211034310 .	Database search	Wrong outcome
Bruno F, Nizzer S, Moreira NA, Martin T, King EC, McKay SM. Developing and Retaining Homecare Nurses Through Employer-Based Tuition Assistance Programs: A Mixed Methods Study. <i>Journal of Community Health Nursing</i> . 2024;41(3):175–188. https://doi.org/10.1080/07370016.2024.2314077 .	Database search	Wrong outcome
Garza JA, Taliaferro D. Job satisfaction among home healthcare nurses. <i>Home Healthcare Now</i> . 2021;39(1):20–24. https://doi.org/10.1097/NHH.0000000000000921 .	Database search	Wrong outcome
Kim DK, Scott P, Poghosyan L, Martsof GR. Burnout, job satisfaction, and turnover intention among primary care nurse practitioners with their own patient panels. <i>Nursing Outlook</i> . 2024;72(4). https://doi.org/10.1016/j.outlook.2024.102190 .	Database search	Wrong outcome
Kueakomoldej S, Liu J, Pittman P, Turi E, Poghosyan L. Practice Environment and Workforce Outcomes of Nurse Practitioners in Community Health Centers. <i>Journal of Ambulatory Care Management</i> . 2022;45(4):289–298. https://doi.org/10.1097/JAC.0000000000000427 .	Database search	Wrong outcome
McKinless E. Impact of stress on nurses working in the district nursing service. <i>British Journal of Community Nursing</i> . 2020;25(11):555–561. https://doi.org/10.12968/bjcn.2020.25.11.555 .	Database search	Wrong outcome
Nizzer S, Moreira NA, Mohammed ETCL, Bruno F, McKay SM, Holness DL, King EC. Workplace Challenges and Support Needs Experienced by Nurse Leaders in Home and Community Care During the COVID-19 Pandemic: A Qualitative Study. <i>Inquiry</i> . 2025;62. https://doi.org/10.1177/00469580251329794 .	Database search	Wrong outcome
Ruotsalainen S, Väisänen V, Corneliussen L, Pesonen T, Sulander J, Sinervo T. Care continuity, team autonomy and resource planning systems in relation to perceived time pressure among Finnish home care nurses: a cross-sectional multi-source study. <i>BMC Nursing</i> . 2025;24(1). https://doi.org/10.1186/s12912-025-04028-2 .	Database search	Wrong outcome
Senek M, Robertson S, King R, Wood E, Ryan T. Should I stay or should I go? Why nurses are leaving community nursing in the UK. <i>BMC Health Services Research</i> . 2023;23(1). https://doi.org/10.1186/s12913-023-09163-7 .	Database search	Wrong outcome
Suleiman S, Adam S. Job Satisfaction among Nurses Working at Primary Health Center in Ras Al Khaimah, United States Emirates. <i>International Journal of Nursing Education</i> . 2020;12(1):65–67. https://doi.org/10.5958/0974-9357.2020.00014.4 .	Database search	Wrong outcome
Bratt C, Gautun H. Should I stay or should I go? Nurses' wishes to leave nursing homes and home nursing. <i>Journal of Nursing Management</i> . 2018;26(8):1074–1082. https://doi.org/10.1111/jonm.12639 .	Database search	Wrong population

Full bibliographic reference	Identification source	Primary reason for exclusion
Brouwer J, André S, Renting N. The interplay between home and job demands, resources, and the intention to stay in nursing: A cross-sectional study. <i>International Journal of Nursing Studies Advances</i> . 2025;8. https://doi.org/10.1016/j.ijnsa.2025.100318 .	Database search	Wrong population
Camacho-Montañó LR, Gómez-Arribas SB, Moreno-Casbas MT, Ropero-Sánchez A, Bernués-Caudillo L, Calleja-Toledano P, Recas-Martín A, Zamora J, Padilla-Bernáldez J, Carmona-Torres JM. Turnover Intention and Its Relationship With Work-Related Factors Among Nurses in Spain: A Cross-Sectional Study. <i>Journal of Nursing Management</i> . 2026;2026:1–12. https://doi.org/10.1155/jonm/7697811 .	Database search	Wrong population
Field JB. A study of the impact of career development on nurse engagement and intent to remain with the organization. <i>Dissertation Abstracts International Section A: Humanities and Social Sciences</i> . 2022;83(2). ProQuest Information & Learning. DOI N/A	Database search	Wrong population
Goh HS, Sim SJ, Tang ML, Devi MK. Factors Contributing to the Intention to Leave Among Nursing Home Staff in Singapore: A Cross-Sectional Study. <i>Journal of Nursing Management</i> . 2025;2025(1). https://doi.org/10.1155/jonm/3338222 .	Database search	Wrong population
Hakkarainen M, Kunnari T, Kuha S, Hulkko T, Kanste O. Effective Onboarding for Front-Line Nurse Managers in Healthcare: A Descriptive Qualitative Study. <i>Journal of Nursing Management</i> . 2026;2026(1). https://doi.org/10.1155/jonm/9942076 .	Database search	Wrong population
Halcomb E, Bird S, Mcinnes S, Ashley C, Huckel K. Exploring job satisfaction and turnover intentions among general practice nurses in an Australian Primary Health Network. <i>Journal of Nursing Management</i> . 2021;29(5):943–952. https://doi.org/10.1111/jonm.13230 .	Database search	Wrong population
Hallaran AJ, Jessup SJ. Examining predictors of intention to leave in home care and differences among types of providers. <i>Journal of Nursing Management</i> . 2023;2023. https://doi.org/10.1155/2023/4120204 .	Database search	Wrong population
Jiménez C, Montañés I, Carol M, Guix-Comellas E, Fabrellas N. Quality of professional life of primary healthcare nurses: A systematic review. <i>Journal of Clinical Nursing</i> . 2022;31(9):1097–1112. https://doi.org/10.1111/jocn.16015 .	Database search	Wrong population
Kaihlainen AM, Ruotsalainen S, Väisänen V, Corneliusson L, Pesonen T, Sinervo T. Job demand and job resource factors explaining stress and job satisfaction among home care nurses – a mixed-methods sequential explanatory study. <i>BMC Nursing</i> . 2023;22(1). https://doi.org/10.1186/s12912-023-01568-3 .	Database search	Wrong population
Krein S, Turnwald M, Anderson B, Maust D. "Sometimes it's not about the money.. it's the way you treat people..": A Qualitative Study of Nursing Home Staff Turnover. <i>JOURNAL OF THE AMERICAN MEDICAL DIRECTORS ASSOCIATION</i> . 2022;23(7):1178–1184. https://doi.org/10.1016/j.jamda.2021.11.036 .	Database search	Wrong population
Lee H, Shin JH. An analysis of the effects of psychosocial work environment on the retention intentions of primary care coordinators nursing patients with chronic illness. <i>International Journal of Environmental Research and Public Health</i> . 2021;18(22). https://doi.org/10.3390/ijerph182212104 .	Database search	Wrong population
Li M, Wang W, Zhang J, Zhao R, Loban K, Yang H, Mitchell R. Organizational culture and turnover intention among primary care providers: a multilevel study in four large cities in China. <i>Global Health Action</i> . 2024;17(1):2346203. https://doi.org/10.1080/16549716.2024.2346203 .	Database search	Wrong population

Full bibliographic reference	Identification source	Primary reason for exclusion
Miller MJ, Johansen ML, Stucky CH. Impact of the primary care nurse manager on nurse intent to leave and staff perception of patient safety. <i>Nursing Management</i> . 2024;55(1):32–42. https://doi.org/10.1097/nmg.0000000000000087 .	Database search	Wrong population
Min D, Cho E, Kim G, Lee K, Yoon J, Kim H, Choi M. Factors associated with retention intention of Registered Nurses in Korean nursing homes. <i>International Nursing Review</i> . 2022;69(4):459–469. https://doi.org/10.1111/inr.12754 .	Database search	Wrong population
Moisoglou I, Katsiroumpa A, Fradelos EC, Papathanasiou IV, Paralikas T, Prasini I, Rekleiti M, Katsapi A, Chatzi M, Galanis P. Association between nursing work environment, burnout, and turnover intention: A cross-sectional study in Greece. <i>AIMS Public Health</i> . 2025;12(4):1069–1083. https://doi.org/10.3934/publichealth.2025054 .	Database search	Wrong population
Mukamel DB, Saliba D, Ladd H, Konetzka RT. Incorporating staffing instability in the nursing home Five-Star Staffing Composite. <i>Health Affairs Scholar</i> . 2024;2(12). https://doi.org/10.1093/haschl/qxae159 .	Database search	Wrong population
Nikpour J, Carthon JMB. Characteristics, work environments, and rates of burnout and job dissatisfaction among registered nurses in primary care. <i>Nursing Outlook</i> . 2023;71(4). https://doi.org/10.1016/j.outlook.2023.101988 .	Database search	Wrong population
Noblet A, Allisey A, Nielsen I, Cotton S, LaMontagne A, Page K. The work-based predictors of job engagement and job satisfaction experienced by community health professionals. <i>Health Care Management Review</i> . 2017;42(3):237–246. https://doi.org/10.1097/HMR.0000000000000104 .	Database search	Wrong population
Ran L, Chen X, Peng S, Zheng F, Tan X, Duan R. Job burnout and turnover intention among Chinese primary healthcare staff: The mediating effect of satisfaction. <i>BMJ Open</i> . 2020;10(10). https://doi.org/10.1136/bmjopen-2019-036702 .	Database search	Wrong population
Wendsche J, Hacker W, Wegge J, Rudolf M. High Job Demands and Low Job Control Increase Nurses' Professional Leaving Intentions: The Role of Care Setting and Profit Orientation. <i>Research in Nursing & Health</i> . 2016;39(5):353–363. https://doi.org/10.1002/nur.21729 .	Database search	Wrong population
Zhang H, Li H, Tian W, Liu W, Yang Y. The influence of professional identity on work engagement among nurses working in nursing homes in China. <i>Journal of Nursing Management</i> . 2022;30(7):3022–3030. https://doi.org/10.1111/jonm.13701 .	Database search	Wrong population
Bonnici KS. Reflections on a Career in Primary Care. <i>Journal of Pediatric Health Care</i> . 2021;35(6):573–574. https://doi.org/10.1016/j.pedhc.2021.08.001 .	Database search	Wrong publication type
Boran S, Goddard G, Burdett T, Myers D. Recruitment and retention in primary care. <i>Journal of Community Nursing</i> . 2022;36(3):8–11. DOI N/A	Database search	Wrong publication type
Chargualaf KA. Leadership in Nursing. Shifting Focus from Recruitment to Retention to Address Nursing Workforce Needs. <i>MEDSURG Nursing</i> . 2026;35(2):102–103. https://doi.org/10.62116/MSJ.2026.35.2.102 .	Database search	Wrong publication type
Croke BA, O'Reilly-Jacob M. Policy Options to Improve the Retention of Nurse Practitioners in Primary Care. <i>Nursing Economic\$</i> . 2025;43(6):268–294. https://doi.org/10.62116/NEC.2025.43.6.268 .	Database search	Wrong publication type

Full bibliographic reference	Identification source	Primary reason for exclusion
Agbonifo N, Hittle B, Suarez R, Davis K. Occupational Exposures of Home Healthcare Workers. <i>Home Healthcare Now</i> . 2017;35(3):150–159. https://doi.org/10.1097/NHH.0000000000000509 .	Citation tracking	Wrong outcome
Alsubhi H, Meskell P, Shea DO, Doody O. Missed nursing care and nurses' intention to leave: An integrative review. <i>Journal of Nursing Management</i> . 2020;28(8):1830–1840. https://doi.org/10.1111/jonm.13069 .	Citation tracking	Wrong outcome
Bien E, Davis K, Gillespie G. Home Healthcare Workers' Occupational Exposures. <i>Home Healthcare Now</i> . 2020;38(5):247–253. https://doi.org/10.1097/NHH.0000000000000891 .	Citation tracking	Wrong outcome
Drennan VM. More care out of hospital? A qualitative exploration of the factors influencing the development of the district nursing workforce in England. <i>Journal of Health Services Research & Policy</i> . 2019;24(1):11–18. https://doi.org/10.1177/1355819618769082 .	Citation tracking	Wrong outcome
Nakrem S, Kvanneid K. How Is Quality of Care in Home Healthcare Created? A Qualitative Study of Health Professionals' Perspectives. <i>Healthcare</i> . 2022;10(6):1021. https://doi.org/10.3390/healthcare10061021 .	Citation tracking	Wrong outcome
Pennington G, Driscoll A. Improving Retention of Home Health Nurses: Fostering Outcome Sustainability Through an Innovative Orientation and Mentorship Program. <i>Home Healthcare Now</i> . 2019;37(5):256–264. https://doi.org/10.1097/NHH.0000000000000782 .	Citation tracking	Wrong outcome
Stien T, Josefsson K. Alone and together: registered nurses' experiences of work satisfaction in municipal home healthcare. <i>BMC Nursing</i> . 2024;23(1):382. https://doi.org/10.1186/s12912-024-02051-3 .	Citation tracking	Wrong outcome
Williamson L, Burog W, Taylor RM. A scoping review of strategies used to recruit and retain nurses in the health care workforce. <i>Journal of Nursing Management</i> . 2022;30(7):2845–2853. https://doi.org/10.1111/jonm.13786 .	Citation tracking	Wrong outcome
Brook J, Aitken LM, Webb R, MacLaren J, Salmon D. Characteristics of successful interventions to reduce turnover and increase retention of early career nurses: A systematic review. <i>International Journal of Nursing Studies</i> . 2019;91:47–59. https://doi.org/10.1016/j.ijnurstu.2018.11.003 .	Citation tracking	Wrong population
Çamveren H, Arslan Yürümezoğlu H, Kocaman G. Why do young nurses leave their organization? A qualitative descriptive study. <i>International Nursing Review</i> . 2020;67(4):519–528. https://doi.org/10.1111/inr.12633 .	Citation tracking	Wrong population
Climek M, Henry R, Jeong S. Integrative literature review on employee turnover antecedents across different generations: commonalities and uniqueness. <i>European Journal of Training and Development</i> . 2024;48(1/2):112–132. https://doi.org/10.1108/EJTD-05-2021-0058 .	Citation tracking	Wrong population
De Simone S, Planta A, Cicotto G. The role of job satisfaction, work engagement, self-efficacy and agentic capacities on nurses' turnover intention and patient satisfaction. <i>Applied Nursing Research</i> . 2018;39:130–140. https://doi.org/10.1016/j.apnr.2017.11.004 .	Citation tracking	Wrong population

Full bibliographic reference	Identification source	Primary reason for exclusion
Fasbender U, Van Der Heijden BIJM, Grimshaw S. Job satisfaction, job stress and nurses' turnover intentions: The moderating roles of on-the-job and off-the-job embeddedness. <i>Journal of Advanced Nursing</i> . 2019;75(2):327–337. https://doi.org/10.1111/jan.13842 .	Citation tracking	Wrong population
Hariyati RTS, Nurdiana N. Retention Strategy to Minimize Nurse Turnover: A Systematic Review. <i>International Journal of Nursing and Health Services</i> . 2018;1(2):99–109. https://doi.org/10.35654/ijnhs.v1i2.47 .	Citation tracking	Wrong population
Hegedüs A, Schürch A, Bischofberger I. Implementing Buurtzorg-derived models in the home care setting: a Scoping Review. <i>International Journal of Nursing Studies Advances</i> . 2022;4:100061. https://doi.org/10.1016/j.ijnnsa.2022.100061 .	Citation tracking	Wrong population
Karakachian A, Colbert A. Nurses' Moral Distress, Burnout, and Intentions to Leave: An Integrative Review. <i>Journal of Forensic Nursing</i> . 2019;15(3):133–142. https://doi.org/10.1097/JFN.0000000000000249 .	Citation tracking	Wrong population
Kox JHAM, Groenewoud JH, Bakker EJM, Bierma-Zeestra SMA, Runhaar J, Miedema HS, Roelofs PDDM. Reasons why Dutch novice nurses leave nursing: A qualitative approach. <i>Nurse Education in Practice</i> . 2020;47:102848. https://doi.org/10.1016/j.nepr.2020.102848 .	Citation tracking	Wrong population
Lartey S, Cummings G, Profetto-McGrath J. Interventions that promote retention of experienced registered nurses in health care settings: a systematic review. <i>Journal of Nursing Management</i> . 2014;22(8):1027–1041. https://doi.org/10.1111/jonm.12105 .	Citation tracking	Wrong population
Mohammadi P, Gheiasi SF, Bayat R, Bulfone G, Amini K. Nurses' Intention to Leave the Profession and Its Related Factors: A Cross-sectional Study. <i>Evidence Based Care</i> . 2023;12(4). https://doi.org/10.22038/ebcj.2022.67012.2756 .	Citation tracking	Wrong population
Tadesse B, Dechasa A, Ayana M, Tura MR. Intention to Leave Nursing Profession and Its Associated Factors Among Nurses: A Facility Based Cross-Sectional Study. <i>INQUIRY: The Journal of Health Care Organization, Provision, and Financing</i> . 2023;60:00469580231200602. https://doi.org/10.1177/00469580231200602 .	Citation tracking	Wrong population
Woodward KF, Willgerodt M. A systematic review of registered nurse turnover and retention in the United States. <i>Nursing Outlook</i> . 2022;70(4):664–678. https://doi.org/10.1016/j.outlook.2022.04.005 .	Citation tracking	Wrong population

Table 2. Reports excluded after full-text assessment and primary reason for exclusion

First Author	Year	Aims	Design	Context	Sample	Results	Determinants of ITL/Retention
Al Zamel [18]	2020	To synthesize the evidence on factors influencing nurses' intention to leave or remain in healthcare organizations.	Integrative review	Nursing organizations across healthcare settings	Thirty-seven studies using heterogeneous designs and measurement instruments.	Intention to leave or stay was associated with job satisfaction, organizational commitment, quality of work life, work environment, leadership style, workplace bullying, family reasons and job security.	Job satisfaction; organizational commitment; quality of work life; work environment; leadership style; bullying; family reasons; job security
Alkan [27]	2026	To explore nurses' and nursing associates' experiences and perceptions of retention strategies implemented in district nursing services.	Mixed-methods cross-sectional	District nursing services, England	345 nurses and nursing associates employed in district nursing services.	Participants reported frequent exposure to strategies promoting safe working environments, flexible working arrangements, staff wellbeing and professional development. Retention was perceived to improve when workloads were manageable, organizational support was tailored to staff needs and financial assistance, including travel reimbursement, was provided.	Safe work environment; flexible scheduling; staff wellbeing; professional development; manageable workload; involvement in decision-making; team cohesion; induction and mentoring; financial and travel support.
Ashley [35]	2018	To examine registered nurses' experiences of transitioning from acute care to primary healthcare and their future career intentions.	Mixed-methods	Primary healthcare, Australia	Registered nurses who had transitioned from acute care to primary healthcare employment.	Most participants described the transition positively, highlighting improved work-life balance, greater role diversity and stronger relationships with patients and families. Challenges included insufficient orientation, perceived loss of acute care competencies and salary disparities, although the majority intended to remain in both primary healthcare and the nursing profession.	Transition support; work-life balance; role diversity; patient and family relationships; orientation; remuneration; professional competence; intention to remain.
Bagnasco [38]	2023	To investigate working conditions, missed nursing care and intention to leave among home care nurses in Italy.	Descriptive cross-sectional	Home nursing care, Italy	2,549 home care nurses and 4,709 patients from 45 local healthcare units across 18 Italian regions.	Although nurses generally reported high job satisfaction and relatively low workplace criticality, missed nursing care remained common and approximately one-fifth expressed an intention to leave. Patients reported high levels of satisfaction with care, suggesting that workforce challenges coexist with positive patient experiences.	Job satisfaction; workload; missed nursing care; workplace criticality; quality of care; organizational resources; intention to leave.

First Author	Year	Aims	Design	Context	Sample	Results	Determinants of ITL/Retention
Bahlman-van Ooijen [19]	2023	To synthesize qualitative evidence on nurses' motivations for leaving the nursing profession.	Qualitative systematic review	Nursing profession across healthcare settings	Nine qualitative studies involving nurses who had considered or experienced leaving the profession.	Four overarching themes explained nurses' decisions to leave, including adverse work environments, emotional distress, disillusionment with professional expectations and experiences of hierarchy or discrimination. Poor managerial support, limited career opportunities, workplace stress and bullying consistently contributed to turnover decisions.	Work environment; emotional distress; managerial support; career development; bullying; discrimination; work-related stress; professional disillusionment.
Bass [20]	2023	To identify organizational and individual factors associated with nurse burnout and retention in primary and ambulatory care settings.	Narrative literature review	Primary care and ambulatory/specialty care offices	Nine studies identified through CINAHL and PubMed.	Four major domains influencing burnout and retention emerged, including personal characteristics, organizational factors, leadership and team relationships, and ethical considerations. The review emphasized the central role of nursing leadership in improving work environments and supporting workforce retention.	Burnout; personal characteristics; organizational factors; leadership; team relationships; ethical climate; retention strategies.
Callado [42]	2023	To assess turnover intention and organizational commitment among primary healthcare nurses.	Cross-sectional	Primary healthcare, Portugal	297 primary healthcare nurses.	Most nurses intended to remain in their current workplace and reported high levels of organizational commitment. Stronger organizational commitment was significantly associated with lower turnover intention, highlighting commitment as an important protective factor for workforce retention.	Organizational commitment; job attachment; intention to remain; turnover intention; workforce retention.
Candon [29]	2023	To examine the association between delegation policies and nurse turnover in home healthcare services.	Retrospective cross-sectional	Home healthcare, United States	1,820 licensed practical nurses and 3,309 registered nurses working across 30 states between 2016 and 2018.	Turnover rates differed between licensed practical nurses and registered nurses. Greater authority to delegate selected clinical tasks to unlicensed aides was associated with lower turnover among licensed practical nurses, suggesting that delegation may reduce workload-related turnover in home healthcare settings.	Task delegation; scope of practice; workload; professional autonomy; unlicensed assistive personnel; turnover; home healthcare.
Chamanga [16]	2020	To identify factors influencing the recruitment and	Integrative review	Adult community nursing	Ten studies included in the review.	Retention was primarily influenced by work pressure, working conditions and the degree of managerial recognition and appreciation.	Work pressure; working conditions; managerial appreciation; recruitment;

First Author	Year	Aims	Design	Context	Sample	Results	Determinants of ITL/Retention
		retention of registered nurses working in adult community nursing services.				Evidence regarding recruitment factors was limited, indicating the need for further research in community nursing workforce planning.	retention; community nursing workforce.
Chamanga [34]	2025	To explore factors influencing recruitment and retention among adult community nurses.	Qualitative	Adult community nursing services	Registered nurses and service managers employed in adult community nursing organizations.	Eight interconnected themes shaped recruitment and retention, including professional fulfilment, organizational values, career development opportunities, workplace flexibility and compassionate leadership. Conversely, staffing shortages, administrative burden, limited career progression and family responsibilities negatively influenced retention.	Workplace flexibility; professional identity; organizational values; compassionate leadership; staffing shortages; administrative burden; career development; family responsibilities.
Charlie [23]	2017	To compare job outcomes among public health, school and home health nurses and identify modifiable work environment factors associated with burnout, job dissatisfaction and intention to leave.	Secondary cross-sectional	Public health, school nursing and home health nursing, United States	529 public health nurses, 1,208 school nurses and 3,079 home health nurses from the RN4CAST-US study.	More favorable work environments were consistently associated with lower burnout, greater job satisfaction and reduced intention to leave across all settings. Home health nurses experienced the highest levels of burnout and turnover intention, whereas public health nurses reported dissatisfaction with salary, career advancement and professional autonomy.	Work environment; salary; career advancement; professional autonomy; burnout; job dissatisfaction; intention to leave.
Drennan [15]	2026	To examine workforce challenges affecting recruitment and retention in district and community nursing services.	Scoping review	District and community nursing, United Kingdom	Evidence derived from published literature and workforce reports on district and community nursing services.	The review highlighted persistent workforce shortages, an ageing nursing workforce and increasing service demands. Sustainable retention depended on clear professional roles, educational opportunities, career pathways, supportive service models and organizational investment.	Workforce planning; role clarity; education; career pathways; service models; organizational support; retention.
Faraz [24]	2017	To investigate factors influencing novice nurse	Cross-sectional	Primary care, United States	177 novice nurse practitioners employed in	Professional autonomy emerged as one of the strongest predictors of lower turnover intention during the transition period.	Professional autonomy; transition support; organizational support; role

First Author	Year	Aims	Design	Context	Sample	Results	Determinants of ITL/Retention
		practitioners' transition to primary care and turnover intention during the first year of practice.			primary care for 3–12 months.	Adequate organizational support and structured transition programs facilitated successful role adaptation and promoted workforce retention.	adaptation; job satisfaction; turnover intention.
Halter [14]	2017	To synthesize evidence from systematic reviews on interventions designed to reduce nurse turnover in adult healthcare services.	Overview of reviews	Adult healthcare services in developed economies	Seven systematic reviews evaluating turnover and retention interventions.	Evidence supporting retention interventions was generally limited and of moderate methodological quality. Preceptorship programs for newly qualified nurses and leadership interventions promoting team cohesion demonstrated the most consistent benefits for improving retention and reducing turnover.	Preceptorship; leadership; team cohesion; transition support; retention interventions; turnover reduction.
Huang [37]	2019	To examine the relationships among organizational justice, organizational support, work engagement and turnover intention among community nurses.	Cross-sectional	Community nursing, China	410 community nurses.	Organizational support directly reduced turnover intention and indirectly influenced it through increased work engagement. Organizational justice improved turnover outcomes by strengthening perceived organizational support, highlighting the importance of supportive organizational climates.	Organizational justice; organizational support; work engagement; turnover intention; community nursing.
Karlsson [39]	2024	To explore working conditions associated with turnover intention and job dissatisfaction among primary healthcare nurses.	Cross-sectional	Primary healthcare, Sweden	466 registered nurses working in Swedish primary healthcare.	Approximately one-fifth of participants reported job dissatisfaction and had considered leaving their position. Poor leadership, limited colleague support, change fatigue, poor health status and long working hours were independently associated with higher turnover intention.	Leadership climate; colleague support; change fatigue; working hours; health status; job satisfaction; turnover intention.
Lessi [21]	2025	To synthesize qualitative evidence on nurses' experiences of leaving healthcare	Qualitative systematic review	Healthcare organizations and nursing profession	Twelve qualitative studies synthesizing 282 qualitative findings.	Poor management emerged as the most consistent reason underlying nurses' decisions to resign. Excessive workload, inadequate teamwork, work–life imbalance, limited career opportunities, salary	Management quality; workload; teamwork; work–life balance; career opportunities; salary; bullying; moral distress;

First Author	Year	Aims	Design	Context	Sample	Results	Determinants of ITL/Retention
		organizations or the nursing profession.				dissatisfaction, bullying and moral distress further contributed to leaving both organizations and the profession.	resignation.
Lorenz [36]	2018	To investigate family health nurses' perceived quality of care, professional exhaustion and intention to leave their current job or the nursing profession.	Cross-sectional	Family health nursing, Brazil	198 family health nurses.	Although nurses generally perceived the quality of care as good, emotional exhaustion was common and significantly associated with poorer care quality and greater intention to leave both their current position and the nursing profession.	Burnout; emotional exhaustion; perceived quality of care; intention to leave; organizational resources.
McCreary [17]	2020	To review factors influencing job satisfaction and retention among home health nurses in response to increasing demand for home care services.	Narrative review	Home health nursing, United States	Narrative synthesis of literature addressing home health nursing workforce issues.	Job satisfaction was identified as a key determinant of nurse retention. Positive relationships with patients, professional autonomy, flexible work arrangements and supportive colleagues promoted retention, whereas workload, documentation burden, uncompensated working time and inadequate salary contributed to turnover.	Job satisfaction; patient relationships; professional autonomy; work flexibility; peer support; workload; documentation burden; salary; retention.
Nizzer [33]	2024	To explore how the COVID-19 pandemic influenced the working experiences, motivations and attitudes of home and community care nurses.	Qualitative	Home and community care, Canada	Sixteen home and community care nurses working in the Greater Toronto Area.	Participants described staffing shortages, increased workload and inconsistent organizational support as major challenges during the pandemic. Professional commitment remained strong for some nurses, whereas others developed intentions to leave, highlighting preparedness, improved wages and supportive workplaces as key retention strategies.	Staffing resources; workload; workplace flexibility; isolation; organizational support; wages; pandemic preparedness; professional commitment; intention to leave.
Noguchi-Watanabe [40]	2021	To examine factors associated with home-care nurses' job satisfaction and intention to remain in their workplace.	Cross-sectional	Home care nursing, Japan	Home-care nurses employed in home-visit nursing agencies.	Supportive work environments, effective supervision and opportunities for professional development were associated with higher job satisfaction and stronger intention to remain. Collaboration and manageable workloads contributed	Job satisfaction; intention to remain; supervisory support; collaboration; workload; professional development; home care.

First Author	Year	Aims	Design	Context	Sample	Results	Determinants of ITL/Retention
						positively to workforce retention.	
Orava [25]	2017	To investigate factors influencing nurse practitioner retention in primary healthcare.	Cross-sectional	Primary healthcare, Ontario, Canada	273 primary healthcare nurse practitioners.	Positive relationships with administrators, satisfactory work–life balance and supportive organizational characteristics significantly increased nurses' intention to remain employed in primary healthcare.	Administration–NP relationships; work–life balance; family situation; organizational characteristics; intention to remain; retention.
Poghosyan [30]	2020	To investigate the association between organizational support and primary care nurse practitioner outcomes.	Cross-sectional	Primary care, United States	398 primary care nurse practitioners.	Higher organizational support was associated with greater job satisfaction, lower intention to leave and better perceived quality of care. Organizational support emerged as a key resource promoting workforce stability.	Organizational support; job satisfaction; organizational resources; intention to leave; quality of care.
Samson [28]	2026	To compare turnover rates and predictors among home health and hospital registered nurses.	Secondary cross-sectional	Home health and hospital nursing, United States	National Sample Survey of Registered Nurses including more than 5 million registered nurses across survey years.	Turnover rates were comparable across settings. Longer professional experience generally protected against turnover, whereas working more than 40 hours per week increased turnover among home health nurses.	Career tenure; work setting; weekly working hours; schedule stability; home health turnover; retention.
Schlak [31]	2023	To examine the association between structural practice capabilities and nurse practitioner job outcomes.	Secondary cross-sectional	Primary care practices, United States	1,110 nurse practitioners from 1,002 primary care practices.	Practices with stronger structural capabilities reported lower burnout, lower job dissatisfaction and lower intention to leave. Organizational infrastructure supported workforce participation and retention.	Structural capabilities; organizational resources; burnout; job dissatisfaction; intention to leave; practice support.
Stefanovska – Petkovska [41]	2021	To investigate psychological distress, burnout, job satisfaction and intention to quit among primary healthcare nurses.	Cross-sectional	Primary healthcare, North Macedonia	173 primary healthcare nurses.	Higher burnout and psychological distress together with lower job satisfaction were associated with greater intention to leave the profession. Mental wellbeing represented an important determinant of retention.	Psychological distress; burnout; job satisfaction; mental health; intention to quit.

First Author	Year	Aims	Design	Context	Sample	Results	Determinants of ITL/Retention
Tourangeau [26]	2017	To develop and test a model of work-related factors associated with home-care nurses' intention to remain employed.	Cross-sectional	Home care, Ontario, Canada	Home-care nurses employed by a large home-care organization.	Meaningful work, continuity of care, supportive supervision, work-life balance and stable income significantly increased nurses' intention to remain employed over time.	Meaningful work; continuity of care; supervisor relationships; work-life balance; income stability; salary and benefits; intention to remain.
Van der Heijden [43]	2018	To examine whether job demands, job resources and professional experience predict occupational turnover intention and actual turnover.	Longitudinal	Mixed healthcare settings (hospitals, nursing homes, and community/home care) across six European countries	753 nurses employed in European healthcare institutions.	In the overall mixed-setting sample, higher job demands were associated with greater occupational turnover intention, whereas job resources and professional experience were associated with lower occupational turnover intention. Professional experience was also negatively associated with actual occupational turnover.	Job demands; emotional demands; work-home interference; job resources; professional experience; development opportunities; occupational turnover.
Wang [22]	2024	To synthesize evidence on the relationship between job embeddedness and nurses' turnover intention.	Systematic review and meta-analysis	Nursing workforce across healthcare settings	Forty-seven studies including 15,742 nurses from seven countries.	Job embeddedness demonstrated a moderate negative association with turnover intention, with on-the-job embeddedness showing the strongest protective effect. Stronger organizational attachment promoted workforce retention.	Job embeddedness; on-the-job embeddedness; fit; links; sacrifice; education; career experience; turnover intention.
Watts Isley [32]	2022	To assess public health nurses' perceptions of work environment, stress, job satisfaction and intention to remain.	Cross-sectional	Public health nursing, North Carolina, United States	672 non-supervisory public health nurses.	Despite generally high job satisfaction, many nurses perceived retention problems and considered leaving within three years. Poor work environments and higher stress levels were consistently associated with lower intention to remain.	Work environment; job satisfaction; occupational stress; intention to remain; salary; retention.

Table 3. *Characteristics of included studies.*

Learning Strategies as Correlates of Clinical Skills among Nursing Students in North-West Nigeria

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ABSTRACT

Background: Competency-based nursing education requires students to demonstrate observable clinical skills, yet performance may vary according to how students organise, monitor and regulate their learning. Evidence linking multidimensional learning strategies with directly assessed clinical skills remains limited in Nigerian nursing education.

Objective: To determine the relationship between learning strategies and clinical skills and to compare learning-strategy and clinical-skills scores between experimental and control groups of nursing students in North-West Nigeria.

Methods: Quantitative quasi-experimental pre-test–post-test non-equivalent control-group study was conducted in two public nursing schools. Of 190 Year Two students, 152 agreed to participate and 128 were selected systematically: 64 in the experimental group and 64 in the control group. The experimental group received six weeks of structured academic coaching, while the control group continued routine instruction. Learning strategies were measured with the 64-item Learning and Study Strategies Inventory, and clinical skills were assessed using standardised checklists for taking vital signs, care of pressure areas, maintenance of oral hygiene and preparation of an unoccupied bed. Group comparisons, Pearson correlation, sensitivity analysis and hierarchical multiple linear regression were conducted.

Results: At baseline, the groups did not differ significantly in overall learning strategies (experimental: 44.2 ± 13.0 ; control: 46.4 ± 12.5 ; $p = 0.331$) or overall clinical skills (43.9 ± 6.5 versus 45.0 ± 4.8 ; $p = 0.278$). At post-test, the experimental group had higher learning-strategy scores (72.0 ± 8.0 versus 53.8 ± 12.9 ; $p < 0.001$) and clinical-skills scores (78.4 ± 6.7 versus 59.3 ± 7.5 ; $p < 0.001$). Learning strategies were moderately correlated with clinical skills, $r(126) = 0.556$, 95% CI 0.423–0.665, $p < 0.001$, with a comparable Spearman coefficient ($\rho = 0.548$, $p < 0.001$). In the adjusted model, learning strategies remained independently associated with clinical skills ($B = 0.23$, $\beta = 0.27$, $p < 0.001$). No substantial ceiling effect was observed for the overall outcomes.

Conclusion: Stronger learning strategies were independently associated with higher observed clinical-skills scores after adjustment for group allocation, baseline scores, age and sex. Strategy-focused educational support may be beneficial when integrated with supervised clinical practice; however, the non-randomised school-level allocation and residual institutional confounding require cautious interpretation.

Keywords: clinical skills; learning strategies; nursing education; nursing students; self-regulated learning; quasi-experimental study; Nigeria

INTRODUCTION

Competency-based nursing education focuses on students' demonstrated ability to integrate knowledge, psychomotor performance, communication, professional judgement and ethical conduct in practice. Contemporary competency frameworks emphasise progressive demonstration, assessment, feedback and reflection rather than reliance on course completion alone [1,2]. Clinical competence is therefore broader than clinical skills: competence represents the integrated capacity to practise safely and appropriately, whereas clinical skills are observable procedural performances that form one component of that wider capacity.

Learning strategies refer to the deliberate cognitive, behavioural and motivational processes used to acquire, organise, retain and apply information. The Learning and Study Strategies Inventory conceptualises strategic learning through skill, will and self-regulation. Skill concerns information processing, selection of main ideas and test strategies; will concerns attitude, motivation and management of learning-related anxiety; and self-regulation concerns concentration, time management, self-testing and use of academic resources [3]. Learning strategies are related to, but distinct from, self-regulated learning. Specific strategies are the techniques students use, while self-regulated learning is the broader cyclical process through which learners set goals, select strategies,

monitor progress, interpret feedback and modify their behaviour [4,5].

This distinction is relevant to nursing education because clinical procedures require students to translate theoretical knowledge into ordered, context-sensitive actions. Before performing a procedure, the student must identify the objective, retrieve relevant principles and plan the sequence of care. During performance, the student must sustain attention, monitor accuracy and respond appropriately to the patient. Afterward, the student must evaluate the outcome and use feedback to guide further practice. Learning strategies may therefore influence how effectively clinical exposure is converted into demonstrated skill.

Empirical evidence generally supports the relevance of self-regulation to nursing students' clinical learning, although the measures and outcomes vary across studies. Kurt and Eskimez [6] reported that self-regulated learning was relevant to adaptation in clinical practice, while Kim [7] identified self-regulated learning as a pathway linking emotional intelligence and collaboration with clinical performance. Subaş and Karacay [8] and Tanimura et al. [9] further demonstrated that nursing students differ in their strategic regulation of clinical learning. Intervention evidence also indicates that structured reflection, assessment and critical-thinking activities can strengthen self-regulation and clinical performance [10]. However, studies have frequently relied on self-reported competence, academic grades or constructs such as learning styles that are not equivalent to learning strategies [11].

Instructional support may be especially important when clinical learning opportunities are limited or uneven. Evidence from accelerated and undergraduate nursing programmes suggests that explicit support for planning, monitoring, feedback use and time management can facilitate self-regulated learning [12,13]. Nevertheless, evidence directly relating multidimensional learning-strategy scores to objectively observed clinical procedures remains comparatively limited in Nigerian nursing education. This gap is important because clinical-skills assessments provide a more direct indication of students' ability to perform care than self-perceived competence alone.

Nigerian evidence supports the relevance of the educational context. Anarado et al. [16] identified inadequate equipment, limited teacher participation in clinical supervision, incomplete preparation before placements and lack of shift-based preceptors as barriers to nursing students' clinical training. Akinpelu et al. [17] similarly reported that Nigerian clinical students perceived weaknesses in infrastructure, communication and lecturer–student relationships within their learning environment. More recent Nigerian evidence shows that clinical competence varies among nursing students and may be associated with individual characteristics [18]. These findings indicate that clinical learning outcomes arise from interacting student, instructional and institutional factors, while evidence specifically linking multidimensional learning strategies with directly observed procedures remains limited.

The present study examined Year Two students in two public nursing schools in North-West Nigeria. It addressed the evidence gap by assessing learning strategies and four directly observed clinical procedures in experimental and control groups before and after a structured educational intervention. The study objective was to determine the relationship between learning strategies and clinical skills and to compare the two variables between groups. The null hypothesis stated that there was no statistically significant relationship between learning strategies and clinical skills.

The conceptual relationship between students' learning strategies and their observed clinical skills performance is illustrated in Figure 1. The framework demonstrates how key dimensions of learning strategies, including skill, will, and self-regulation, may influence the development and demonstration of clinical competencies.

The group comparison describes score distributions before and after the intervention; the principal correlational pathway concerns the relationship between learning strategies and observed clinical skills.

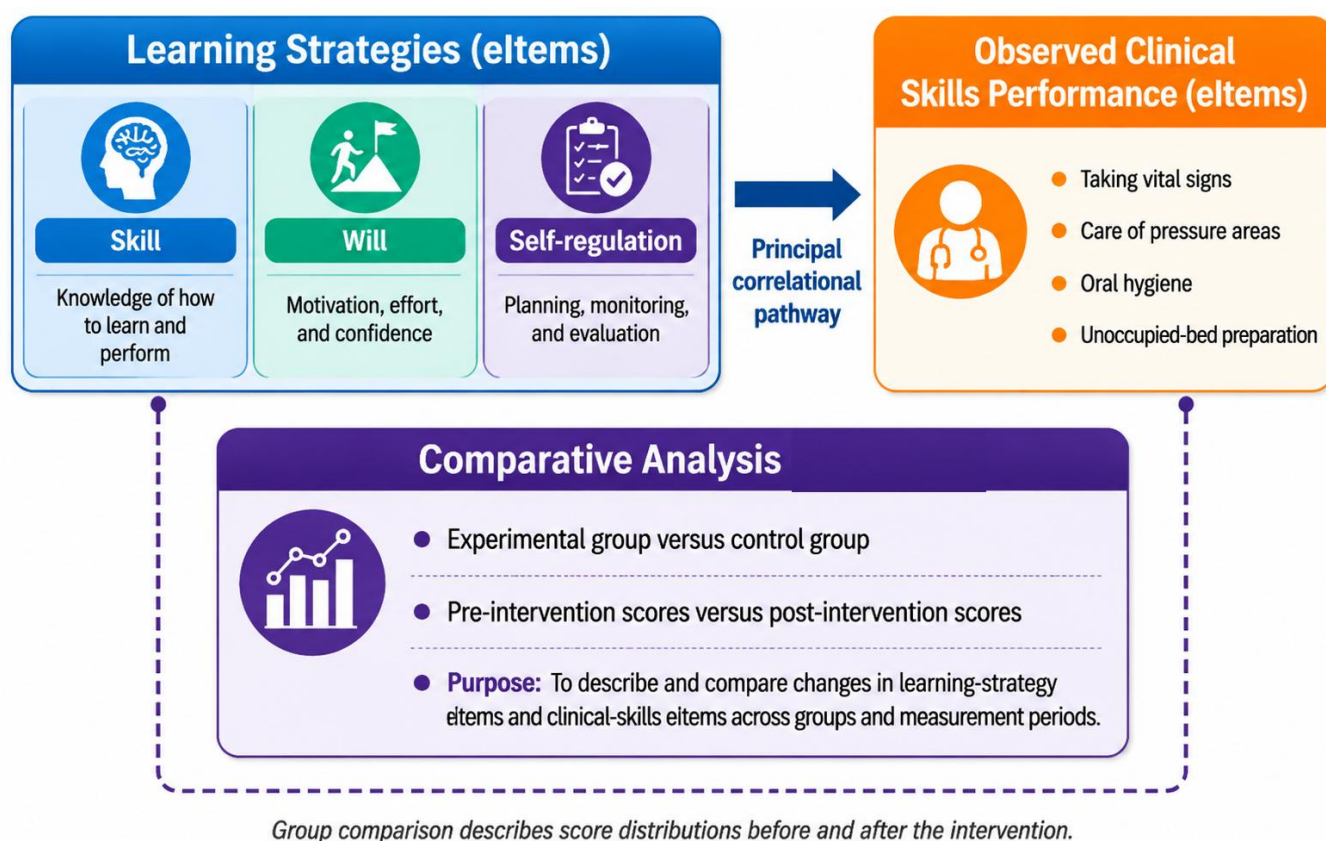


Figure 1. Conceptual framework linking learning strategies with clinical skills.

METHODS

Study design

A quantitative quasi-experimental pre-test–post-test non-equivalent control-group design was used. School of Nursing Gusau, Zamfara State, constituted the experimental school, while School of Nursing Sokoto constituted the control school. The schools were assigned by site rather than by individual randomisation; therefore, the design permitted group comparison while retaining the possibility of baseline differences between institutions. This study was guided by a conceptual framework that considers learning strategies as important determinants of clinical skills acquisition among nursing students. The framework incorporates three major learning strategy components: skill (knowledge of how to learn and perform tasks), will (motivation, effort, and confidence), and self-regulation (planning, monitoring, and evaluation). These components are proposed to

contribute to students' clinical skills performance, as assessed through selected nursing procedures (Figure 1).

Setting, population and participants

The study was conducted in two public nursing schools in Zamfara and Sokoto States, North-West Nigeria. The target population comprised 190 Year Two nursing students: 85 in Gusau and 105 in Sokoto. Year Two students were selected because they had received foundational clinical instruction and were available to participate throughout the intervention and follow-up periods. All 190 Year Two students in the two selected schools were approached during the information sessions. Of these, 152 agreed to participate and entered the sampling frame, while 38 did not proceed to consent. Systematic sampling was then used within each school to select 128 students, with 64 allocated by school to the experimental group and 64 to the control group. All 128 participants completed both pre-test and post-test assessments and were included in the final analysis (Figure 2). The remaining 24 consenting students were not selected because the predetermined sample size had been reached. All 128 selected participants completed the pre-test and post-test assessments and were included in the analysis.

Sample-size determination

The sample size was calculated for comparison of two independent means [14]. Using a two-sided 5% significance level ($Z_{\alpha/2} = 1.96$), 80% power ($Z_{\beta} = 0.84$), an assumed standard deviation of 20 and a minimum detectable mean difference of 10, the required number was calculated as

$$n = \frac{2\sigma^2 \left(\frac{Z_{\alpha/2} + Z_{\beta}}{2} \right)^2}{d^2} = \frac{2(20)^2 (1.96 + 0.84)^2}{(10)^2} = 62.8$$

participants per group. This was rounded to 64 per group, producing a total sample of 128 students.

The selection and progression of participants through the study are presented in Figure 2. The figure

illustrates the movement of participants from the target population through consent, sampling, group allocation, completion of pre-test and post-test assessments, and inclusion in the final analysis.

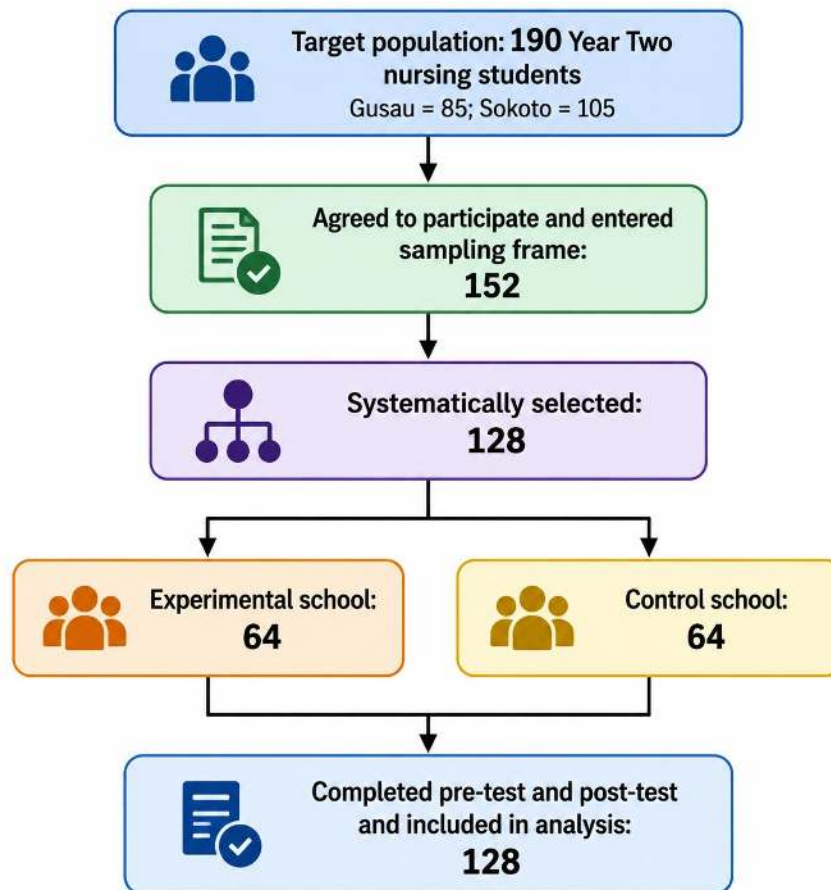


Figure 2. Flow diagram showing the recruitment, selection, allocation, follow-up, and final inclusion of Year Two nursing students in the experimental and control groups..

Intervention and control conditions

Four qualified clinical instructors from the experimental school completed a three-day preparation programme on the coaching protocol, constructive feedback, student collaboration, communication and progress monitoring. The 64 experimental-group students were divided into four groups of 16 and assigned to the trained instructors. The intervention lasted six weeks. Sessions were conducted

weekly and generally lasted 60–90 minutes.

The intervention combined goal setting, identification of learning barriers, action planning, explicit learning-strategy instruction, demonstration and supervised practice of the selected procedures, immediate feedback, self-evaluation and follow-up. Progress was reviewed through a four-step sequence of review, evaluation, anticipation of barriers and planning [15]. Students were expected to undertake peer practice and clinical application between sessions. The control group continued the routine educational and clinical programme provided by its school. The post-test was conducted within two months after the final coaching session using the same learning-strategy and clinical-skills measures administered at baseline.

Measurement of learning strategies

Learning strategies were assessed using the 64-item Learning and Study Strategies Inventory [3]. Items were rated on a five-point scale from 1 (not at all typical of me) to 5 (very much typical of me) and scored according to the instrument key, including reverse scoring where applicable. The ten scales were grouped into skill (information processing, selecting main ideas and test strategies), will (attitude, motivation and anxiety management) and self-regulation (time management, concentration, self-testing and use of academic resources). The English-language version was retained because English was the medium of instruction. Nursing-education, clinical-nursing, educational-measurement and language experts reviewed the instrument for clarity and cultural relevance in North-West Nigeria. Minor contextual wording changes were made without altering the construct structure, response options or scoring, and the instrument was pilot-tested among 20 Year Two nursing students in a comparable public nursing school outside the study sites. Percentage scores were calculated as the obtained raw score divided by the maximum obtainable raw score and multiplied by 100. Continuous scores were retained for analysis to avoid unsupported categorical cut-offs.

Published scale-level Cronbach's alpha coefficients ranged from 0.68 to 0.89, with test-retest coefficients of 0.72–0.85. Preliminary testing in the study yielded test-retest and split-half coefficients of 0.87 and 0.70, respectively. Using pre-intervention responses from all 128 participants, Cronbach's alpha was 0.89 for skill, 0.87 for will and 0.90 for self-regulation; the ten scale-level coefficients ranged from 0.74 to 0.86, and the complete instrument coefficient was 0.93, indicating acceptable to good internal consistency across the scales and high internal consistency for the broader scores.

A published psychometric validation study of this specific 64-item version among Nigerian nursing students was not identified. Contextual appropriateness was therefore supported through English-language administration, expert review, pilot testing and current-sample reliability estimates. This approach supports use in the present setting but does not replace a full Nigerian construct-validation study.

Measurement of clinical skills

Clinical skills were assessed under Objective Structured Clinical Examination conditions using procedure-performance checklists based on the Nursing and Midwifery Council of Nigeria format. Eight clinical instructors who were nurse educators, four from each participating school, conducted the assessments. Four curriculum-based procedures were selected by balloting and used at both assessments: taking vital signs, care of pressure areas, maintenance of oral hygiene and preparation of an unoccupied bed. The checklists assessed preparation, performance of the required sequence and completion or documentation activities. Each procedure carried 12 marks, giving 48 obtainable marks across the four procedures. Procedure scores and the aggregate clinical-skills score were converted to percentages for analysis.

Before data collection, the eight assessors completed a three-day standardisation workshop led by the principal investigator. Training covered checklist interpretation, station preparation, scoring of

correctly, incorrectly and incompletely performed steps, and maintenance of consistent assessment conditions. Assessors practised scoring simulated performances and received a refresher briefing before the post-intervention assessment. Inter-rater reliability was examined through independent paired ratings of 16 nursing students outside the main sample. The overall absolute-agreement intraclass correlation coefficient was 0.90 (95% CI 0.84–0.94), with procedure-specific coefficients of 0.84–0.92. The experimental and control schools were located in different states and had no direct interaction during the study. Students and clinical instructors at each site were unaware of the identity, activities and results of the comparison school, thereby reducing the risk of information exchange and intervention contamination. Full assessor blinding to group allocation was not feasible because the clinical instructors worked within their respective schools; the study therefore used partial site-level blinding. The checklists also underwent professional review for face and content relevance.

The selected checklists were existing Nursing and Midwifery Council of Nigeria examination tools developed through professional input from experienced Nigerian nurse educators. For the present study, the eight instructors reviewed the four selected checklists for face validity, curriculum alignment, clarity and procedural relevance before administration. A numerical Content Validity Index was not available; this is reported transparently and considered when interpreting the measurement evidence.

Data-collection procedure

Administrative permission and ethical approval were obtained before recruitment. Students received study information and provided written informed consent. Pre-test assessment was conducted within the first week after consent using the same instruments in both groups. Following the six-week intervention, the post-test questionnaires and clinical assessments were scheduled for both schools within two months of the final session. Self-created identification codes were used to link pre-test

and post-test records while protecting participant identity.

Data analysis

Data were analysed using IBM SPSS Statistics version 23. Frequencies and percentages summarised categorical variables, while means and standard deviations summarised continuous scores. Cronbach's alpha assessed internal consistency of the LASSI using pre-intervention item-level responses. Baseline demographic distributions were compared using chi-square tests, and independent-samples t tests compared experimental and control groups at pre-test and post-test. Mean differences, two-tailed p values, 95% confidence intervals and standardised mean differences were reported for the principal group comparisons.

Before Pearson's product-moment correlation was interpreted, normality was assessed using histograms, Q-Q plots and Shapiro-Wilk tests; linearity was examined with a scatterplot; and standardised residuals, leverage values and Cook's distance were inspected for influential observations. Spearman's rank correlation was conducted as a sensitivity analysis. Correlation magnitude was interpreted as very weak (0.00–0.19), weak (0.20–0.39), moderate (0.40–0.59), strong (0.60–0.79) or very strong (0.80–1.00). The exact two-tailed probability was calculated from the coefficient and sample size, and a 95% confidence interval was obtained using Fisher's z transformation.

Hierarchical multiple linear regression was used to determine whether post-intervention learning strategies remained associated with post-intervention clinical skills after adjustment for group allocation, baseline clinical skills, baseline learning strategies, age and sex. The covariates were entered in Block 1 and post-intervention learning strategies in Block 2. Regression coefficients, standard errors, standardised beta coefficients, 95% confidence intervals, R^2 , adjusted R^2 and change in R^2 were reported. Linearity, residual normality, homoscedasticity, multicollinearity and influential observations were examined. Possible ceiling effects were evaluated from observed score

ranges and the proportions attaining the maximum or scoring at or above 90% of the obtainable score. Statistical significance was set at p -value (p) < 0.05.

Procedure-specific outcomes and all ten learning-strategy scales were reported separately to show whether the overall patterns were consistent across domains. A complete matrix of 40 scale-by-procedure correlations was not treated as confirmatory because the sample size was not planned for that number of comparisons and extensive testing would increase the risk of false-positive findings. The prespecified overall learning-strategy and overall clinical-skills scores therefore remained the primary correlational analysis.

Ethical considerations

Ethical approval was granted by the Zamfara State Health Research Ethics Committee (approval number ZSHREC03082021) on 16 August 2021. Administrative permission was obtained from the participating schools. Participation was voluntary, written informed consent was obtained, and confidentiality was maintained through coded records and secure data storage.

RESULTS

Participant characteristics and flow

Of the 190 Year Two students approached, 152 consented to participate and 38 did not proceed to consent. Systematic sampling selected 128 students for the study, while 24 consenting students were not selected after the required sample had been reached. All 128 selected participants completed both assessments and were analysed, comprising 64 students in each group. The groups were similar in sex, age, marital status and type of secondary school attended. In the experimental group, 54.7% were female, 51.6% were aged 18–22 years, 78.1% were unmarried and 56.3% had attended public secondary schools. The corresponding proportions in the control group were 51.6%, 54.7%, 82.8% and 51.6%. More than 93% of each group was reported as Hausa, indicating a highly

homogeneous ethnic distribution.

The baseline socio-demographic characteristics of participants in the experimental and control groups are presented in Table 1. These characteristics were examined to determine whether the groups were comparable before the intervention.

Variable	Category	Experimental n (%)	Control n (%)	χ^2	<i>p</i> -value
Sex	Male	29 (45.3)	31 (48.4)	0.141	0.707
	Female	35 (54.7)	33 (51.6)		
Age (years)	18–22	33 (51.6)	35 (54.7)	0.265	0.966
	23–27	18 (28.1)	19 (29.7)		
	28–32	10 (15.6)	9 (14.1)		
	>33	3 (4.7)	1 (1.6)		
Marital status	Unmarried	50 (78.1)	53 (82.8)	0.686	0.408
	Married	14 (21.9)	11 (17.2)		
Secondary school	Private	28 (43.8)	31 (48.4)	0.772	0.380
	Public	36 (56.3)	33 (51.6)		
Ethnic group	Hausa	60 (93.8)	62 (96.9)	0.675	0.714
	Yoruba	4 (6.3)	2 (3.1)		
	Igbo	0 (0.0)	0 (0.0)		

Table 1. *Baseline socio-demographic characteristics of the experimental and control groups (n = 128).*

Learning strategies

At baseline, the groups had comparable overall learning-strategy scores. The experimental-group mean was 44.2 ± 13.0 and the control-group mean was 46.4 ± 12.5 , giving a mean difference of -2.2 points (95% CI -6.7 to 2.3 ; $t(126) = -0.98$, $p = 0.331$). Baseline component differences were also not statistically significant. At post-test, the experimental group had higher scores for skill, will, self-regulation and the overall learning-strategy measure. The overall post-test difference was 18.2 points (95% CI 14.4 – 22.0 ; $t(126) = 9.59$, $p < 0.001$; Cohen's $d = 1.70$).

Changes in learning-strategy components between the experimental and control groups before and after the intervention are presented in Table 2. The table compares group differences across skill, will, self-regulation and overall learning-strategy scores.

Component	Pre: Exp. mean $\pm$ SD	Pre: Ctrl mean $\pm$ SD	Pre <i>p</i> -value	Post: Exp. mean $\pm$ SD	Post: Ctrl mean $\pm$ SD	Post <i>p</i> -value
Skill	50.2 $\pm$ 25.0	51.3 $\pm$ 24.4	0.802	75.0 $\pm$ 12.8	53.1 $\pm$ 24.8	<0.001*
Will	41.7 $\pm$ 22.4	42.3 $\pm$ 19.7	0.872	68.4 $\pm$ 14.6	43.7 $\pm$ 21.2	<0.001*
Self-regulation	51.2 $\pm$ 24.9	56.1 $\pm$ 28.3	0.300	72.6 $\pm$ 13.4	62.2 $\pm$ 21.9	0.002*
Overall	44.2 $\pm$ 13.0	46.4 $\pm$ 12.5	0.331	72.0 $\pm$ 8.0	53.8 $\pm$ 12.9	<0.001*
Note: Between-group <i>p</i> values are two-tailed independent-samples t-test results based on 64 participants per group; * = significant test.						

Table 2. *Learning-strategy components at pre-test and post-test by study group.*

The post-intervention comparison of the ten learning-strategy scales is shown in Table 3. This analysis provides further detail on the specific learning behaviours contributing to differences between the experimental and control groups

Learning-strategy scale	Experimental mean $\pm$ SD	Control mean $\pm$ SD	t (df = 126)	<i>p</i> -value	Direction
Information processing	74.0 $\pm$ 13.3	50.8 $\pm$ 27.6	6.06	<0.001*	Exp. higher
Selecting main ideas	75.6 $\pm$ 12.7	54.5 $\pm$ 25.7	5.89	<0.001*	Exp. higher
Test strategies	75.1 $\pm$ 12.4	54.1 $\pm$ 21.2	6.84	<0.001*	Exp. higher
Attitude	67.4 $\pm$ 13.4	31.3 $\pm$ 16.5	13.59	<0.001*	Exp. higher
Motivation	67.5 $\pm$ 15.0	41.9 $\pm$ 25.2	6.98	<0.001*	Exp. higher
Anxiety management	70.2 $\pm$ 15.3	57.9 $\pm$ 21.9	3.68	<0.001*	Exp. higher
Time management	73.9 $\pm$ 14.6	68.0 $\pm$ 17.5	2.07	0.040*	Exp. higher
Concentration	73.1 $\pm$ 13.1	61.8 $\pm$ 21.0	3.65	<0.001*	Exp. higher
Use of academic resources	68.6 $\pm$ 12.9	59.8 $\pm$ 23.1	2.66	0.009*	Exp. higher
Self-testing	74.9 $\pm$ 12.8	59.2 $\pm$ 26.0	4.33	<0.001*	Exp. higher
* = significant test.					

Table 3. *Post-test scores for the ten learning-strategy scales by study group.*

The post-test pattern was multidimensional. The largest between-group contrast occurred for attitude, while statistically significant differences were also observed for information processing, selecting main ideas, test strategies, motivation, anxiety management, time management, concentration, use of academic resources and self-testing. The findings therefore indicate that the group difference was not confined to one learning behaviour.

The LASSI demonstrated satisfactory internal consistency in the current sample. Cronbach's alpha coefficients for the ten scales ranged from 0.74 to 0.86. The skill, will and self-regulation

components produced coefficients of 0.89, 0.87 and 0.90, respectively, while the complete instrument coefficient was 0.93.

Clinical skills

The experimental and control groups did not differ significantly in the overall clinical-skills score at baseline (43.9 ± 6.5 versus 45.0 ± 4.8 ; mean difference -1.1 , 95% CI -3.1 to 0.9 ; $t(126) = -1.09$, $p = 0.278$). Procedure-specific baseline scores were not uniform: the control group scored higher in taking vital signs and care of pressure areas, while the groups did not differ significantly in maintenance of oral hygiene or preparation of an unoccupied bed. This pattern is consistent with the non-randomised allocation of intact schools and requires caution when interpreting procedure-specific post-test differences.

At post-test, the experimental group recorded higher scores in all four procedures and in the overall clinical-skills measure. The overall mean difference was 19.1 points (95% CI 16.6–21.6; $t(126) = 15.19$, $p < 0.001$; Cohen's $d = 2.69$). The consistency of the post-test direction across procedures indicates that the difference extended across several fundamental nursing activities.

The clinical-skills performance of participants across the four assessed nursing procedures is presented in Table 4.

Clinical procedure	Pre: Exp. mean $\pm$ SD	Pre: Ctrl mean $\pm$ SD	Pre <i>p</i> -value	Post: Exp. mean $\pm$ SD	Post: Ctrl mean $\pm$ SD	Post <i>p</i> -value
Taking vital signs	37.8 $\pm$ 14.4	42.1 $\pm$ 8.0	0.039*	73.8 $\pm$ 13.0	58.1 $\pm$ 11.9	<0.001*
Care of pressure areas	28.0 $\pm$ 10.4	45.4 $\pm$ 7.4	<0.001*	78.6 $\pm$ 12.0	61.9 $\pm$ 11.1	<0.001*
Maintenance of oral hygiene	48.0 $\pm$ 12.2	44.7 $\pm$ 9.3	0.088	80.8 $\pm$ 12.0	58.9 $\pm$ 12.2	<0.001*
Preparation of an unoccupied bed	51.9 $\pm$ 18.3	47.7 $\pm$ 7.6	0.092	80.1 $\pm$ 13.1	58.2 $\pm$ 11.5	<0.001*
Overall clinical skills	43.9 $\pm$ 6.5	45.0 $\pm$ 4.8	0.278	78.4 $\pm$ 6.7	59.3 $\pm$ 7.5	<0.001*

* = significant test.

Table 4. *Clinical-skills scores at pre-test and post-test by procedure and study group.*

The Table 4 compares pre-test and post-test scores between the experimental and control groups for each clinical procedure and the overall clinical-skills measure.

Assessment of possible ceiling effects

Observed ranges and upper-bound frequencies did not indicate a substantial ceiling effect for the overall measures. Overall learning-strategy scores ranged from 52.0 to 91.0 in the experimental group and from 29.0 to 82.0 in the control group; no participant attained the maximum score and only one experimental-group participant (1.6%) scored at or above 90%. Overall clinical-skills scores ranged from 62.5 to 93.8 and from 41.7 to 77.1, respectively; no participant attained the maximum overall score and three experimental-group participants (4.7%) scored at or above 90%. Modest upper-end clustering was observed for maintenance of oral hygiene and preparation of an unoccupied bed, for which 21.9% of experimental-group participants scored at or above 90%. The distribution of post-intervention scores and assessment of potential ceiling effects are presented in Table 5. This analysis was conducted to determine whether high scores limited the ability of the measures to differentiate participant performance.

Outcome	Exp. range	Exp. $\geq 90\%$ n (%)	Exp. max n (%)	Control range	Control $\geq 90\%$ n (%)	Control max n (%)
Overall learning strategies	52.0–91.0	1 (1.6)	0 (0.0)	29.0–82.0	0 (0.0)	0 (0.0)
Overall clinical skills	62.5–93.8	3 (4.7)	0 (0.0)	41.7–77.1	0 (0.0)	0 (0.0)
Taking vital signs	41.7–100.0	7 (10.9)	2 (3.1)	33.3–83.3	0 (0.0)	0 (0.0)
Care of pressure areas	50.0–100.0	11 (17.2)	3 (4.7)	33.3–83.3	0 (0.0)	0 (0.0)
Maintenance of oral hygiene	50.0–100.0	14 (21.9)	4 (6.3)	25.0–83.3	0 (0.0)	0 (0.0)
Preparation of an unoccupied bed	41.7–100.0	14 (21.9)	5 (7.8)	33.3–91.7	1 (1.6)	0 (0.0)

Note: Scores at or above 90% of the obtainable score were classified as near the upper boundary.

Table 5. *Post-intervention score ranges and assessment of possible ceiling effects.*

Relationship between learning strategies and clinical skills

The learning-strategy and clinical-skills scores were approximately normally distributed on visual inspection. Shapiro–Wilk tests were not statistically significant for learning strategies ($W = 0.986$, $p = 0.189$) or clinical skills ($W = 0.983$, $p = 0.104$). The scatterplot showed an approximately linear positive relationship. Standardised residuals ranged from -2.72 to 2.61 and the maximum Cook's

distance was 0.074, indicating no influential outliers.

Across all 128 participants, learning strategies were moderately and positively correlated with clinical skills, $r(126) = 0.556$, 95% CI 0.423–0.665, $p < 0.001$. The Spearman sensitivity analysis produced a comparable association ($\rho = 0.548$, $p < 0.001$), indicating that the finding was not materially dependent on distributional assumptions. The null hypothesis of no statistically significant relationship was rejected. In the unadjusted standardised model, learning strategies explained 30.9% of the observed variance in clinical-skills scores, $F(1,126) = 56.38$, $p < 0.001$.

The relationship between learning strategies and clinical skills across all participants is presented in Table 6. The table summarises the correlation coefficient and unadjusted regression model examining the association between the two main study variables.

Predictor	Outcome	r / β	95% CI for r	R^2	Adjusted R^2	F (df)	p -value
Learning strategies	Clinical skills	0.556	0.423–0.665	0.309	0.304	56.38 (1,126)	<0.001*
Note: In a simple one-predictor standardized model, β equals Pearson's r . This model is unadjusted and should not be interpreted as establishing causality. *=significant test.							

Table 6. *Correlation and unadjusted standardised regression relating learning strategies to clinical skills ($n = 128$).*

Adjusted multivariable analysis

The hierarchical regression model was statistically significant, $F(6,121) = 51.86$, $p < 0.001$, and explained 72.0% of the variance in post-intervention clinical-skills scores ($R^2 = 0.720$; adjusted $R^2 = 0.706$). Experimental-group membership was the strongest predictor ($B = 13.72$, $\beta = 0.57$, 95% CI 10.57–16.87, $p < 0.001$). After adjustment for group allocation, baseline clinical skills, baseline learning strategies, age and sex, post-intervention learning strategies remained positively associated with clinical skills ($B = 0.23$, $\beta = 0.27$, 95% CI 0.12–0.34, $p < 0.001$). Adding post-intervention learning strategies explained a further 3.9% of the variance ($\Delta R^2 = 0.039$, F -change(1,121) = 16.85,

$p < 0.001$). Baseline clinical skills and age were also significant, whereas baseline learning strategies and sex were not.

The adjusted predictors of post-intervention clinical-skills performance are presented in Table 7. The hierarchical regression model examines whether learning strategies remained associated with clinical skills after controlling for group allocation and relevant participant characteristics.

Predictor	B	SE	β	t	p-value	95% CI for B
Post-intervention learning strategies	0.23	0.055	0.27	4.18	<0.001*	0.12–0.34
Experimental group	13.72	1.59	0.57	8.63	<0.001*	10.57–16.87
Baseline clinical skills	0.20	0.069	0.17	2.90	0.004*	0.06–0.34
Baseline learning strategies	0.03	0.037	0.05	0.81	0.419	–0.04–0.10
Age group	1.28	0.52	0.14	2.46	0.015*	0.25–2.31
Female sex	0.62	1.05	0.03	0.59	0.556	–1.46–2.70
Note: Control group = 0 and experimental group = 1; male = 0 and female = 1. Model $R^2 = 0.720$; adjusted $R^2 = 0.706$. * = significant test						

Table 7. Hierarchical multiple linear regression predicting post-intervention clinical-skills scores ($n = 128$).

DISCUSSION

The present study examined the relationship between learning strategies and clinical skills among nursing students in North-West Nigeria and compared scores between experimental and control groups. Three principal findings emerged. First, the groups had comparable overall learning-strategy and clinical-skills scores at baseline, although two procedure-specific baseline differences were observed. Second, the experimental group recorded higher post-test learning-strategy and clinical-skills scores than the control group. Third, learning strategies were moderately and positively associated with clinical skills across the 128 participants.

The baseline learning-strategy findings indicate that both groups began with similar overall strategic-learning profiles. The experimental-group mean was 44.2, compared with 46.4 in the control group, and the confidence interval for the difference included zero. This comparability

strengthens the interpretation of the post-test contrast for the overall learning-strategy score, while the use of intact schools still precludes the assumption of complete equivalence. At post-test, the experimental group's overall score exceeded that of the control group by 18.2 points, with a large standardized difference. The result indicates that the structured educational programme was accompanied by a substantial difference in measured learning strategies within the study setting.

The post-test difference extended across skill, will and self-regulation. Higher skill scores suggest stronger information processing, identification of central ideas and preparation for assessment. These processes are relevant to clinical learning because students must distinguish critical procedural information, connect principles with practice and recall an appropriate sequence of care. Higher self-regulation scores suggest greater use of time management, concentration, academic resources and self-testing. Such strategies may help students organise practice, identify gaps in understanding and seek corrective feedback before formal assessment.

The will component remained lower than the skill and self-regulation components in the experimental group. This pattern may indicate that attitudes, motivation and management of learning-related anxiety require more sustained reinforcement than cognitive and organisational strategies. Strategy instruction can provide immediate techniques for planning and information processing, whereas motivational change may depend on repeated mastery experiences, supportive feedback and continued clinical supervision. The interpretation remains tentative because the study assessed outcomes within two months of the intervention.

The learning-strategy findings are broadly consistent with evidence showing that self-regulated learning supports nursing students' engagement with clinical practice [6–9]. They also accord with intervention research in which structured reflection, assessment and critical-thinking activities strengthened self-regulation and clinical performance [10]. However, the present study differs from research that measures learning styles or self-perceived competence [11]. By assessing ten strategy scales and directly observed procedures, it provides evidence that strategic learning is relevant to

demonstrated rather than perceived clinical performance.

The overall clinical-skills scores were comparable at baseline, but the procedure-specific results require a more qualified interpretation. The control group had higher baseline scores for taking vital signs and care of pressure areas. These imbalances are plausible in a non-equivalent group design because the schools may have differed in prior teaching sequence, practice exposure or assessment familiarity. Consequently, the post-test procedure differences cannot be attributed solely to the intervention without adjustment for baseline performance. The overall post-test difference was nevertheless large and occurred in the same direction across all four procedures.

The four procedures represented complementary dimensions of fundamental nursing care. Taking vital signs required systematic observation and recording of physiological measurements. Care of pressure areas required preventive care, patient positioning, skin assessment and maintenance of tissue integrity. Maintenance of oral hygiene assessed organised personal care, patient comfort and infection-prevention practices. Preparation of an unoccupied bed required sequencing, environmental organisation and adherence to basic care standards. The consistently higher post-test scores in the experimental group indicate that the observed difference was not limited to one procedural domain.

The high post-test means did not correspond to a substantial ceiling effect for the overall learning-strategy or clinical-skills measures, because very few students scored at or above 90% and none attained the maximum overall score. Modest upper-end clustering occurred for oral hygiene and unoccupied-bed preparation. The limited number of scoring points on individual checklists may therefore have reduced discrimination among some high-performing students, and procedure-specific findings should be interpreted alongside the aggregate clinical-skills score.

The principal finding relevant to the title was the moderate positive relationship between learning strategies and clinical skills. The Pearson coefficient of 0.556 and the comparable Spearman coefficient of 0.548 indicate that students with stronger learning-strategy scores tended to

demonstrate stronger clinical skills. The confidence interval excluded weak and null relationships, and the unadjusted model accounted for approximately 31% of the variance in clinical-skills scores. This magnitude is educationally meaningful while also showing that substantial variation remained attributable to other influences and measurement error. The association can be interpreted through the functional requirements of clinical performance. Students must retrieve theoretical principles, organise procedural information, maintain concentration, monitor the accuracy of their actions and evaluate outcomes. Information processing and selection of main ideas may support recognition of critical steps. Time management and concentration may facilitate deliberate practice, while self-testing and resource use may help students detect weaknesses and seek assistance. Stronger learning strategies may therefore support more systematic engagement with clinical tasks, although the association does not establish a causal pathway.

The finding is consistent with self-regulated learning theory [4,5]. Clinical-skill acquisition involves forethought, performance monitoring and reflection. During forethought, learners set objectives and plan their approach. During performance, they regulate attention and monitor action. During reflection, they interpret feedback and identify further learning needs. The positive relationship observed in the present study supports the theoretical expectation that deliberate regulation of learning corresponds with stronger performance in complex applied tasks.

The observed group differences, correlation and adjusted regression answer related but distinct questions. The group comparisons describe score differences between the experimental and control schools, whereas the correlations describe how the two title variables varied together across participants. In the multivariable model, learning strategies remained independently associated with clinical skills after adjustment for group allocation, baseline clinical skills, baseline learning strategies, age and sex. The reduction from the crude correlation to the adjusted standardised coefficient indicates that group and baseline characteristics explained part of the unadjusted relationship. Experimental-group membership remained the strongest predictor. Because each group

was located in a different school, the group coefficient represents a combined intervention-and-institution effect; residual institutional confounding cannot therefore be excluded.

The findings have practical implications for nursing education. Strategy development may be integrated with clinical instruction through explicit goal setting, procedural planning, scheduled practice, self-testing, reflective review and structured feedback. These activities may be incorporated into existing supervision rather than delivered as a separate resource-intensive programme. In low-resource settings, small-group coaching and peer practice could contribute to more deliberate use of available clinical opportunities, but feasibility, instructor workload and implementation fidelity should be evaluated.

Overall, the evidence indicates that learning strategies have relevance beyond classroom assessment. Their association with directly observed clinical skills suggests that cognitive, motivational and self-regulatory support may contribute to the development of practice readiness. The findings provide a basis for further controlled, multicentre research that uses verified psychometric scoring, blinded or standardised clinical assessment and adjusted analyses.

Implications for nursing education

- Learning-strategy assessment may help educators identify students who require additional support with information processing, motivation, time management, concentration, self-testing or use of learning resources.
- Clinical instruction could combine demonstration with learner-generated goals, guided practice, immediate feedback and reflective review.
- Strategy-focused support should be evaluated as a complement to routine clinical teaching rather than as a replacement for supervised practice.
- Implementation studies should examine the feasibility, instructor workload, fidelity and sustainability of small-group academic coaching in public nursing schools.

- Clinical-skills assessment should use clearly documented scoring rubrics and assessor-standardisation procedures to strengthen reliability.

Strengths and Limitations

A major strength was the use of directly observed clinical procedures rather than exclusive reliance on students' perceptions of competence. The study also assessed multiple dimensions of learning strategies, used a control group, obtained complete follow-up and included procedure-specific outcomes. The corrected correlation is reported with a confidence interval and an exact significance calculation consistent with $n = 128$.

Several limitations should be considered. The quasi-experimental design used intact schools without individual randomisation, creating potential selection bias and institutional confounding. Because the experimental and control groups were located in different schools, coaching exposure could not be separated completely from institutional characteristics. Procedure-specific baseline imbalance was evident for taking vital signs and care of pressure areas. Learning strategies were self-reported and may have been affected by social-desirability or response bias. Assessors could not be blinded to school or assessment period. A numerical Content Validity Index was not available for the clinical checklists, and a full Nigerian construct-validation study of the 64-item LASSI was not identified. The sample was drawn from two public schools and was ethnically homogeneous, limiting generalisability. Although no substantial ceiling effect was identified for the overall outcomes, modest upper-end clustering in oral hygiene and unoccupied-bed preparation may have reduced discrimination among higher-performing students. Residual confounding may remain despite statistical adjustment.

CONCLUSION

Learning strategies were moderately and positively associated with clinical skills among nursing

students in North-West Nigeria. The association remained statistically significant after adjustment for group allocation, baseline scores, age and sex. The experimental group also recorded higher post-test learning-strategy and clinical-skills scores than the control group. Strategy-focused support may therefore contribute to clinical learning when integrated with supervised practice; however, the non-randomised school-level design, residual institutional confounding and modest procedure-specific upper-end clustering require cautious interpretation and further multicentre evaluation.

Ethics approval and consent to participate

Ethical approval was granted by the Zamfara State Health Research Ethics Committee (approval number ZSHREC03082021) on 16 August 2021. Administrative permission was obtained from both schools. All participants provided written informed consent.

Data availability

De-identified data may be made available by the corresponding author upon reasonable request and subject to institutional and ethical approval.

Competing interests

No competing interests.

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Author contributions

Y.L. contributed to conceptualisation, methodology, intervention development, investigation, formal

analysis, project administration, funding acquisition and preparation of the original draft. M.M.M contributed to investigation, data collection, validation and review and editing of the manuscript. A.S. contributed to methodology, clinical-content validation, interpretation and review and editing. A.S.K. contributed to supervision, project administration, interpretation and review and editing. All authors reviewed and approved the final manuscript. M.Z contributed in data collection, validation and review and editing of the manuscript.

Previous dissemination

The study was undertaken within a doctoral research programme. The analyses and tables in this manuscript have not been published previously and that this is the first journal report focusing on learning strategies and directly observed clinical skills across both study groups.

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REFERENCES

1. American Association of Colleges of Nursing. The Essentials: Core Competencies for Professional Nursing Education. Washington, DC: AACN; 2021.
2. World Health Organization. Nurse Educator Core Competencies. Geneva: World Health Organization; 2016.
3. Weinstein CE, Palmer DR, Schulte AC. Learning and Study Strategies Inventory (LASSI). Clearwater, FL: H & H Publishing; 1987.
4. Boekaerts M. Self-regulated learning: where we are today. *International Journal of Educational Research*. 1999;31(6):445–457. doi:10.1016/S0883-0355(99)00014-2.
5. Zimmerman BJ. Becoming a self-regulated learner: an overview. *Theory Into Practice*. 2002;41(2):64–70. doi:10.1207/s15430421tip4102_2.
6. Kurt E, Eskimez Z. Examining self-regulated learning of nursing students in clinical practice: a descriptive and cross-sectional study. *Nurse Education Today*. 2022;109:105242. doi:10.1016/j.nedt.2021.105242.
7. Kim SH. The mediating effect of self-regulated learning on the relationships among emotional intelligence, collaboration, and clinical performance in Korean nursing students. *Journal of Nursing Research*. 2022;30(3):e212. doi:10.1097/JNR.0000000000000494.
8. Subaş F, Karacay P. Factors associated with nursing students' self-regulated learning in clinical practicum: a descriptive cross-sectional study. *Nursing & Health Sciences*. 2023;25(1):73–82. doi:10.1111/nhs.12997.
9. Tanimura C, Okuda R, Tokushima Y, Matsumoto Y, Katou S, Miyoshi M. Examining the reliability and validity of a self-regulated learning strategy scale for undergraduate nursing students and effective factors of self-regulated learning strategies. *Nurse Education Today*. 2023;128:105872. doi:10.1016/j.nedt.2023.105872.

10. Zeng W, Goh YX, Ponnampereuma G, Liaw SY, Lim CC, Jayarani P, Chia SY, de Bruin A. Promotion of self-regulated learning through internalization of critical thinking, assessment and reflection to empower learning (iCARE): a quasi-experimental study. *Nurse Education Today*. 2024;142:106339. doi:10.1016/j.nedt.2024.106339.
11. Mousavi SK, Javadzadeh A, Hasankhani H, Alijani Parizad Z. Relationship between learning styles and clinical competency in nursing students. *BMC Medical Education*. 2024;24:469. doi:10.1186/s12909-024-05432-z.
12. Irvine S, Brooks I, Lau R, McKenna L. Self-regulated learning instructional support for students enrolled in an accelerated nursing program. *Collegian*. 2020;27(4):402-409. doi:10.1016/j.colegn.2019.11.007
13. Sadeghi N, Janatolamkn M, Rezaeian S, Rashi M, Khatony A. Exploring self-directed learning readiness and related factors: the role of time management skills in nursing students. *BMC Medical Education*. 2024;24:1088. doi:10.1186/s12909-024-06083-w.
14. Rosner B. *Fundamentals of Biostatistics*. 8th ed. Boston, MA: Cengage Learning; 2015.
15. Swartz SL, Prevatt F, Proctor BE. A coaching intervention for college students with attention-deficit/hyperactivity disorder. *Psychology in the Schools*. 2005;42(6):647-656. doi:10.1002/pits.20101.
16. Anarado AN, Agu GU, Nwonu EI. Factors hindering clinical training of students in selected nursing educational institutions in Southeastern Nigeria. *Nurse Education Today*. 2016;40:140–145. doi:10.1016/j.nedt.2016.02.022.
17. Akinpelu AO, Oyewole OO, Odunaiya N, Odole AC, Olley JP. Clinical students' perception of educational environment in a Nigerian university: a mixed-method study. *BMC Medical Education*. 2024;24:725. doi:10.1186/s12909-024-05734-2.
18. Ogunmuyiwa AO, Anyama SC, Howells BB, Ogunleye CA, Esan DT. Gender and age differential on competence level in clinical practice among nursing students in a tertiary

institution in Nigeria. SAGE Open Nursing. 2025;11:23779608251331587.
doi:10.1177/23779608251331587.

Nurse-performed radial arterial access:

A scoping review of reported practice, training and evidence gaps

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Review article

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ABSTRACT

Introduction: Nurse-performed radial arterial access has been described as a potential area of advanced nursing practice in high-acuity settings, although the available evidence remains limited and fragmented.

Objective: To map the extent, range and nature of the literature on nurse-performed radial arterial access, including reported clinical settings, nursing roles, training models, outcomes and evidence gaps.

Materials and Methods: A scoping review was conducted in accordance with Joanna Briggs Institute methodology and PRISMA-ScR guidance. PubMed, Scopus and Web of Science were searched. Original studies involving adult populations and direct nurse involvement in radial arterial puncture, cannulation or device placement were included. Data were synthesized narratively.

Results: Of 325 records identified, 6 studies met the inclusion criteria. Studies were conducted in Australia, Spain, China, Italy and the United Kingdom, mainly in intensive care units, neuro-intensive care units and cardiac catheterization laboratories. Nurse-performed radial arterial access was generally described within structured training or supervision frameworks. Reported outcomes included procedural success, first-attempt success, complications, catheter durability and learning curve. However, studies were heterogeneous and one study reported outcomes aggregated for nurses and intensivists.

Conclusion: Nurse-performed radial arterial access has been described in a small number of selected settings, mainly within structured training, supervision and progressive skill acquisition models. However, the evidence remains limited and heterogeneous and no definitive conclusions can be drawn regarding safety, effectiveness or optimal implementation models. Future studies should use nurse-specific outcome reporting and evaluate training, competency assessment, credentialing, maintenance of competence and organizational impact.

Keywords: Radial artery; Vascular access; Arterial cannulation; Critical care nursing; Scoping

review.

INTRODUCTION

Radial arterial access encompasses percutaneous access to the radial artery for monitoring, diagnostic or interventional purposes. In intensive care, perioperative and emergency settings, radial arterial cannulation with an arterial catheter enables continuous hemodynamic monitoring and arterial blood sampling, and the radial artery is one of the preferred sites for arterial cannulation [1]. In critical care settings, catheter durability and functionality are important because they may affect continuity of care and workflow organization [2]. In interventional cardiology, transradial access is widely used for coronary angiography and percutaneous coronary interventions [3–7].

Radial arterial access is a technically defined procedure that requires anatomical knowledge, manual skill, aseptic technique, awareness of potential complications and the ability to recognize procedural indications and risks. These characteristics make it relevant to discussions on advanced nursing competencies, particularly in high-acuity settings where nurses already contribute to vascular access management, hemodynamic monitoring and time-sensitive procedural care. In this context, the direct performance of radial arterial access by nurses may be understood not as an isolated technical act, but as part of a broader competency-based development of specialized nursing roles.

Alongside the increasing adoption of radial access, significant changes have been observed in the roles and responsibilities assigned to nurses in high-acuity care settings. Various healthcare systems have progressively expanded nursing responsibilities through processes of clinical reorganization and models of task-shifting and task-sharing, not only in care management but also in the performance of advanced technical and procedural activities. In Europe, the role of the specialist nurse has received increasing attention in terms of training, regulation and clinical competencies [8]. Recent literature on advanced practice nursing and critical care nursing emphasizes that expanded nursing roles require advanced education, clearly defined competencies, clinical decision-

making, interprofessional collaboration, leadership and mechanisms for competency development and maintenance [9–12]. At the same time, international literature suggests that expanded nursing responsibilities may be implemented in selected contexts when supported by structured training, supervision and clear organizational models [13,14].

In this context, nurse-performed radial arterial access may be viewed as part of a broader trajectory of nursing role development in specialized settings. However, because this practice lies at the intersection of advanced competencies, team organization and the redefinition of professional responsibilities, the available literature remains scattered and insufficiently synthesized. International sources emphasize the importance of trained and competent personnel for the insertion and management of intravascular devices [15,16] and reviews of vascular access specialist teams suggest that dedicated teams can improve organizational consistency and procedural outcomes [17]. Despite the growing attention to advanced procedural competencies in nursing, the extent to which nurse-performed radial arterial access has been documented remains unclear. In particular, it is not well established in which clinical settings this practice has been reported, how the nursing role has been defined, what training and supervision models have been described, and which outcomes have been measured. No previous review specifically addressing radial arterial access performed directly by nurses was identified. This gap supports the need for an evidence-mapping approach capable of clarifying the current state of knowledge and identifying areas requiring further research.

Because the available evidence appears limited, heterogeneous and dispersed across different clinical contexts, a scoping review design was considered appropriate to map the extent, range and nature of the literature rather than to estimate effectiveness or generate pooled outcome measures.

Objective

This scoping review aimed to map the extent, range and nature of the available literature on nurse-performed radial arterial access, describing the clinical settings in which this practice has been reported, the nursing roles involved, the training and supervision models described, the outcomes

reported and the remaining gaps in evidence.

MATERIALS AND METHODS

Study design and protocol registration

A scoping review was conducted to map the available literature on nurse-performed radial arterial access. This design was selected because the topic is emerging and the evidence base is limited, heterogeneous and dispersed across different clinical contexts. The review was conducted in accordance with the methodological framework proposed by the Joanna Briggs Institute for scoping reviews and the manuscript was prepared following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) reporting guidance [18-20]. The study protocol was registered on the Open Science Framework (OSF) on March 22, 2026 (DOI: 10.17605/OSF.IO/AE2NB).

Sampling and eligibility criteria

The review question and eligibility criteria were defined using the Population, Concept and Context (PCC) framework, which is summarized in Table 1.

PCC element	Definition
Population	Adult patients undergoing diagnostic or therapeutic procedures requiring radial arterial access.
Concept	Radial arterial access performed directly by nurses, including radial arterial puncture, cannulation or arterial device placement at the radial site.
Context	Clinical settings in which nurse-performed radial arterial access has been described in the literature.

Table 1. *Population, Concept and Context (PCC) framework.*

The Population included adult patients undergoing diagnostic or therapeutic procedures requiring radial arterial access. The Concept of interest was radial arterial access performed directly by nurses, defined as the active involvement of nurses in the technical act of radial arterial puncture, cannulation or arterial device placement. Throughout this review, “radial arterial access” is used as

an umbrella term. “Radial arterial cannulation” refers to arterial catheter placement for hemodynamic monitoring and blood sampling, whereas “transradial access” and “distal radial access” refer to vascular access procedures performed in interventional cardiology. Studies focusing exclusively on arterial puncture for blood gas analysis were not considered eligible. The Context included the clinical settings in which nurse-performed radial arterial access has been described in the literature.

Original studies conducted in adult populations were considered eligible if radial arterial access was performed directly by nurses. Eligible studies included quantitative, qualitative and mixed-methods designs as well as observational studies, interventional studies, feasibility studies, pilot studies, implementation studies, before-and-after studies and descriptive studies, provided they contained sufficiently clear information on the nurse’s role in performing the procedure. Studies published in English or Italian were considered, with no restriction on publication year.

Studies were excluded if the nursing role was limited to patient preparation, procedural assistance, post-procedural monitoring, hemostasis management, device removal, or surveillance of complications rather than direct technical performance of radial arterial access. Studies that focused exclusively on arterial puncture for blood gas sampling were also excluded. Pediatric studies, preclinical studies, editorials, commentaries, letters, narrative reviews, systematic reviews, scoping reviews and conference abstracts lacking sufficient information for eligibility assessment were excluded.

Information sources, search strategy and study selection

The literature search was carried out on March 23, 2026 in PubMed, Scopus and Web of Science. These databases were selected because they provide broad biomedical, multidisciplinary and citation-indexed coverage relevant to clinical, interventional and nursing-related literature. The complete search strategies adopted for each database are reported in Table 2.

Database	Search strategy
PubMed	(Nurse[Title/Abstract] OR Nurses[Title/Abstract] OR Nursing[Title/Abstract] OR Nursing staff[Title/Abstract] OR Registered nurse[Title/Abstract] OR Registered nurses[Title/Abstract] OR Advanced practice nurse[Title/Abstract] OR Advanced practice nurses[Title/Abstract] OR Clinical nurse specialist[Title/Abstract] OR Clinical nurse specialists[Title/Abstract] OR Nurse-led[Title/Abstract] OR Nurse performed[Title/Abstract] OR Nurse-performed[Title/Abstract]) AND (Radial access[Title/Abstract] OR Radial arterial access[Title/Abstract] OR Radial artery access[Title/Abstract] OR Radial artery cannulation[Title/Abstract] OR Radial artery puncture[Title/Abstract] OR Radial approach[Title/Abstract] OR Transradial[Title/Abstract] OR Trans-radial[Title/Abstract] OR Transradial access[Title/Abstract] OR Distal radial[Title/Abstract] OR Distal transradial[Title/Abstract] OR Distal trans-radial[Title/Abstract] OR Dorsal radial[Title/Abstract] OR Radial sheath[Title/Abstract] OR Radial catheterization[Title/Abstract] OR Radial catheterisation[Title/Abstract])
Web of Science	(TS=(Nurse OR Nurses OR Nursing OR Nursing staff OR Registered nurse OR Registered nurses OR Advanced practice nurse OR Advanced practice nurses OR Clinical nurse specialist OR Clinical nurse specialists OR Nurse-led OR Nurse performed OR Nurse-performed)) AND (TS=(Radial access OR Radial arterial access OR Radial artery access OR Radial artery cannulation OR Radial artery puncture OR Radial approach OR Transradial OR Trans-radial OR Transradial access OR Distal radial OR Distal transradial OR Distal trans-radial OR Dorsal radial OR Radial sheath OR Radial catheterization OR Radial catheterisation))
Scopus	TITLE-ABS-KEY ((nurs* OR "nursing staff" OR "registered nurse*" OR "advanced practice nurse*" OR "clinical nurse specialist*" OR "nurse-led" OR "nurse performed" OR "nurse-performed") AND ("radial access" OR "radial arterial access" OR "radial artery access" OR "radial artery cannulation" OR "radial artery puncture" OR "radial approach" OR transradial OR "trans-radial" OR "transradial access" OR "distal radial" OR "distal transradial" OR "distal trans-radial" OR "dorsal radial" OR "radial sheath" OR "radial catheterization" OR "radial catheterisation"))

Table 2. *Combination of keywords used with the Boolean operators.*

The search strategy was built around two main conceptual domains: the nursing profession and radial arterial access. This approach was adopted to maximize search sensitivity and allow broad retrieval of potentially relevant literature.

The PubMed strategy was based on Title/Abstract free-text terms to retrieve records explicitly referring to both nursing roles and radial arterial access. During the preliminary development of the search strategy, combinations of controlled vocabulary terms related to nursing, catheterization and radial artery procedures were explored before the final free-text search approach was selected. However, they were not incorporated into the original search strategy because the review aimed to identify records explicitly describing direct nurse performance of radial arterial access. The potential effect of not including controlled vocabulary terms on search sensitivity is acknowledged in the Limitations section.

CINAHL, Embase and gray literature sources were not searched. CINAHL was not available through the authors' institutional resources at the time of the original search and revision. Embase and gray literature sources were also not searched because of resource constraints and the need to maintain a reproducible search process. The potential effect of these omissions on the comprehensiveness of the evidence mapping is addressed in the Limitations section.

All records identified through the electronic search were imported into Rayyan [21] for reference management and duplicate removal. Duplicates were identified using combinations of title, authors, year of publication and DOI.

The study selection process occurred in two stages: titles and abstracts screening followed by a full-text assessment of potentially eligible records. Two reviewers, C.S. and P.C., performed the title and abstract screening independently. Records judged to be clearly irrelevant were excluded at this stage. Studies considered potentially eligible, or those for which the available information was insufficient to make a definitive decision, were retained for full-text review. Any disagreement between the two reviewers was resolved through discussion. If consensus could not be reached, a third reviewer, F.C., was consulted. Reasons for exclusion were recorded systematically.

Data charting and synthesis

A standardized data charting form was developed specifically for this review to collect the main characteristics of the included studies. For each included article, the following information was extracted: authors, year of publication, country, study design, setting, description of the nurse's role, training or supervision model, reported outcomes, results and conclusions. Data charting was performed independently by two reviewers using a standardized extraction form developed for this review. Extracted data were compared and any discrepancies were resolved through discussion. If consensus could not be reached, a third reviewer was consulted. Particular attention was paid to the procedural role attributed to nurses in order to distinguish studies in which nurses directly performed radial arterial access from those in which the nursing contribution was limited to

supportive or post-procedural activities. When outcome data were not reported separately for nurses, this was recorded as a limitation in nurse-specific attribution. The extracted data were organized into summary tables and synthesized narratively. The synthesis aimed to describe how nurse-performed radial arterial access has been reported across clinical settings and to map recurring themes related to nursing role, training, supervision, competency development, procedural outcomes and evidence gaps.

Consistent with scoping review methodology, formal critical appraisal was not undertaken because the purpose of the review was to map the extent and nature of the evidence rather than to determine the effectiveness of an intervention. However, study design and key methodological features were extracted to support contextual interpretation of the findings.

RESULTS

Study selection

A total of 325 records were identified through database searches, including 75 from PubMed, 113 from Scopus and 137 from Web of Science.

Prior to screening, 129 duplicate records were removed, resulting in 196 unique records for screening. Titles and abstracts of the 196 records were screened, resulting in the exclusion of 190 records for the following reasons: non-relevant population ($n = 73$), topic not focused on radial arterial access or referring to a non-relevant access site ($n = 7$), radial arterial access not performed directly by nurses ($n = 37$), study focused exclusively on post-procedural care, hemostasis, monitoring or complications ($n = 45$) and non-eligible publication type (e.g., review, poster, abstract) ($n = 28$). Six reports were sought for retrieval, all were retrieved and assessed for eligibility and all six met the inclusion criteria.

The selection process is reported in the PRISMA 2020 flow diagram (Figure 1).

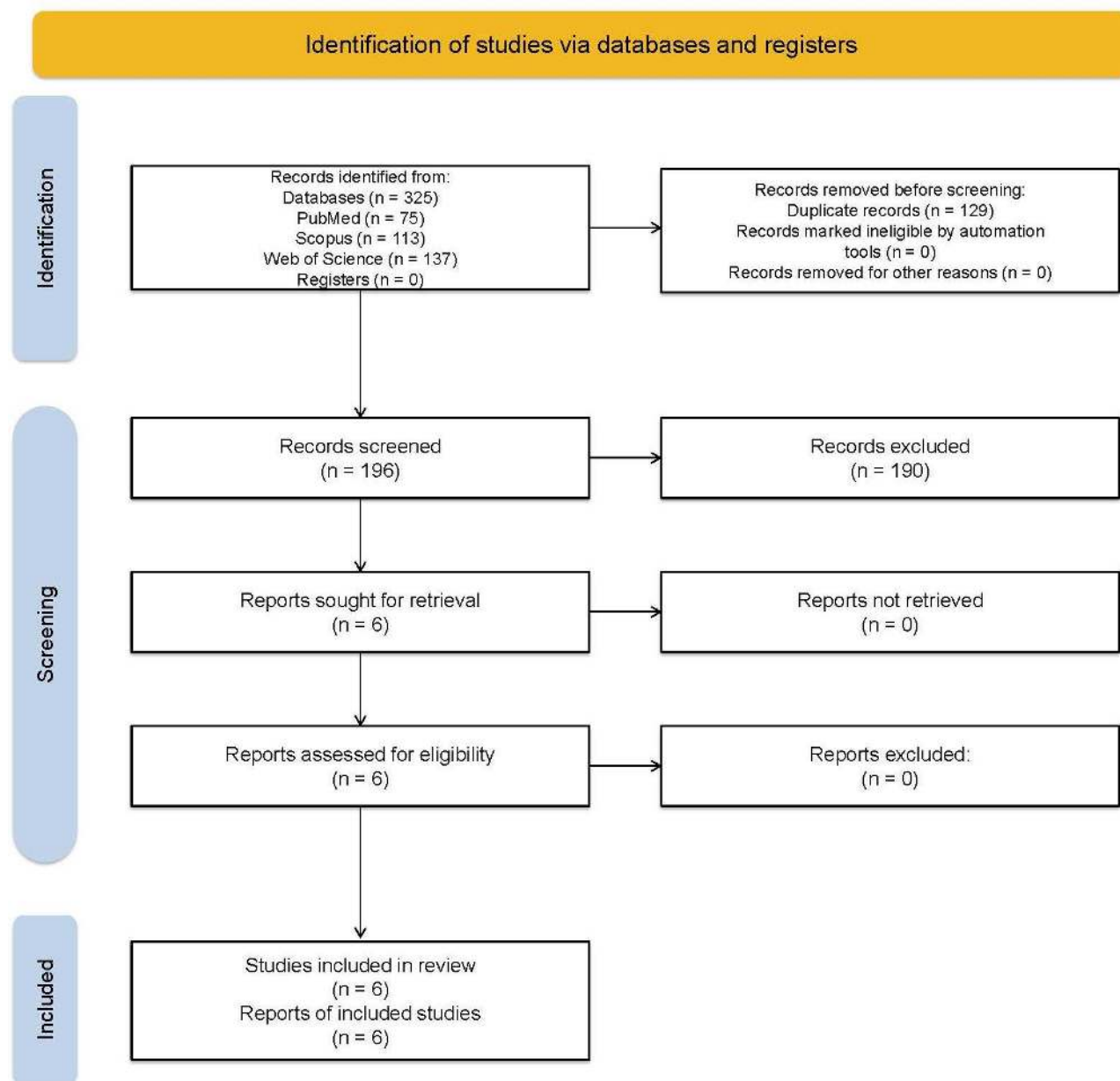


Figure 1. *PRISMA 2020 flow diagram of the study selection process*

Characteristics of included studies

This scoping review includes six original studies reporting radial arterial access performed directly by nurses or involving nurses in the direct performance of the procedure. The articles were published between 2011 and 2025. The represented countries were Australia, Spain, China, Italy and the United Kingdom. The described clinical settings were mainly adult intensive care units (ICUs), neuro-intensive care units and cardiac catheterization laboratories.

Two broad clinical contexts were identified. In intensive care settings, radial arterial cannulation was mainly related to hemodynamic monitoring and arterial blood sampling. In cardiac catheterization laboratories, radial or distal radial access was described as part of interventional cardiology pathways. Although these studies shared the radial artery as the anatomical access site, they differed in clinical indication, technical pathway, procedural endpoints and organizational context.

Mapped outcome domains

The outcomes reported in the included studies were grouped into five domains: procedural performance, complications and procedure-related events, catheter durability and functionality, training and competency development and implementation-related indicators. Definitions and reporting methods varied across studies. Table 3 summarizes the operational meaning of each domain, the studies reporting it and the main limitations identified across the evidence.

Outcome domain	Operational meaning in included studies	Studies reporting the domain	Main limitation
Procedural performance	Procedural success, first-attempt success or technical feasibility	[22-27]	Definitions varied across settings, procedures and clinical contexts
Complications and procedure-related events	Adverse events, immediate procedural complications, blood exposure or minor local events	[22-24,26,27]	Reporting was heterogeneous and definitions were not always explicit
Catheter durability and functionality	Catheter duration, catheter function over time or need for catheter replacement	[23,25]	Reported mainly in ICU-focused studies and with variable definitions
Training and competency development	Supervised attempts, competency achievement, learning curve or progression to independent practice	[22,24,26,27]	Limited detail on formal competency assessment and maintenance of competence
Implementation-related indicators	Training programs, supervised practice, phased autonomy, role definition or organizational arrangements	[22,26,27]	Credentialing, governance, staffing implications, patient experience and organizational impact were poorly reported

Table 3. *Mapped outcome domains across included studies*

Procedural performance was the most frequently reported domain. It included procedural success,

first-attempt success or technical feasibility, depending on the study. Procedural success generally referred to successful radial artery puncture, cannulation or sheath placement. First-attempt success referred to successful completion of the procedure on the first attempt, where reported. Technical feasibility was mainly used in studies conducted in cardiac catheterization laboratories and referred to successful completion of the planned radial or distal radial access procedure.

Complications and procedure-related events were reported heterogeneously. Some studies reported no adverse events or no significant complications, whereas others reported immediate procedural complications, blood exposure or minor local events. Definitions of complications were not consistent across studies and were not always reported in sufficient detail.

Catheter durability and functionality were reported only in studies focused on arterial cannulation in intensive care settings. These outcomes referred to catheter performance over time, duration of catheter function or the need for catheter replacement.

Training and competency development were reported through supervised attempts, achievement of competency, changes in success rates across sequential procedures or comparison between supervised and independent practice phases. However, details on formal competency assessment, minimum procedural volume, credentialing and maintenance of competence were limited.

Implementation-related indicators were less consistently described. Some studies reported structured training programs, supervised practice or phased transition to independent practice, but limited information was available on governance arrangements, staffing implications, patient experience or organizational impact. Overall, the mapped domains show that the available literature reports selected procedural and training-related outcomes, but provides limited evidence on broader implementation, transferability and long-term organizational effects.

Mapping of nursing roles and attribution

The role attributed to nurses varied across studies. In most included studies, nurses directly performed radial arterial puncture, cannulation or radial access after specific training or under

supervision. In the cardiac catheterization laboratory studies, nurses were involved in radial access as part of structured or nurse-led programs, including supervised and independent practice phases. In intensive care studies, nurses performed arterial cannulation for monitoring purposes, sometimes as novice operators and sometimes after previous clinical experience or dedicated training.

Training and supervision were recurring features of the included studies. However, the level of detail provided was variable. Some studies described formal training programs, supervised procedural attempts or phased progression toward independent practice. Others provided limited information on educational content, minimum procedural volume, competency assessment, credentialing or maintenance of competence. One study reported outcomes jointly for nurses and intensivists, limiting the possibility of attributing procedural outcomes specifically to nurses.

Summary of included studies

The main characteristics and mapped findings of the included studies are summarized in Table 4.

Study and year	Country and design	Clinical setting and procedure	Nurse role and attribution	Training or supervision model	Mapped outcomes	Key reported findings	Main evidence gap
Chee et al. [22]; 2011	Australia ; Descriptive explorative study	Adult ICU; radial artery cannulation for monitoring	Nurses directly performed radial arterial cannulation	Training program with supervised practice	Procedural success; competency achievement; adverse events	107 attempts were recorded, with 67 successful cannulations (63%). Eleven nurses achieved competency. No adverse events were reported.	Limited detail on long-term maintenance of competence and broader implementation outcomes
León et al. [23]; 2025	Spain; Prospective cohort study	Medical ICU; arterial catheterization by palpation or ultrasound guidance	Novice nurses directly performed arterial cannulation	Brief training before clinical performance	First-attempt success; complications; catheter duration	First-attempt success was 50.6% with palpation and 58% with ultrasound guidance. Complications and catheter duration were comparable between groups.	Limited information on competency assessment and transferability beyond novice operators in one ICU

Xie et al. [24]; 2025	China; Prospective randomized controlled trial	Neuro-ICU; radial arterial puncture for invasive blood pressure monitoring	Nurses directly performed radial arterial puncture and cannulation	Nurses had previous clinical experience and received study-specific training	First-attempt success; immediate complications; blood exposure	The transmural puncture plus sensor tube technique showed higher first-attempt success, fewer immediate complications and lower blood exposure than direct puncture.	Focus on technique comparison, with limited information on broader training, governance and competency maintenance
Imbriaco et al. [25]; 2021	Italy; Prospective non-randomized cohort study	General/surgical ICU and general/trauma ICU; radial artery cannulation	Cannulation was performed by critical care nurses and intensivists; outcomes were aggregated	Operator training and supervision not fully detailed for nurse-specific performance	First-attempt success; catheter durability; catheter functionality	Ultrasound guidance was associated with higher first-attempt success in hypotensive patients and longer catheter duration when insertion was performed 4–10 cm from the wrist.	Nurse-specific attribution not possible because outcomes were reported jointly for nurses and intensivists
Wojcik et al. [26]; 2024	United Kingdom; Clinical audit	Cardiac catheterization laboratory; radial access program	Nurses directly performed radial access in a nurse-led program	Structured training with supervised, independent and consolidation phases	Procedural success; complications; program implementation	Success rates were reported across supervised, independent and consolidation phases, with no significant complications reported.	Limited generalizability due to local program design and limited detail on credentialing or long-term outcomes
Cereda et al. [27]; 2023	Italy; Single-center observational study	Cardiac catheterization laboratory; distal radial access	Nurse performed puncture, wiring and sheath advancement under cardiologist supervision	Supervised practice with learning curve assessment	Technical feasibility; learning curve; complications	Technical feasibility was 89%. Failures were concentrated in the first 50 cases. No major complications were reported.	Single-center experience, with limited evidence on transferability, governance and maintenance of competence

Table 4. *Summary of included studies.*

To further illustrate heterogeneity in outcome reporting, Table 5 summarizes how procedural success, complications and competency attainment were defined or operationally reported in each included study. Where no explicit definition or competency threshold was provided, this is indicated

accordingly.

As shown in Table 5, outcome definitions were not standardized across studies.

Study	Procedural success	Complications	Competency attainment
Chee et al. [22];	Each skin penetration was considered a cannulation attempt. Failure was defined as inability to obtain arterial blood flashback or failure to advance the cannula into the radial artery. Overall, 67/107 attempts were successful.	Adverse events were assessed clinically and included bleeding, distal tissue ischemia, redness or swelling. No adverse events were reported.	Competency required a minimum of two successful cannulations under supervision before independent performance.
León et al. [23];	First-attempt success was the primary endpoint; overall success, failed attempts and number of attempts were also reported. No additional operational definition was provided.	Immediate complications included hematoma, while late complications included catheter infection or dysfunction.	No formal competency threshold was reported. Nurses completed two 3-hour workshops followed by supervised clinical practice.
Xie et al. [24];	Initial success was calculated as successful initial catheterizations divided by total punctures. Overall success required successful cannulation at the same puncture site within three attempts. Failure was defined as inability to aspirate arterial blood or absence of an arterial pressure waveform after transducer connection.	Study-specific definitions were provided for hematoma/ecchymosis, catheter-associated infection and distal limb ischemia; blood exposure was also assessed.	No formal competency attainment threshold was reported. Nurses had previous clinical experience and received study-specific preparation.
Imbriaco et al. [25];	First-attempt insertion was reported for blind and ultrasound-guided cannulation. Outcomes were aggregated for critical care nurses and intensivists.	Complications were not a primary nurse-specific outcome; local infection signs and dressing requirements were reported.	No formal competency attainment outcome was assessed and nurse-specific attribution was not possible.
Wojcik et al. [26];	Complication-free procedural success was defined as radial access secured within two puncture attempts and without adverse events.	Adverse events and vascular complications were monitored, including vascular trauma or spasm leading to cannulation failure and complications before discharge.	Competency required 50 procedures under direct consultant-led observation, review of a procedural log and formal sign-off. A further 100 independent procedures were then evaluated before sign-off as an independent practitioner.
Cereda et al. [27];	Technical feasibility was reported as 89%. Failures were concentrated in the first 50 cases; a more detailed operational definition of technical feasibility was not reported.	No major complications were reported. Minor complications were described, but detailed operational definitions were not provided.	No formal competency threshold was reported. Competency development was indirectly explored through the learning curve and operator experience.

Table 5. *Study-specific definitions and reporting of selected outcomes*

Procedural success ranged from successful cannulation or first-attempt success to complication-free access within a predefined number of attempts. Formal criteria for competency attainment were

reported only in a minority of studies. This variability limits direct cross-study comparison and reinforces the need for standardized outcome definitions in future research.

Overall, the mapped evidence remains limited and heterogeneous across clinical contexts, procedures and outcome definitions, precluding firm conclusions regarding safety, effectiveness or transferability across settings.

DISCUSSION

From reported procedures to advanced nursing competencies

This scoping review mapped the available literature on radial arterial access performed directly by nurses. The main finding is not that nurse-performed radial arterial access can be considered established, but that it has been reported in a small number of selected clinical settings, usually within structured training or supervision frameworks. This distinction is important. The current evidence does not allow conclusions about effectiveness, safety or broad implementation. Rather, it identifies radial arterial access as an emerging procedural area in which nursing roles, competencies and organizational models are still being defined.

Across the included studies, radial arterial access was not described as a simple technical task transferred from physicians to nurses. In the intensive care studies, nurses performed radial arterial cannulation mainly for monitoring purposes, either after dedicated training or within defined clinical protocols [22–25]. In the cardiac catheterization laboratory studies, nurse-performed radial or distal radial access was described within structured or supervised procedural pathways [26,27]. These findings suggest that nurse-performed radial arterial access should be interpreted as a competency-dependent activity requiring procedural knowledge, manual skill, recognition of complications, supervision and progressive autonomy. This interpretation is consistent with broader literature on advanced practice nursing and critical care nursing competence. International guidance describes advanced practice nursing as requiring advanced education, expert knowledge, complex decision-making skills and clinical competencies shaped by the context in which nurses are

authorized to practice [9].

Recent reviews in emergency and critical care settings have similarly emphasized that advanced practice roles require clearly defined competencies, interprofessional collaboration, leadership and mechanisms for competency development [10,11]. Literature on critical care nursing expertise also suggests that competence develops progressively from core critical care competencies toward specialized and advanced levels through clinical experience, postgraduate education and continuing professional development [12]. These external sources were not part of the evidence map on nurse-performed radial arterial access, but they help contextualize why training, supervision, competency assessment and governance emerged as central issues in the present review.

Heterogeneity of clinical contexts and procedures

A key finding of this review is the heterogeneity of the clinical contexts in which nurse-performed radial arterial access was reported. Although all included studies involved the radial artery as the anatomical access site, the clinical meaning of the procedure differed across settings. In intensive care units, radial arterial cannulation was mainly related to hemodynamic monitoring and arterial blood sampling [22–25]. In cardiac catheterization laboratories, radial or distal radial access was part of an interventional cardiology pathway [26,27].

These differences are relevant because the indications, technical pathway, procedural endpoints and organizational requirements are not identical across settings. Chee et al. focused on a training program for ICU nurses performing radial arterial cannulation [22]. León et al. compared palpation and ultrasound guidance among novice nurses in an adult ICU [23]. Xie et al. evaluated two radial puncture techniques for invasive blood pressure monitoring in a neuro-ICU [24]. Imbriaco et al. examined radial arterial cannulation in ICU patients, although outcomes were reported jointly for nurses and intensivists [25]. By contrast, Wojcik et al. described a nurse-led radial access program in a cardiac catheterization laboratory [26], while Cereda et al. focused on nurse-led distal radial access under cardiologist supervision [27]. Therefore, the available evidence should not be

interpreted as supporting a single transferable model of nurse-performed radial arterial access. Rather, it suggests that implementation models may need to be setting-specific and adapted to the clinical purpose of the procedure. Radial arterial cannulation for hemodynamic monitoring and transradial access for interventional cardiology should therefore be regarded as distinct procedural and organizational contexts rather than as interchangeable expressions of the same practice. Accordingly, findings related to training, procedural performance or implementation in one setting should not be assumed to be directly transferable to the other.

Training, supervision and competency governance

Training and supervision emerged as the most consistent implementation conditions across the included studies. Chee et al. explicitly evaluated a radial arterial cannulation training program for intensive care nurses and reported competency achievement after supervised practice [22]. Xie et al. involved nurses with previous clinical experience and study-specific preparation before performing radial arterial puncture [24]. Wojcik et al. described a phased program including supervised practice, independent practice and consolidation in a cardiac catheterization laboratory [26]. Cereda et al. reported a learning curve for distal radial access, with failures concentrated in the initial phase of experience [27]. However, the level of detail provided on competency development was variable. The literature offered limited information on educational content, minimum procedural volume, formal competency assessment, credentialing processes and maintenance of competence over time. This is a central issue for nursing practice. If radial arterial access is considered as an advanced procedural nursing competency, implementation cannot rely only on local enthusiasm or informal task delegation. Within the context of this review, procedural competency refers specifically to the knowledge, technical skills and clinical judgment required to perform radial arterial access. Broader professional competence encompasses additional dimensions of advanced nursing practice, including complex decision-making, interprofessional collaboration, leadership and professional accountability [9–12]. The two constructs are therefore related but not interchangeable. Such

implementation requires explicit role definition, standardized training pathways, supervised clinical practice, criteria for competence assessment and mechanisms for ongoing evaluation. Governance and accountability were also insufficiently described. Some studies reported supervision or structured implementation [22,26,27], but few described how procedural privileges were granted, how responsibilities were shared within the interprofessional team or how adverse events were monitored from an organizational perspective. In addition, the study by Imbriaco et al. limits nurse-specific interpretation because outcomes were aggregated for nurses and intensivists [25]. These gaps limit the ability to translate the reported experiences into broader practice recommendations.

Regulatory context and transferability

Differences in national regulatory frameworks and professional scope of practice may partly explain why nurse-performed radial arterial access has been reported only in selected countries and clinical environments. The included studies were conducted in Australia [22], Spain [23], China [24], Italy [25,27] and the United Kingdom [26]. These healthcare systems differ in nursing education, recognition of advanced practice roles, local credentialing processes and interprofessional organization. Such contextual factors may influence whether nurses are allowed, prepared or supported to perform advanced procedural activities.

Transferability should therefore be interpreted cautiously. A training model developed for ICU arterial cannulation [22,23] may not be directly transferable to a cardiac catheterization laboratory radial access program [26,27]. Similarly, evidence from neuro-intensive care radial puncture for invasive blood pressure monitoring [24] may not apply directly to distal radial access for interventional cardiology procedures [27]. Before wider implementation is considered, healthcare organizations should evaluate local legislation, professional regulation, educational preparation, supervision capacity, interprofessional agreements and systems for monitoring outcomes. Moreover, findings generated in highly specialized and closely supervised settings should not be assumed to be directly transferable to routine clinical practice unless comparable training, competency assessment,

governance and supervision structures are in place.

Implications for nursing practice, education and policy

For nursing practice, this review highlights that nurse-performed radial arterial access should be considered only within structured and well-governed practice models. The available evidence suggests that training and supervision are central to implementation, particularly in studies where nurses progressed through supervised attempts, dedicated preparation or phased autonomy [22,24,26,27]. Therefore, local implementation should be preceded by explicit governance arrangements, role definitions, supervised training and mechanisms for monitoring outcomes. Local protocols should define nurse eligibility, required preparation, supervision arrangements, documentation requirements, escalation criteria and nurse-specific outcome monitoring. However, the current literature does not support unsupervised or broadly generalized adoption, and stronger evidence is required before wider implementation can be recommended.

For nursing education, these findings support the need to define the theoretical and practical components required for advanced procedural competencies. Educational pathways should address anatomy, procedural technique, ultrasound use where relevant, aseptic practice, complication recognition, patient safety, communication within the interprofessional team and post-procedural monitoring. Competency assessment should include both procedural performance and clinical judgment, rather than the number of completed procedures alone.

Evidence gaps

The review identified several evidence gaps. First, few studies provided nurse-specific outcome data. Second, definitions of procedural success, complications and competency attainment varied across studies. Third, limited information was available on credentialing processes, maintenance of competence, staffing implications, patient experience, cost-effectiveness and long-term organizational outcomes. Fourth, the available literature does not provide sufficient evidence to

determine whether findings from highly structured or specialist settings can be transferred to other clinical contexts.

These gaps reinforce the value of a scoping review approach. The purpose of this review was not to determine whether nurse-performed radial arterial access is effective or safe, but to map how this practice has been reported, which concepts and outcomes have been used and where evidence remains insufficient. On this basis, the current literature should be considered preliminary and hypothesis-generating. Future research should prioritize multicenter prospective studies with nurse-specific outcome reporting and standardized competency assessment frameworks. Such studies should also evaluate patient-reported outcomes and experience, organizational outcomes including workflow, staffing and implementation sustainability, cost-effectiveness and transferability across healthcare systems.

Notably, none of the included studies systematically assessed patient-reported outcomes or patient experience. This represents an additional gap because procedural implementation should also consider the patient perspective alongside technical and organizational outcomes. Future studies should therefore incorporate patient-centered measures such as perceived comfort, anxiety, satisfaction, acceptability and preferences regarding nurse-performed procedures.

CONCLUSION

This scoping review mapped a small and heterogeneous body of literature on nurse-performed radial arterial access in selected critical care and interventional settings. The available evidence suggests that this practice has mainly been reported within structured training, supervision and progressive skill acquisition models, rather than as routine or broadly standardized nursing practice. The review also shows that the current literature provides limited nurse-specific outcome reporting and limited information on competency assessment, credentialing, maintenance of competence, governance arrangements and transferability across settings. Therefore, no definitive conclusions can be drawn regarding safety, effectiveness or optimal implementation models.

Future research should use robust designs, clearly define procedural success and complications, report outcomes separately by operator group and describe training, supervision, competency assessment and organizational requirements in detail. These steps are needed to clarify the clinical, educational and organizational implications of this potential area of advanced nursing practice.

Limitations

This review has several limitations. First, the findings should be interpreted as a preliminary mapping of the indexed literature retrieved through the selected databases. The search was limited to PubMed, Scopus and Web of Science. CINAHL was not searched because it was not available through the authors' institutional resources at the time of the original search and revision. Embase and gray literature sources were also not searched because of resource constraints and the need to maintain a reproducible search process. These omissions may have led to the exclusion of nursing-specific, vascular access-related, practice-based, biomedical or unpublished evidence. More specifically, the absence of CINAHL and Embase may have resulted in underrepresentation of nursing-specific and multidisciplinary clinical studies, while the exclusion of gray literature may have reduced the retrieval of implementation reports, local practice models and other non-indexed evidence. Consequently, the small body of literature identified in this review should not be interpreted as necessarily representing the full extent of existing evidence.

In addition, the PubMed search strategy relied on free-text Title/Abstract terms and did not include controlled vocabulary terms. Although this choice was intended to retrieve records explicitly referring to both nursing roles and radial arterial access, it may have affected search sensitivity. Taken together, the exclusion of nursing-specific databases and the absence of controlled vocabulary terms may have contributed to the small number of eligible studies identified. Therefore, the scarcity of included studies should be interpreted cautiously and may reflect both the emerging nature of the topic and the methodological boundaries of the search strategy.

Second, only studies published in English or Italian were considered. Relevant evidence published

in other languages may therefore have been missed.

Third, only six studies met the inclusion criteria and these were heterogeneous in terms of setting, design, technique, operator profile and reported outcomes. This heterogeneity limits the extent to which the findings can be synthesized under a single implementation model. Fourth, one included study reported outcomes in aggregate for nurses and intensivists, limiting nurse-specific interpretation.

Finally, because no formal critical appraisal was conducted, the findings should be interpreted as a mapping of the available literature rather than as evidence of effectiveness or safety.

Ethics statement

Formal approval by the Local Ethics Committee was not required for this study because it was a scoping review of previously published literature and did not involve human participants, human tissue or patient-level data.

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Conflict of interest

The authors declare that they have no known financial, institutional, personal or professional conflicts of interest that could have appeared to influence the work reported in this paper.

Authors' contribution

F.C.: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – original draft, Writing – review & editing, Project administration. C.S.: Investigation, Data curation, Writing – review & editing. P.C.: Investigation, Data curation, Writing – review & editing. P.P.:

Writing – review & editing. M.D.T.: Writing – review & editing. L.C.: Methodology, Formal analysis, Supervision, Writing – review & editing. E.V.: Writing – review & editing. D.M.: Conceptualization, Supervision, Writing – review & editing, Correspondence. R.L.: Conceptualization, Methodology, Formal analysis, Supervision, Writing – review & editing. Dario Marasciulo and Roberto Lupo contributed equally to this work.

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Use of AI tools

During the first phase of this work, the authors used Rayyan, including its AI-assisted features, to support the screening and data management process. During manuscript preparation, the authors used ChatGPT Plus (OpenAI, San Francisco, CA, USA) to assist with text organization and English language refinement. The tool was not used to generate, alter or analyze data, select studies or determine the scientific interpretation of the findings. All AI-assisted text was reviewed, critically assessed and edited by the authors, who take full responsibility for the final content of the manuscript.

REFERENCES

1. Brzezinski M, Luisetti T, London MJ. Radial artery cannulation: a comprehensive review of recent anatomic and physiologic investigations. *Anesth Analg.* 2009;109:1763-81. <https://doi.org/10.1213/ANE.0b013e3181bbd416>.
2. Imbriaco G, Monesi A, Spencer TR. Preventing radial arterial catheter failure in critical care - factoring updated clinical strategies and techniques. *Anaesth Crit Care Pain Med.* 2022;41:101096. <https://doi.org/10.1016/j.accpm.2022.101096>.
3. Saugel B, Kouz K, Meidert AS, Schulte-Uentrop L, Romagnoli S. How to measure blood pressure using an arterial catheter: a systematic 5-step approach. *Crit Care.* 2020;24:172. <https://doi.org/10.1186/s13054-020-02859-w>.
4. Neumann FJ, Sousa-Uva M, Ahlsson A, Alfonso F, Banning AP, Benedetto U, et al. 2018 ESC/EACTS Guidelines on myocardial revascularization. *Eur Heart J.* 2019;40:87-165. <https://doi.org/10.1093/eurheartj/ehy394>.
5. Valgimigli M, Gagnor A, Calabró P, Frigoli E, Leonardi S, Zaro T, et al. Radial versus femoral access in patients with acute coronary syndromes undergoing invasive management: a randomised multicentre trial. *Lancet.* 2015;385:2465-76. [https://doi.org/10.1016/S0140-6736\(15\)60292-6](https://doi.org/10.1016/S0140-6736(15)60292-6).
6. Kiemeneij F. Left distal transradial access in the anatomical snuffbox for coronary angiography and interventions. *EuroIntervention.* 2017;13:851-7. <https://doi.org/10.4244/EIJ-D-17-00079>.
7. Ferrante G, Condello F, Rao SV, Maurina M, Jolly S, Stefanini GG, et al. Distal vs conventional radial access for coronary angiography and/or intervention. *JACC Cardiovasc Interv.* 2022;15:2297-311. <https://doi.org/10.1016/j.jcin.2022.09.006>.
8. Dury C, Hall C, Danan J, Mondoux J, Aguiar Barbieri-Figueiredo MC, Costa MAM, et al. Specialist nurse in Europe: education, regulation and role. *Int Nurs Rev.* 2014;61:454-62. <https://doi.org/10.1111/inr.12123>.

9. International Council of Nurses. Guidelines on advanced practice nursing 2020. Geneva: International Council of Nurses; 2020.
10. Yamaguchi Y, Matsunaga-Myoji Y, Fujita K. Advanced practice nurse competencies to practice in emergency and critical care settings: a scoping review. *Int J Nurs Pract*. 2024;30:e13205. <https://doi.org/10.1111/ijn.13205>.
11. Jafari Pour F, Watson R, Jafaripour E, Jafarian R. The roles and responsibilities of advanced practice nurses in intensive care units: a scoping review. *Enferm Intensiva (Engl Ed)*. 2024;35:e31-e40. <https://doi.org/10.1016/j.enfie.2024.06.002>.
12. Kinnunen A, Hagman T, Paakkonen H, Saaranen T. Constructing critical care nursing expertise: an integrative literature review. *Nurse Educ Today*. 2025;149:106668. <https://doi.org/10.1016/j.nedt.2025.106668>.
13. Maier CB, Köppen J, Busse R. Task shifting between physicians and nurses in acute care hospitals: cross-sectional study in nine countries. *Hum Resour Health*. 2018;16:24. <https://doi.org/10.1186/s12960-018-0285-9>.
14. Paier-Abuzahra M, Posch N, Jeitler K, Semlitsch T, Radl-Karimi C, Spary-Kainz U, et al. Effects of task-shifting from primary care physicians to nurses: an overview of systematic reviews. *Hum Resour Health*. 2024;22:74. <https://doi.org/10.1186/s12960-024-00956-3>.
15. O'Grady NP, Alexander M, Burns LA, Dellinger EP, Garland J, Heard SO, et al. Guidelines for the prevention of intravascular catheter-related infections. *Am J Infect Control*. 2011;39:S1-34. <https://doi.org/10.1016/j.ajic.2011.01.003>.
16. Gorski LA, Hadaway L, Hagle ME, Broadhurst D, Clare S, Kleidon T, et al. Infusion therapy standards of practice, 8th edition. *J Infus Nurs*. 2021;44:S1-224. <https://doi.org/10.1097/NAN.0000000000000396>.
17. Fernandez-Fernandez I, Parra-García G, Blanco-Mavillard I, Carr P, Santos-Costa P, Rodríguez-Calero MÁ. Vascular access specialist teams versus standard practice for catheter

- insertion and prevention of failure: a systematic review. *BMJ Open*. 2024;14:e082631. <https://doi.org/10.1136/bmjopen-2023-082631>.
18. Aromataris E, Lockwood C, Porritt K, Pilla B, Jordan Z, editors. *JBIManual for Evidence Synthesis*. Adelaide: JBI; 2024.
19. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med*. 2018;169:467-73. <https://doi.org/10.7326/M18-0850>.
20. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021;n71. <https://doi.org/10.1136/bmj.n71>.
21. Ouzzani M, Hammady H, Fedorowicz Z, Elmagarmid A. Rayyan: a web and mobile app for systematic reviews. *Syst Rev*. 2016;5:210. <https://doi.org/10.1186/s13643-016-0384-4>
22. Chee BC, Baldwin IC, Shahwan-Akl L, Fealy NG, Heland MJ, Rogan JJ. Evaluation of a radial artery cannulation training program for intensive care nurses: a descriptive, explorative study. *Aust Crit Care*. 2011;24:117-25. <https://doi.org/10.1016/j.aucc.2010.12.003>.
23. León M, Marco DN, Cubedo M, González C, Guirao A, Cañueto M del C, et al. Comparing arterial catheterisation by palpation or ultrasound guidance by novice nurses in an adult intensive care unit: a prospective cohort study. *Aust Crit Care*. 2025;38:101135. <https://doi.org/10.1016/j.aucc.2024.101135>.
24. Xie F, Yu G, Mei B, Liu Y, Chen F, Feng X, et al. Comparison between transmural puncture combined with sensor tube technique with direct puncture in invasive blood pressure monitoring: a randomized controlled trial. *Sci Rep*. 2025;15:38978. <https://doi.org/10.1038/s41598-025-22883-6>.
25. Imbriaco G, Monesi A, Giugni A, Cilloni N. Radial artery cannulation in intensive care unit patients: does distance from wrist joint increase catheter durability and functionality? *J Vasc Access*. 2021;22:561-7. <https://doi.org/10.1177/1129729820953020>.

26. Wojcik D, Sindhi RMS, Ahmad M, Lockie T, Rakhit R, Coghlan JG. Devising and delivering the UK's first nurse-led cardiac catheter laboratory radial access programme. *Br J Cardiol.* 2024;31(4):047. <https://doi.org/10.5837/bjc.2024.047>.
27. Cereda A, Allievi L, Busetti L, Koleci R, De Nora V, Vecchia A, et al. Nurse-led distal radial access: efficacy, learning curve, and perspectives of an increasingly popular access. Does learning by doing apply to both the doctor and the nurse? *Minerva Cardiol Angiol.* 2023;71(1):35-43. <https://doi.org/10.23736/S2724-5683.22.05843-4>.

The Role of Emotional Intelligence in Nursing Leadership and Its Impact on Nursing Practice Outcomes: A Cross-Sectional Correlational Study in North-West Frontier Province (NWFP), Pakistan

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ABSTRACT

Background: The core of the competency of nursing leadership is emerging as emotional intelligence (EI), which has implications for staff wellbeing and patient safety outcomes. But there is no quantitative study on the role of Nursing leader EI in Nursing Practice outcomes in District Mardan Khyber Pakhtunkhwa (KPK) Pakistan so far.

Objective: The objective of this study was to see the relationship between the EI of the nursing leaders and selected outcomes of nursing practice namely Job Satisfaction, Burnout, Medication Errors and Clinical Adherence in the Public and Private Hospitals of District Mardan.

Methods: Quantitative, Cross – Sectional, correlational design was used. A total of 235 participants (39 nursing leaders, 196 staff nurses) were recruited from six hospitals and completed the Wong and Law Emotional Intelligence Scale (WLEIS), the McCloskey/Mueller Satisfaction Scale (MMSS), the Maslach Burnout Inventory – Human Services Survey (MBI-HSS), and a researcher-developed clinical outcomes section. Data were analysed using descriptive statistics, Pearson correlation, independent samples t-test, one-way ANOVA with post hoc Tukey's HSD and stepwise multiple linear regression with IBM SPSS Version 26.

Results: Overall results indicated that the nursing leaders had an average EI level of 4.35 (SD = 0.85). Significant positive correlations were found between leader EI and staff job satisfaction ($r = 0.42, p < 0.01$) and clinical adherence ($r = 0.35, p < 0.01$), and significant negative correlations with burnout ($r = -0.38, p < 0.01$) and medication errors ($r = -0.31, p < 0.01$). There were fewer medication errors reported in units with high-EI leaders (50.9%) and higher hand hygiene compliance ($p < 0.001$). The strongest predictors of clinical adherence were Others' Emotion Appraisal (conceptually equivalent to empathy; $\beta = 0.31$) and Regulation of Emotion (conceptually equivalent to self-regulation; $\beta = 0.27$) within a three-predictor model that also included Use of Emotion ($\beta = 0.20$). The final model explained 38% of the variance in clinical adherence ($R^2 = 0.38$).

Conclusion: Nursing leader EI is significantly associated with the better staff outcomes and patient safety in district Mardan. In KPK, targeted EI development programmes are recommended, with the primary focus being on empathy and emotional regulation, for nursing leadership.

Keywords: emotional intelligence, nursing leadership, job satisfaction, burnout, patient safety, Pakistan, Khyber Pakhtunkhwa.

INTRODUCTION

Emotional intelligence (EI) is becoming an essential skill for health care management and is playing a key role in employee satisfaction and patient care quality [1]. EI is defined as the capacity to perceive, understand, manage and regulate one's own feelings and the emotions of others, which will enable nurse leaders to respond to the emotional aspects of a clinical setting and perform effectively [2]. Various frameworks have been proposed to conceptualize EI, including the five-component model (self-awareness, self-regulation, motivation, empathy, and social skills) [3] and the four-dimensional model operationalized in the Wong and Law Emotional Intelligence Scale (WLEIS): Self-Emotion Appraisal, Others' Emotion Appraisal (conceptually equivalent to empathy), Use of Emotion (relating to motivation and social skills), and Regulation of Emotion (corresponding to self-regulation) [2].

The present study adopts the WLEIS framework due to its established validity in the Pakistani nursing context [4] and its parsimonious four-dimensional structure, which has been shown to be culturally appropriate for healthcare professionals in South Asian settings. EI is especially critical in nursing leadership because leaders have to deal with a variety of daily pressures such as staffing shortages, heavy workload, stress and anxiety, and the need to make quick decisions [5]. Studies show that nurse managers who exhibit high EI are more likely to exhibit more transformational leadership behaviour, which subsequently leads staff to perform better and be engaged in the

organization [6-8]. On the other hand, low EI among leaders has been linked to decreased team morale, conflict and intentions to leave [7].

The existing literature on EI and nursing outcomes can be organized into several thematic areas. First, regarding individual nurse outcomes, studies have consistently demonstrated that nursing leaders' EI is positively associated with staff job satisfaction, with conflict management identified as a key mediating mechanism [9]. Higher EI among nurse managers has been linked to more effective conflict management strategies, which in turn create healthier work environments [10]. Furthermore, leaders' EI positively influences staff nurses' psychological empowerment and work engagement [11], suggesting that emotionally intelligent leadership fosters a more supportive and motivating work climate. Job satisfaction has been found to mediate the relationship between EI and job performance [12], while organizational commitment among nurses also shows positive correlations with EI [6].

Second, in the domain of leadership effectiveness, studies have shown that transformational leadership combined with EI enhances person-organization fit among nurses. During the COVID-19 crisis, EI emerged as an important factor influencing healthcare worker performance [13] reported that healthcare workers with higher EI demonstrated better adaptability, lower stress levels, and more effective coping strategies during the pandemic, suggesting that emotional competencies become particularly critical during periods of heightened stress and organizational disruption.

This finding has important implications for healthcare leadership, as it indicates that EI may serve as a protective factor during public health emergencies.

Gender disparities in EI among health managers have also been documented by Kitsios, F., (2022) [14], who reported significant differences in EI scores between male and female health managers, with female managers generally scoring higher on emotional appraisal and empathy dimensions. This finding underscores the need for gender-sensitive leadership development approaches that recognize and leverage the diverse emotional competencies that different groups bring to leadership

roles. Such approaches should avoid reinforcing stereotypes while ensuring that all leaders, regardless of gender, have opportunities to develop the full range of EI competencies.

A concept analysis by Alsufyani, A. M., (2020) [15] established the multidimensional consequences of EI on nursing, identifying key outcomes across individual, team, and organizational levels. At the individual level, EI was associated with reduced burnout, increased job satisfaction, and enhanced coping abilities. At the team level, EI facilitated better communication, conflict resolution, and collaboration. At the organizational level, EI contributed to improved patient outcomes, reduced turnover, and enhanced quality of care. This multidimensional framework provides a useful lens for understanding the broad impact of EI in nursing settings [16]. Further reported a significant association between EI and quality of healthcare delivery, showing that nurses with higher EI were more likely to provide patient-centered care, engage in effective communication with patients and families, and demonstrate greater clinical competence.

Third, regional evidence from Pakistan, particularly Khyber Pakhtunkhwa, has provided important context-specific findings. A significant negative correlation between EI and burnout scores among nurses was found in research conducted in tertiary hospitals in KPK by Ullah et al. (2022) [4]. Similarly, EI acted as a buffer against psychological stress during the COVID-19 pandemic as reported by Alam et al. (2023) [13]. A positive association between emotional quotient and leadership effectiveness among healthcare leaders in Pakistan was identified by Zaman et al. (2021) [17]. Regional benchmarks for EI studies have been established through correlations between EI and job satisfaction among secondary school heads in KPK reported by Suleman et al. (2020) [18]. Additionally, EI is associated with academic success of undergraduate nursing students, indicating its significance throughout the nursing career pathway [19].

The nursing profession in Pakistan has its own set of challenges such as shortage of resources, large patient-to-nurse ratios, lack of professional development opportunities and emotional stress [20]. Research conducted in KPK has shown that EI is negatively correlated with burnout and

positively correlated with life satisfaction among nurses [4,20]. The study by Bibi et al. (2025) [19] illustrated that EI is associated with academic success of undergraduate nursing students, indicating its significance throughout the nursing career pathway [21] assessed EI among medical students in Peshawar and correlated EI with job satisfaction among the secondary school head in KPK setting which set regional benchmarks for EI studies [18]. In Pakistan, recently Badshah et al. (2025) [22] identified a correlation between EI and burnout syndrome in clinicians at the workplace, further highlighting the relevance of this topic. Although these contributions have been made, no quantitative study has so far looked at the role of EI of nursing leaders on the outcome of nursing practice in District Mardan, KPK which is a large, semi-urban area of Pakistan with a vast network of healthcare infrastructure comprising of Mardan Medical Complex, District Headquarters Hospital and Tehsil Headquarters Hospitals.

The link between the level of emotional intelligence among nursing leaders and job satisfaction, burnout, medication errors, and compliance to clinical protocols—specifically among the staff nurses under their supervision—in District Mardan hospitals is not supported by empirical evidence. District Mardan is a large semi-urban district with a diverse healthcare infrastructure comprising Mardan Medical Complex (tertiary care), District Headquarters Hospital (secondary care), Tehsil Headquarters Hospitals (primary care), and private hospitals. This tiered healthcare system presents unique challenges including resource allocation disparities, varying patient-to-nurse ratios, and different staff development opportunities across hospital types. Without region-specific empirical evidence, healthcare administrators in District Mardan and policymakers in the KPK Health Department lack the necessary data to design contextually appropriate leadership development programmes that can enhance leadership effectiveness, improve staff wellbeing, and ultimately contribute to better patient safety outcomes. A critical review of the existing literature reveals several important gaps that this study addresses.

First, the majority of studies examining the relationship between nursing leader EI and staff

outcomes have focused on single outcome measures, typically job satisfaction [9,12] or burnout [4,22], rather than adopting a comprehensive approach that includes multiple indicators of nursing practice quality. Only a limited number of studies have simultaneously examined both staff wellbeing outcomes and patient safety indicators such as medication errors and clinical adherence [16].

Second, while research has been conducted in various healthcare settings globally [9,16] and in some parts of Khyber Pakhtunkhwa [4,18], no empirical study has specifically investigated this relationship in District Mardan, a large semi-urban district with a diverse healthcare infrastructure comprising tertiary, secondary, primary, and private hospitals.

Third, the semi-urban context of District Mardan presents unique healthcare delivery challenges including resource constraints, varying patient-to-nurse ratios across different hospital tiers, and limited professional development opportunities, which may influence both leadership effectiveness and nursing practice outcomes in ways that differ from urban or fully rural settings. Furthermore, the District Mardan healthcare system operates within the broader context of Khyber Pakhtunkhwa's nursing workforce challenges, which include shortage of trained personnel, heavy workloads, limited career advancement pathways, and emotional stress [17]. Understanding how nursing leader EI operates within this specific context is essential for developing targeted interventions that can improve leadership effectiveness and, consequently, staff wellbeing and patient safety. Without region-specific empirical evidence, healthcare administrators and policymakers in the KPK Health Department lack the necessary data to design contextually appropriate leadership development programmes, staff engagement policies, and retention strategies. This study therefore addresses these critical gaps by providing the first quantitative evidence on the relationship between nursing leader EI and a comprehensive set of nursing practice outcomes—including job satisfaction, burnout, medication errors, and clinical adherence—in the specific healthcare context of District Mardan.

Aim

This study aims to explore the association of emotional intelligence of nursing leaders with selected indicators of nursing practice (job satisfaction, burnout, medication errors and compliance with clinical standards) in public and private hospitals of District Mardan, Khyber Pakhtunkhwa, Pakistan.

Research Questions

1. What is the mean score of Emotional Intelligence of the nursing leaders of District Mardan hospitals?
2. Do there appear to be meaningful differences among the mean scores for nursing leaders and staff nurses in their job satisfaction?
3. Do the scores of nursing leaders and staff nurses have a statistically significant correlation?
4. Are there significant differences in the number of medication errors and adverse events reported in hospital units led by a higher-EI leader?
5. Which of the four WLEIS dimensions (Self-Emotion Appraisal, Others' Emotion Appraisal, Use of Emotion, and Regulation of Emotion) is most strongly associated with positive nursing practice outcomes?

Hypotheses

H1: Nursing leaders' EI score is positively related with staff nurses' job satisfaction.

H2: There will be a negative correlation between the EI scores of nursing leaders and the level of burnout among the staff nurses.

H3: Medication error rates are significantly lower in the units with nursing leaders in the top tertile of EI scores than in the units with nursing leaders in the bottom tertile of EI scores.

H4: Others' Emotion Appraisal (conceptually equivalent to empathy) and Regulation of Emotion

(conceptually equivalent to self-regulation) will be the most significant WLEIS dimensions related to increased clinical standard adherence.

The significance of this study is briefly mentioned. It will give the first baseline data of the emotional intelligence of nursing leaders in district Mardan. Second, the results could help guide local hospital leadership development initiatives, engagement policies, and retention strategies. Thirdly, findings can help inform the KPK Health Department's leadership development policies for the specific context. Fourth, the study adds to the scarce research on EI in the healthcare context in Pakistan, and previous researchers [17,18,22] have called for more region-specific research.

MATERIALS AND METHODS

Research Design

A quantitative, cross-sectional, correlational design was used to explore the relationship between the emotional intelligence of nursing leaders and outcomes of nursing practice. This design was selected as it is appropriate for the specific aims of the study for several reasons.

First, it allows for efficient data collection across multiple hospitals within a defined timeframe, which is essential given the geographic distribution of the study sites in District Mardan.

Second, it enables the examination of relationships between variables without manipulation, which is suitable for studying naturally occurring phenomena such as emotional intelligence and its association with nursing practice outcomes.

Third, this design is widely used in nursing leadership research, facilitating comparison of findings with existing literature.

Fourth, it aligns with the post-positivist epistemological paradigm, which emphasizes objective measurement of constructs through validated instruments.

Setting

The study was carried out in six hospitals located in District Mardan of Khyber Pakhtunkhwa (KPK) Pakistan, which included two private hospitals, two Tehsil Headquarters hospitals (public), District Headquarters Hospital Mardan (secondary, public) and Mardan Medical Complex (tertiary, public). With this multi-site approach, the representativeness of the sample was improved and comparison across healthcare tiers was possible.

Population and Sample

The target population was all registered nurses (RN) working within the participating hospitals (nursing leaders such as head nurse, ward supervisor, deputy matron and matron, staff nurse who had been working under their leader for at least six months). There were around 600 nurses in the district Mardan.

The sample size was calculated using the standard formula for estimating a population proportion in a finite population, incorporating the finite population correction (FPC):

$$n = \frac{Z^2 p(1-p)N}{(N-1)e^2 + Z^2 p(1-p)},$$

where: n = required sample size, Z = Z-statistic for a 95% confidence level (1.96), p = anticipated population proportion (0.50, assuming maximum variability in the population), e = margin of error (0.05), N = total population size (600 nurses). Substituting these values into previous formula:

$$\begin{aligned} n &= \frac{Z^2 p(1-p)N}{(N-1)e^2 + Z^2 p(1-p)} = \\ &= \frac{(1.96)^2 0.5(1-0.5)600}{(600-1)(0.05)^2 + (1.96)^2 (0.5)(1-0.5)} = \frac{(1.96)^2 0.5(1-0.5)600}{(600-1)(0.05)^2 + (1.96)^2 (0.5)(1-0.5)} = \frac{576.24}{2.458} = 234.4 \approx 235 \end{aligned}$$

This yielded a minimum required sample of 235 participants. The calculation was based on estimating a population proportion (the anticipated proportion of nurses with certain characteristics or outcomes), which is the standard approach for cross-sectional studies when the primary parameter of interest is a proportion. To account for an anticipated non-response and incomplete questionnaire rate of 10-15%, the target sample size was increased to 270 participants. This oversampling ensured that the final analyzable sample would meet or exceed the minimum required sample size of 235 even after excluding incomplete responses. Due to the limited number of nursing leaders in the participating hospitals ($n = 39$), they were recruited through purposive sampling, as all eligible nursing leaders across the six hospitals were invited to participate. For staff nurses, a stratified random sampling technique was employed to ensure proportional representation across clinical units. The strata were defined based on the clinical areas within each hospital: medical wards, surgical wards, intensive care units (ICUs), emergency departments, paediatrics units, and other specialized units (e.g., gynaecology, orthopaedics, and cardiac units). The sample size for each stratum was determined using proportional allocation, whereby the number of staff nurses selected from each clinical unit was proportionate to the total number of eligible staff nurses working in that unit across all six hospitals. For instance, staff nurses working in medical wards constituted approximately 30% of the total eligible staff nurse population across the six hospitals; accordingly, 30% ($n = 59$) of the staff nurse sample was drawn from medical wards. Similarly, surgical wards contributed 25% ($n = 49$), ICUs 15% ($n = 29$), emergency departments 13% ($n = 25$), paediatrics 10% ($n = 20$), and other specialized units 7% ($n = 14$). Within each stratum, staff nurses were selected using simple random sampling. A comprehensive list of all eligible staff nurses in each clinical unit was obtained from the nursing administration of each participating hospital. Each eligible staff nurse was assigned a unique identification number, and a computer-generated random number list was created using Microsoft Excel's RAND function to select the required number of participants from each stratum. The selected staff nurses were then approached by trained research

assistants for participation in the study. This approach ensured that every eligible staff nurse within each clinical unit had an equal probability of being selected, thereby minimizing selection bias and enhancing the representativeness of the sample.

The inclusion criteria were that all participants must be registered by the Pakistan Nursing Council and must give informed written consent. Nursing leaders had to have supervised others for at least 1 year; the staff nurses had to have been supervised by their current leader for at least 6 months. Students and student nurses/assisting nurses and those who were on approved leave during the time of data collection were excluded from the participants.

Instruments

Four instruments were used for data collection: one self-developed demographic sheet, two validated psychometric scales and one licensed burnout inventory as well as one self-developed clinical outcomes section.

Demographic Information Sheet: This information was gathered with a researcher-designed instrument that asked about age, gender, marital status, education level, professional designation, years in nursing practice, years in the current leadership position, hospital type and clinical unit.

Wong and Law Emotional Intelligence Scale (WLEIS): The emotional intelligence was assessed by the Wong and Law's (2002) WLEIS [2], which is a 16-item self-report instrument. The scale is divided into four dimensions: *Self-Emotion Appraisal (SEA)*—the ability to understand and express one's own emotions (4 items); *Others' Emotion Appraisal (OEA)*—the ability to perceive and understand the emotions of others, which corresponds to what is commonly termed 'empathy' (4 items); *Use of Emotion (UOE)*—the ability to harness emotions to facilitate performance and social interactions, relating to motivation and social skills (4 items); and *Regulation of Emotion (ROE)*—the ability to control and regulate one's own emotions, corresponding to 'self-regulation' (4 items). All items are rated on a seven-point Likert scale ranging from 1 (totally disagree) to 7 (totally agree).

agree). The total scores range from 16 to 112, and higher scores indicate greater emotional intelligence. The WLEIS was utilized for the current study, as it has demonstrated strong internal consistency (Cronbach's $\alpha = 0.89$) in previous research conducted with nurses in tertiary care hospitals in Peshawar, KPK [4].

Table 1 presents the conceptual mapping between the WLEIS dimensions and commonly used terminology from Goleman's model, clarifying the relationship between the four-dimensional framework adopted in this study and broader EI terminology.

WLEIS Dimension	Conceptual Equivalent	Commonly Used Terminology	Definition
Self-Emotion Appraisal (SEA)	Self-awareness	"Self-awareness" in Goleman's model	The ability to understand and express one's own emotions
Others' Emotion Appraisal (OEA)	Empathy	"Empathy" in Goleman's model	The ability to perceive and understand the emotions of others
Use of Emotion (UOE)	Motivation and social skills	"Motivation" and "Social Skills" in Goleman's model	The ability to harness emotions to facilitate performance and social interactions
Regulation of Emotion (ROE)	Self-regulation	"Self-regulation" in Goleman's model	The ability to control and regulate one's own emotions

Table 1. *Conceptual Mapping of WLEIS Dimensions.*

Permission for Use

Formal written permission for use of the WLEIS was obtained directly from the WLEIS original developer, Dr. Chi-Sum Wong, The Chinese University of Hong Kong, via email correspondence. Dr. Wong confirmed that the scale can be used free of charge for non-profit academic research (pers. comm. C.-S. Wong, August 15, 2024).

McCloskey/Mueller Satisfaction Scale (MMSS): The instrument used to measure job satisfaction was the MMSS, a 31-item instrument created specifically for nursing populations [23]. It is rated on a 5-point scale (1 = very dissatisfied to 5 = very satisfied) across eight subscales: extrinsic rewards, scheduling, family-work balance, coworker relations, interaction opportunities, professional development opportunities, praise and recognition, and control and responsibility. Total scores

range from 31 to 155. The MMSS has demonstrated satisfactory reliability (Cronbach's $\alpha = 0.89-0.92$) in previous research conducted with nurses in public sector hospitals in Punjab, Pakistan.

Table 2 summarizes which instruments were administered to each participant group, clarifying that the WLEIS was completed only by nursing leaders while the MMSS, MBI-HSS, and Clinical Practice Outcomes Section were completed by both groups.

Instrument	Nursing Leaders	Staff Nurses
Wong and Law Emotional Intelligence Scale (WLEIS)	✓	X
McCloskey/Mueller Satisfaction Scale (MMSS)	✓	✓
Maslach Burnout Inventory - Human Services Survey (MBI-HSS)	✓	✓
Clinical Practice Outcomes Section	✓	✓

Table 2. *Instrument Administration by Participant Group.*

The WLEIS was administered only to nursing leaders to assess their emotional intelligence levels. The MMSS, MBI-HSS, and Clinical Practice Outcomes Section were completed by both nursing leaders and staff nurses, allowing for comparison of job satisfaction, burnout, and clinical outcome reporting across both groups.

The Maslach Burnout Inventory -- Human Services Survey (MBI-HSS): The MBI-HSS is a 22-item questionnaire [24] with three subscale scores: Emotional Exhaustion (EE; 9 items; range 0-54), Depersonalization (DP; 5 items; range 0-30), and Personal Accomplishment (PA; 8 items; range 0-48). Each item is scored on a seven-point frequency scale (0 = never to 6 = every day). Higher scores on Emotional Exhaustion and Depersonalization indicate higher burnout, while higher scores on Personal Accomplishment indicate lower burnout.

Clinical Practice Outcomes Section

This researcher-developed section assessed unit-level adverse events over the past three months. Participants were asked to report: (1) the number of medication errors occurring in their unit, (2) the

number of patient falls, (3) the number of hospital-acquired pressure ulcers, (4) the percentage of hand hygiene compliance, and (5) the percentage of documentation accuracy. All items were self-reported by nursing staff based on their unit's records and observations. This section was developed specifically for this study and required no external permission for use.

The challenges and difficulties of translation and cultural adaptation

The procedure of forward-backward translation as recommended by Brislin [25] was followed. Two independent bilingual nursing educators (Master's degrees, 10+ years of nursing education experience in KPK) performed forward translations from English to Urdu. A third translator (PhD candidate in Public Health, blinded to the original versions) performed back-translation. Discrepancies were resolved by consensus. An expert panel comprising: (1) a Professor of Nursing (15+ years, instrument development expertise), (2) a Senior Nursing Superintendent (tertiary care hospital), and (3) a Senior Lecturer in Nursing (cultural competence training) reviewed the reconciled Urdu versions for linguistic and cultural appropriateness.

Pre-testing with cognitive interviewing was conducted with 15 nurses (5 leaders, 10 staff) not included in the final sample. Participants verbalized their understanding of each item. Based on feedback, modifications were made to 3 items to clarify ambiguous phrasing. All changes were reviewed and approved by the expert panel.

Validity and Reliability of Previously Validated Instruments

Three instruments used in this study—the Wong and Law Emotional Intelligence Scale (WLEIS), the McCloskey/Mueller Satisfaction Scale (MMSS), and the Maslach Burnout Inventory - Human Services Survey (MBI-HSS)—are well-established instruments with documented psychometric properties from prior studies.

Wong and Law Emotional Intelligence Scale (WLEIS)

The WLEIS was originally developed and validated by Wong and Law (2002) [2], with content validity established through expert review during instrument development. The scale has demonstrated strong psychometric properties in multiple international studies. In the Pakistani nursing context, Ullah et al. [4] reported a Cronbach's α of 0.89 for the WLEIS among nurses working in tertiary care hospitals in Khyber Pakhtunkhwa, indicating good internal consistency. The four-factor structure of the WLEIS (Self-Emotion Appraisal, Others' Emotion Appraisal, Use of Emotion, and Regulation of Emotion) has been confirmed through confirmatory factor analysis in South Asian healthcare populations.

McCloskey/Mueller Satisfaction Scale (MMSS)

The MMSS was originally developed and validated by McCloskey and Mueller (1990) [23] specifically for nursing populations, with content validity established through extensive literature review and expert panel review during instrument development. In Pakistani nursing populations, the MMSS has demonstrated satisfactory reliability, with Cronbach's α values ranging from 0.89 to 0.92 in public sector hospitals in Punjab, Pakistan. The eight-factor structure of the MMSS has been confirmed in multiple nursing populations internationally.

Maslach Burnout Inventory - Human Services Survey (MBI-HSS)

The MBI-HSS was originally developed and validated by Maslach and Jackson (1981) [24], with content validity established through extensive literature review and expert consultation. The instrument has been widely used internationally with documented reliability (Cronbach's α = 0.88-0.92 across various studies). The three-factor structure (Emotional Exhaustion, Depersonalization, and Personal Accomplishment) has been confirmed through extensive factor analytic studies across diverse healthcare settings.

Validity and Reliability of the Researcher-Developed Clinical Practice Outcomes Section

The Clinical Practice Outcomes section was developed specifically for this study to assess unit-level adverse events over the past three months. As this section was not a previously validated instrument, its validity and reliability were evaluated through the following procedures:

Content Validity

The Clinical Practice Outcomes section was assessed for content validity by a three-member expert panel consisting of two Nursing faculty members from Elizabeth Rani College of Nursing and Allied Health Sciences and one Nursing Superintendent from Mardan Medical Complex. Each item was judged for its relevance and clarity by the panelists. The Content Validity Index (CVI) was calculated based on expert ratings of item relevance (rated on a 4-point scale: 1 = not relevant to 4 = highly relevant). Items were retained if they achieved a CVI of 0.78 or higher. The overall CVI for the section was 0.89, indicating good content validity.

Test-Retest Reliability

A test-retest reliability assessment was conducted with 20 nurses over a 2-week interval. The same Clinical Practice Outcomes section was administered twice, and the intraclass correlation coefficient (ICC) was calculated. The ICC value was $r = 0.82$, indicating good stability over time.

Internal Consistency Reliability of All Instruments in the Present Study

Cronbach's alpha was used to assess the internal consistency of all instruments in the present study sample. The results are presented in Table 2 (for subscale-level reliability) and summarized below:

- WLEIS: Overall $\alpha = 0.91$; subscale α values ranged from 0.84 to 0.87
- MMSS: Overall $\alpha = 0.90$; subscale α values ranged from 0.82 to 0.88
- MBI-HSS: Overall $\alpha = 0.88$; subscale α values ranged from 0.84 to 0.89

All coefficient alpha values exceeded the recommended threshold of 0.70 by Nunnally & Bernstein, (1994) [26], indicating good to excellent internal consistency for all instruments in the present study sample.

Table 3 provides a comprehensive summary of the validity and reliability evidence for all instruments used in this study, including prior validation evidence and reliability coefficients obtained in the present sample.

Instrument	Type	Validity Evidence	Reliability Evidence (Prior Studies)	Reliability Evidence (Present Study)
WLEIS	Previously validated	Content validity established by original developers; four-factor structure confirmed in South Asian populations [2]	Cronbach's $\alpha = 0.89$ in KPK nurse samples [4]	Overall $\alpha = 0.91$; subscales $\alpha = 0.84$ - 0.87
MMSS	Previously validated	Content validity established by original developers; eight-factor structure confirmed in nursing populations [23]	Cronbach's $\alpha = 0.89$ - 0.92 in Pakistani nurse samples	Overall $\alpha = 0.90$; subscales $\alpha = 0.82$ - 0.88
MBI-HSS	Previously validated	Content validity established by original developers; three-factor structure confirmed in healthcare populations	Cronbach's $\alpha = 0.88$ - 0.92 in international studies	Overall $\alpha = 0.88$; subscales $\alpha = 0.84$ - 0.89
Clinical Practice Outcomes Section	Researcher-developed	Content Validity Index (CVI) = 0.89 (expert panel review)	Not applicable (newly developed)	Test-retest ICC = 0.82
WLEIS = Wong and Law Emotional Intelligence Scale; MMSS = McCloskey/Mueller Satisfaction Scale; MBI-HSS = Maslach Burnout Inventory - Human Services Survey; CVI = Content Validity Index; ICC = Intraclass Correlation Coefficient.				

Table 3. *Summary of Validity and Reliability Evidence for All Instruments*

Data Collection Procedure

Formal approval was obtained from the Medical Superintendent and Nursing Superintendent of each of the hospitals involved prior to data collection. Two parallel methods were used to collect data from October 2025 to January 2026. In the case of paper-based surveys, trained research assistants sought out eligible respondents in their clinical units at times when they were not busy. An informed consent was obtained in writing prior to the distribution of questionnaires. Sealed envelopes were used for returned completed surveys to ensure confidentiality.

For electronic surveys, an anonymous Google Form was sent out via WhatsApp to those who gave electronic consent through the use of an embedded consent statement on the first page of the Google Form. None of the information collected was identifiable by personal data in either method. To ensure consistency between the two modes of administration and minimize potential mode-related bias, several steps were taken. First, both paper and electronic versions were identical in content, item order, and response options. Second, the same standardized instructions were provided in both formats. Third, a preliminary analysis was conducted comparing responses from paper-based ($n = 168$) and electronic ($n = 67$) formats; independent samples t -tests revealed no significant differences in mean scores on any of the three main instruments (all $p > 0.05$), suggesting minimal mode-related bias. Fourth, for electronic responses, completion times were reviewed to identify potential speeders; no respondents were excluded on this basis as all completion times were within acceptable ranges. Questionnaires were excluded from analysis if they had missing data of more than 10%. The responses to the paper-based format were entered manually in the IBM SPSS Statistics Version 26, while the responses filled in on electronic format were exported from Google Forms to Microsoft Excel and then imported into the SPSS.

Ethical Considerations

This study followed the ethical standards of the Declaration of Helsinki. The study was approved by the Institutional Review Board (IRB) of Elizabeth Rani College of Nursing and Allied Health Sciences, Mardan (Approval No. ERCON/IRB/2025/07; date of approval: 15 July 2025) prior to data collection. All participants gave informed consent. The participation was voluntary and no consequences would follow if participants wanted to drop out. There were no incentives provided. Names, employee identifiers or contact information have been kept anonymous throughout. Data was collected and kept on a password protected device which was only accessible to the principal investigator. Paper surveys were obtained in a locked cabinet in the institution. All data will be

deleted 3 years after publication.

Data Analysis

Data were analyzed using IBM SPSS Statistics for Windows, Version 26.0 (IBM Corp., Armonk, NY, USA). All the demographic and study variables were analyzed using descriptive statistics, which included means, standard deviations, frequencies, and percentages. Cronbach's alpha was used to assess the internal consistency of each instrument (Table 4).

Linkage of Research Questions and Hypotheses to Statistical Analyses

Table 4 presents the linkage between each research question/hypothesis and the corresponding statistical analysis, along with the rationale for each analytical choice.

Research Question/Hypothesis	Statistical Analysis	Rationale
RQ1: What is the mean EI score of nursing leaders?	Descriptive statistics (means, standard deviations)	To summarize the central tendency and variability of EI scores
RQ2: Are there differences in job satisfaction between nursing leaders and staff nurses?	Independent samples t-test (cluster-robust with robust standard errors)	To compare mean job satisfaction scores between two independent groups while accounting for nesting of staff nurses within leaders
RQ3: Are nursing leader EI scores correlated with staff outcomes?	Pearson's product-moment correlation (cluster-robust using SPSS COMPLEX SAMPLES)	To examine the strength and direction of linear relationships between EI and continuous outcome variables while accounting for within-leader clustering
RQ4/H3: Are clinical outcomes different across EI tertile groups?	One-way ANOVA (cluster-robust using GEE with exchangeable correlation structure) with post hoc Tukey's HSD; Chi-square tests	To compare means across three independent groups and examine differences in categorical adverse event rates while accounting for clustering
RQ5/H4: Which EI dimensions predict clinical adherence?	Stepwise multiple linear regression (cluster-robust using SPSS COMPLEX SAMPLES REGRESSION)	To identify the most important EI dimensions predicting clinical adherence while controlling for other dimensions and accounting for clustering

Table 4. *Linkage of Research Questions and Hypotheses to Statistical Analyses*

Tertile Creation and Unit of Analysis

The 39 nursing leaders were ranked by their overall WLEIS scores and divided into three tertiles

based on the distribution of their scores: the lowest tertile (bottom 33.3%), the middle tertile (middle 33.3%), and the highest tertile (top 33.3%). The cut-off values for the tertiles were determined as follows: Low EI: WLEIS score < 3.85 ; Medium EI: WLEIS score $3.85-4.75$; and High EI: WLEIS score > 4.75 . Staff nurses ($n = 196$) were assigned to the EI tertile of their respective nursing leader, meaning that all staff nurses working under a nursing leader with a Low EI score were classified into the Low EI group, and similarly for Medium EI and High EI groups. This classification resulted in the following group sizes: Low EI ($n = 78$), Medium EI ($n = 79$), and High EI ($n = 78$), accounting for the full sample of 235 participants. The staff nurse served as the primary unit of analysis for all inferential analyses. Each staff nurse's responses were linked to their respective nursing leader's EI score. While staff nurses were nested within leaders, this clustering was accounted for by using robust standard errors to address potential non-independence of observations within leader groups. It is important to clarify the nature of the clinical outcome variables. Medication errors, patient falls, pressure ulcers, hand hygiene compliance, and documentation accuracy are unit-level indicators, reflecting the aggregated performance of the clinical unit (ward) over the past three months, rather than individual staff nurse behaviors. All staff nurses working on the same clinical unit reported identical values for these outcomes, as they were reporting their unit's aggregated data. This creates a within-unit correlation (pseudoreplication) that violates the assumption of independence at the individual nurse level. This non-independence is explicitly addressed through the use of cluster-robust standard errors with nursing leader as the cluster variable, which corrects for the correlated nature of the data and provides valid inference for the relationships examined at the individual nurse level.

Statistical analysis

Prior to conducting inferential analyses, statistical assumptions were assessed. Normality was evaluated through visual inspection of Q-Q plots and Kolmogorov-Smirnov tests, which indicated

no substantial departures from normality. Homogeneity of variance was examined using Levene's test, with no significant violations observed across groups for t-tests and ANOVA (all $p > 0.05$). For regression analyses, multicollinearity was assessed using Variance Inflation Factors (VIFs), which ranged from 1.85 to 2.10, indicating no evidence of problematic multicollinearity. Scatterplots indicated approximately linear relationships between predictors and outcome variables. Standardized residual plots showed random dispersion around zero, supporting the assumption of homoscedasticity. The normality of regression residuals was further assessed using the Shapiro-Wilk test and visual inspection of residual distributions, with no substantial deviations from normality observed ($p > 0.05$). Statistical significance was set at $\alpha = 0.05$, and all tests were two-tailed.

Handling of Hierarchical Data Structure

The study design involved a hierarchical data structure in which staff nurses ($n = 196$) were nested within nursing leaders ($n = 39$), with an average cluster size of 5.03 staff nurses per leader (range: 2-8 per leader). This clustering creates non-independence of observations, as staff nurses within the same unit may be more similar to each other than to staff nurses in other units due to shared leadership, work environment, and unit culture. Failure to account for this non-independence can lead to underestimated standard errors and inflated Type I error rates.

To address this clustering, robust standard errors (Huber-White sandwich estimators) were used for all inferential analyses. All reported inferential statistics (t , F , r) presented in the Results section are derived from these cluster-robust procedures, not from conventional analyses that ignore the nested data structure. The degrees of freedom reported throughout the Results section reflect the total sample size ($N = 235$) adjusted for the parameters estimated in each analysis, consistent with standard output from SPSS COMPLEX SAMPLES and GEE procedures. In SPSS COMPLEX SAMPLES, degrees of freedom are calculated based on the residual degrees of freedom from the

design-adjusted analysis, which accounts for the clustering structure while using the total sample size as the basis for the denominator degrees of freedom. Similarly, for GEE analyses, degrees of freedom are based on the total number of observations minus the number of estimated parameters, with robust standard errors providing valid inference despite the nested data structure. The use of $N = 235$ in the reported degrees of freedom (e.g., $t(233)$, $F(2,232)$, $r(233)$) reflects the total sample size minus the appropriate number of parameters estimated, and is consistent with standard practice in cluster-robust analyses where the effective sample size for hypothesis testing remains the total number of observations, while standard errors are adjusted for clustering. This approach is widely used in nursing and healthcare research when the number of clusters is limited and multilevel modelling is not feasible (McNeish et al., 2017) [28].

Robust standard errors adjust the standard errors of parameter estimates to account for within-cluster correlation, providing valid inference even when observations are not independent. These were implemented as follows:

- For Pearson correlations, robust standard errors were estimated using IBM SPSS COMPLEX SAMPLES procedure with the nursing leader as the cluster variable. This procedure applies the Huber-White sandwich estimator to correct standard errors for the nested data structure.
- For independent samples t-tests and one-way ANOVA, generalized estimating equations (GEE) with an exchangeable correlation structure were used to compare group means while accounting for within-cluster correlation. GEE provides population-averaged estimates that are robust to misspecification of the correlation structure.
- For stepwise multiple linear regression, robust standard errors were implemented using the SPSS COMPLEX SAMPLES REGRESSION procedure, which applies the Huber-White sandwich estimator to produce cluster-robust standard errors and confidence intervals for regression coefficients.

Justification for Not Using Multilevel Modelling

While multilevel modelling (MLM) is the theoretically preferred approach for nested data, it was not feasible in this study due to the limited number of level-2 units. Simulation studies by Maas and Hox (2005) [27] demonstrated that multilevel models require a minimum of 50 clusters at Level 2 for reliable estimation of random effects and standard errors. Similarly, McNeish et al., (2017) [28] showed that with fewer than 50 clusters, multilevel models can produce biased estimates of random effects and standard errors, particularly for cross-level interactions. With only 39 nursing leaders, we determined that multilevel modelling would have been underpowered for reliable random effects estimation. The use of robust standard errors provides a conservative and appropriate alternative that corrects for non-independence without imposing potentially unstable random effects specifications. The staff nurse served as the primary unit of analysis for all inferential analyses. Each staff nurse's responses were linked to their respective nursing leader's EI score, and all analyses were conducted at the individual staff nurse level with clustering accounted for through robust standard errors.

Hierarchical Structure Considerations

The hierarchical structure of the data (staff nurses nested within nursing leaders) was explicitly addressed in all statistical analyses through the use of robust standard errors. This approach was selected because multilevel modelling, while theoretically appropriate, would have been underpowered given the limited number of nursing leaders ($n = 39$). Simulation studies by Maas and Hox (2005) and McNeish (2017) [27,28] indicate that multilevel models require a minimum of 50 clusters at Level 2 for reliable random effects estimation. With only 39 nursing leaders, we opted for robust standard errors to correct for non-independence without imposing potentially unstable random effects specifications. The intraclass correlation coefficient (ICC) was estimated to assess the proportion of variance in key outcome variables attributable to between-leader differences. The

ICC values ranged from 0.12 to 0.18 across outcome variables, indicating moderate clustering effects that warranted correction for non-independence. All analyses were conducted at the individual staff nurse level ($n = 196$) with clustering accounted for through robust standard errors using the nursing leader as the cluster variable.

RESULTS

Response rate, and participant flow.

A total of 305 nursing personnel were invited to participate with 77.0% (257) giving informed consent, and 235 of them returned completely filled questionnaires. Nursing leaders had a higher response rate (86.7%, $n = 39$) than did staff nurses (75.4%, $n = 196$). As per methodology, questionnaires with incomplete responses more than 10% were excluded from the analysis.

Demographic Characteristics

The demographic characteristics of the 235 participants are presented in Table 5.

Characteristic	Category	Nursing Leaders ($n = 39$) n (%)	Staff Nurses ($n = 196$) n (%)	Total ($N = 235$) n (%)
Age (years)	20–29	2 (5.1)	68 (34.7)	70 (29.8)
	30–39	18 (46.2)	89 (45.4)	107 (45.5)
	40–49	14 (35.9)	32 (16.3)	46 (19.6)
	50+	5 (12.8)	7 (3.6)	12 (5.1)
Gender	Male	9 (23.1)	32 (16.3)	41 (17.4)
	Female	30 (76.9)	164 (83.7)	194 (82.6)
Marital Status	Married	33 (84.6)	138 (70.4)	171 (72.8)
	Unmarried	6 (15.4)	58 (29.6)	64 (27.2)
Qualification	Diploma	10 (25.6)	101 (51.5)	111 (47.2)
	BSN	14 (35.9)	62 (31.6)	76 (32.3)
	Post RN	11 (28.2)	28 (14.3)	39 (16.6)
	MSN	4 (10.3)	5 (2.6)	9 (3.8)
Hospital Type	Public	29 (74.4)	149 (76.0)	178 (75.7)
	Private	10 (25.6)	47 (24.0)	57 (24.3)
Clinical Unit	Medical	10 (25.6)	62 (31.6)	72 (30.6)
	Surgical	9 (23.1)	48 (24.5)	57 (24.3)
	ICU	7 (17.9)	33 (16.8)	40 (17.0)
	Emergency	6 (15.4)	27 (13.8)	33 (14.0)
	Paediatrics	4 (10.3)	16 (8.2)	20 (8.5)
	Other	3 (7.7)	10 (5.1)	13 (5.5)

Table 5. Demographic characteristics of the participants ($N = 235$).

The sample was predominantly female (82.6%), married (72.8%), and aged between 30 and 39 years (45.5%). Most were employed in public hospitals (75.7%) while the most frequently mentioned clinical setting was medical wards (30.6%). The credentialling system in KPK public hospitals was largely based on a diploma system, with nursing leaders having more likely qualifications of either a BSN or a Post registration qualification (28.2% and 28.2%).

Reliability Analysis

Table 6 presents Cronbach's alpha coefficients for all study instruments.

Instrument	Subscale	Items (n)	Cronbach's α
WLEIS	Self-Emotion Appraisal	4	0.86
	Others' Emotion Appraisal	4	0.84
	Use of Emotion	4	0.85
	Regulation of Emotion	4	0.87
	Overall WLEIS	16	0.91
MMSS	Extrinsic Rewards	4	0.88
	Scheduling	6	0.86
	Family–Work Balance	3	0.82
	Coworkers	3	0.85
	Interaction Opportunities	4	0.84
	Professional Opportunities	3	0.87
	Praise and Recognition	3	0.86
	Control and Responsibility	5	0.88
	Overall MMSS	31	0.9
MBI-HSS	Emotional Exhaustion	9	0.89
	Depersonalization	5	0.85
	Personal Accomplishment	8	0.84
	Overall MBI-HSS	22	0.88

Table 6. *The Cronbach's Alpha Reliability Coefficients of all instruments are presented.*

All instruments were pre tested for internal consistency with Cronbach's alpha before inferential analysis. All alpha coefficients were above the suggested cut-off of 0.70 [26]: Overall, the WLEIS score was 0.91, the MMSS was 0.90, and the MBI-HSS was 0.88, which meant that these scores indicated excellent internal consistency on all measures.

Research Question 1 (RQ1): How do the EI scores of nursing leaders compare?

The mean WLEIS scores obtained for all four dimensions of the nursing leader are shown in Table

7, presents the mean WLEIS scores for all four dimensions among nursing leaders. It was revealed that the EI score of the nursing leaders of District Mardan was at moderate level with mean score of 4.35 (SD=0.85) on a seven point scale. Nursing leaders' appreciation of their own emotional states was relatively more evident in the dimension of self-emotion appraisal (mean = 4.82, SD = 0.92). Ability to regulate emotional responses (mean = 3.98, SD = 1.15) was the lowest-scoring dimension, suggesting this to be a relative weakness in this sample.

WLEIS Dimension	Mean	SD	Min	Max
Self-Emotion Appraisal	4.82	0.92	2.5	6.75
Others' Emotion Appraisal	4.15	1.08	2	6.5
Use of Emotion	4.43	0.96	2.25	6.75
Regulation of Emotion	3.98	1.15	1.75	6.5
Overall Emotional Intelligence	4.35	0.85	2.38	6.56

Table 7. *The Mean Emotional Intelligence Score of all Nursing Leaders (n = 39) were calculated.*

Research Question 2 (RQ2): Job Satisfaction Differences between Nursing Leaders and Staff Nurses

Independent samples t-tests were used to compare the nursing staff and the nursing leaders on MMSS. As shown in Table 8, nursing leaders reported significantly higher overall job satisfaction (mean = 2.92, SD = 0.72) compared to staff nurses (mean = 2.64, SD = 0.78), $t(233) = 2.08$, $p = 0.039$. Significant between-group differences were also found for extrinsic rewards, $t(233) = 2.04$, $p = 0.043$; scheduling, $t(233) = 2.16$, $p = 0.032$; family-work balance, $t(233) = 2.21$, $p = 0.028$; praise and recognition, $t(233) = 2.13$, $p = 0.034$; and control and responsibility, $t(233) = 2.75$, $p = 0.006$. No significant differences were found for interaction opportunities, $t(233) = 0.41$, $p = 0.682$, or coworker relations, $t(233) = 0.46$, $p = 0.646$. Interestingly, the overall mean of both groups were in the low to moderate range on a five-point scale, which indicates a general dissatisfaction among the nursing profession in District Mardan.

Table 8 compares job satisfaction scores between nursing leaders and staff nurses across all MMSS

subscales.

MMSS Subscale	Nursing Leaders (n = 39) Mean (SD)	Staff Nurses (n = 196) Mean (SD)	Mean Difference	t	p-value
Extrinsic Rewards	2.68 (0.85)	2.35 (0.92)	0.33	2.04	0.043*
Scheduling	2.52 (0.92)	2.18 (0.88)	0.34	2.16	0.032*
Family–Work Balance	2.71 (0.96)	2.34 (0.94)	0.37	2.21	0.028*
Coworkers	3.45 (0.82)	3.38 (0.86)	0.07	0.46	0.646
Interaction Opportunities	3.38 (0.78)	3.32 (0.84)	0.06	0.41	0.682
Professional Opportunities	2.98 (0.88)	2.72 (0.91)	0.26	1.62	0.107
Praise and Recognition	2.84 (0.95)	2.48 (0.97)	0.36	2.13	0.034*
Control and Responsibility	2.78 (0.92)	2.32 (0.96)	0.46	2.75	0.006*
Overall Job Satisfaction	2.92 (0.72)	2.64 (0.78)	0.28	2.08	0.039*
*=significant test.					

Table 8. *Job Satisfaction Score (MMSS) was compared between nursing leaders and staff nurses.*

Note to Table 8

Items were rated on a 5-point Likert scale (1 = very dissatisfied, 5 = very satisfied). Data are presented as mean (SD). Differences between nursing leaders and staff nurses were examined using independent-samples *t*-tests with cluster-robust standard errors, with nursing leader specified as the clustering variable to account for the nested data structure.

Research Question 3 (RQ3): Correlations between Emotional Intelligence and Outcomes of Practice

Pearson's product-moment correlation coefficients were calculated to check for relationship between the overall EI score of nursing leaders with staff nurse practice outcomes. Table 9 shows the results. Staff job satisfaction was moderately positively correlated with leader EI, $r(233) = 0.42$, $p < 0.001$; that is, employees' job satisfaction was higher when their leader had a higher EI. There was a moderate negative correlation between EI and Burnout, $r(233) = -0.38$, $p < 0.001$, indicating that staff members in units with higher EI leader competence reported lower burnout levels. There was also a significant negative correlation between EI and medication errors, $r(233) = -0.31$, $p <$

0.001, and a significant positive correlation between EI and clinical adherence, $r(233) = 0.35$, $p < 0.001$. All correlations were statistically significant at the $p < 0.01$ level (two-tailed).

Variable	Overall EI	Job Satisfaction (MMSS)	Burnout (MBI-HSS)	Medication Errors	Clinical Adherence
Job Satisfaction (MMSS)	$r = 0.42$, $p < 0.001^*$	—			
Burnout (MBI-HSS)	$r = -0.38$, $p < 0.001^*$	$r = -0.55$, $p < 0.001^*$	—		
Medication Errors	$r = -0.31$, $p < 0.001^*$	$r = -0.32$, $p < 0.001^*$	$r = 0.28$, $p < 0.001^*$	—	
Clinical Adherence	$r = 0.35$, $p < 0.001^*$	$r = 0.38$, $p < 0.001^*$	$r = -0.26$, $p < 0.001^*$	$r = -0.29$, $p < 0.001^*$	—
*=significant test.					

Table 9. The Pearson correlation between each nursing leader EI and each practice outcome is shown. ($N = 235$).

Note to Table 9

All correlations are Pearson's product-moment correlation coefficients. $N = 235$ for all analyses, and all p -values are two-tailed. Correlation coefficients were estimated using cluster-robust procedures (SPSS Complex Samples) with nursing leader as the clustering variable.

Research Question 4 (RQ4): Clinical Outcomes by Emotional Intelligence Tertiles

According to the overall WLEIS scores of the leaders, the participants were divided into three tertiles: low EI ($n = 78$), medium EI ($n = 79$), and high EI ($n = 78$). The clinical outcome indicators were compared between tertiles using one-way ANOVA. Statistically significant differences were found for all five clinical outcome variables as presented in Table 10: medication errors, $F(2, 232) = 32.45$, $p < 0.001$; patient falls, $F(2, 232) = 18.92$, $p < 0.001$; pressure ulcers, $F(2, 232) = 22.14$, $p < 0.001$; hand hygiene compliance, $F(2, 232) = 28.56$, $p < 0.001$; and documentation accuracy, $F(2, 232) = 30.12$, $p < 0.001$.

Post-hoc Tukey's HSD tests confirmed that units led by high-EI leaders reported significantly

fewer medication errors (mean = 4.15, SD = 2.38) compared to units led by low-EI leaders (mean = 8.45, SD = 3.82), mean difference = -4.30, $p < 0.001$; patient falls (mean = 3.15, SD = 1.92 vs. mean = 5.68, SD = 2.75), mean difference = -2.53, $p < 0.001$; and pressure ulcers (mean = 2.25, SD = 1.58 vs. mean = 4.32, SD = 2.14), mean difference = -2.07, $p < 0.001$. Units led by high-EI leaders also demonstrated significantly higher hand hygiene compliance (76.8% vs. 58.2%), mean difference = 18.6%, $p < 0.001$, and documentation accuracy (79.6% vs. 62.5%), mean difference = 17.1%, $p < 0.001$, compared to units led by low-EI leaders.

Clinical Outcome	Low EI (n = 78) Mean (SD)	Medium EI (n = 79) Mean (SD)	High EI (n = 78) Mean (SD)	F	p-value
Medication Errors (3 months)	8.45 (3.82)	5.72 (2.94)	4.15 (2.38)	32.45	<0.001*
Patient Falls (3 months)	5.68 (2.75)	4.22 (2.18)	3.15 (1.92)	18.92	<0.001*
Pressure Ulcers (3 months)	4.32 (2.14)	3.15 (1.82)	2.25 (1.58)	22.14	<0.001*
Hand Hygiene Compliance (%)	58.2 (14.5)	68.4 (12.8)	76.8 (11.2)	28.56	<0.001*
Documentation Accuracy (%)	62.5 (15.2)	71.3 (13.4)	79.6 (10.8)	30.12	<0.001*
*=significant test.					

Table 10. Medical outcomes are compared based on the nursing leader's EI tertile.

Note to Table 10

Tertile classification was based on nursing leaders' overall WLEIS scores: Low EI (< 3.85), Medium EI (3.85-4.75), and High EI (> 4.75). Staff nurses were assigned to the EI tertile of their respective nursing leader. Group comparisons were performed using cluster-robust procedures (GEE with exchangeable correlation structure) with nursing leader as the clustering variable.

Table 11 presents the post-hoc Tukey HSD pairwise comparisons for all clinical outcomes across EI tertiles.

One-way ANOVA with Tukey's HSD post hoc tests confirmed significant differences between all three tertile groups for both job satisfaction scores ($F(2, 232) = 28.56, p < 0.001$) and burnout scores ($F(2, 232) = 31.42, p < 0.001$). Error bars represent standard deviations.

Clinical Outcome	Comparison	Mean Difference	95% CI	p-value
Medication Errors	High vs. Low	-4.3	[-5.78, -2.82]	<0.001*
	Medium vs. Low	-2.73	[-4.21, -1.25]	<0.001*
	High vs. Medium	-1.57	[-3.05, -0.09]	0.038*
Patient Falls	High vs. Low	-2.53	[-3.85, -1.21]	<0.001*
	Medium vs. Low	-1.46	[-2.78, -0.14]	0.03*
	High vs. Medium	-1.07	[-2.39, 0.25]	0.112
Pressure Ulcers	High vs. Low	-2.07	[-2.98, -1.16]	<0.001*
	Medium vs. Low	-1.17	[-2.08, -0.26]	0.012*
	High vs. Medium	-0.9	[-1.81, 0.01]	0.053
Hand Hygiene Compliance	High vs. Low	18.6	[13.45, 23.75]	<0.001*
	Medium vs. Low	10.2	[5.05, 15.35]	<0.001*
	High vs. Medium	8.4	[3.25, 13.55]	0.002*
Documentation Accuracy	High vs. Low	17.1	[11.85, 22.35]	<0.001*
	Medium vs. Low	8.8	[3.55, 14.05]	0.001*
	High vs. Medium	8.3	[3.05, 13.55]	0.002*

*=significant test; All pairwise comparisons are based on Tukey's HSD post hoc tests following significant one-way ANOVA results.

Table 11. Post-hoc Tukey HSD Pairwise Comparisons for Clinical Outcomes

Each tertile of nursing leader EI is correlated with staff outcomes in Figure 1.

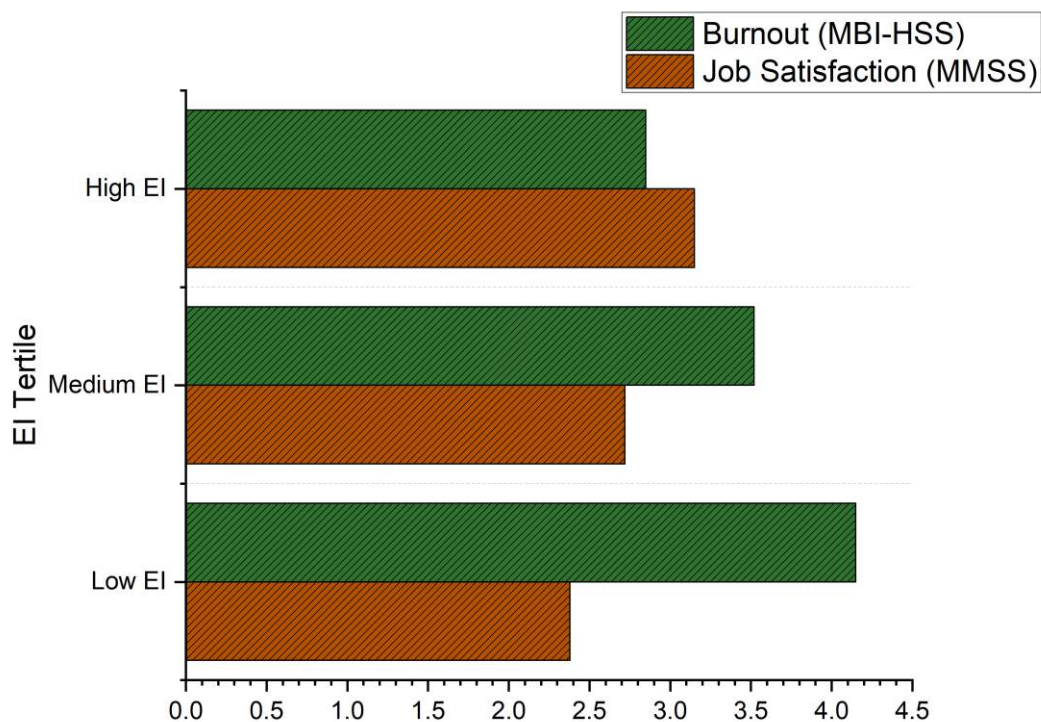


Figure 1. Job Satisfaction and Burnout Scores by Nursing Leader EI Tertile (N = 235).

The trend was clearly stepwise: Staff nurses working with high-EI leadership had higher job satisfaction scores than those working with medium-EI leaders, who had higher scores than those working with low-EI leaders. As a result, the scores of the Burnout scale fell as the leader EI increased. This trend suggests that there are important improvements in staff wellbeing outcomes associated with relatively small improvements in the EI of nursing leaders.

One-way ANOVA with Tukey's HSD post hoc tests confirmed significant differences between all three tertile groups for medication errors ($F(2,232) = 32.45, p < 0.001$) and hand hygiene compliance ($F(2,232) = 28.56, p < 0.001$). Error bars represent standard deviations.

The pattern of clinical safety indicators is similar as seen in Figure 2.

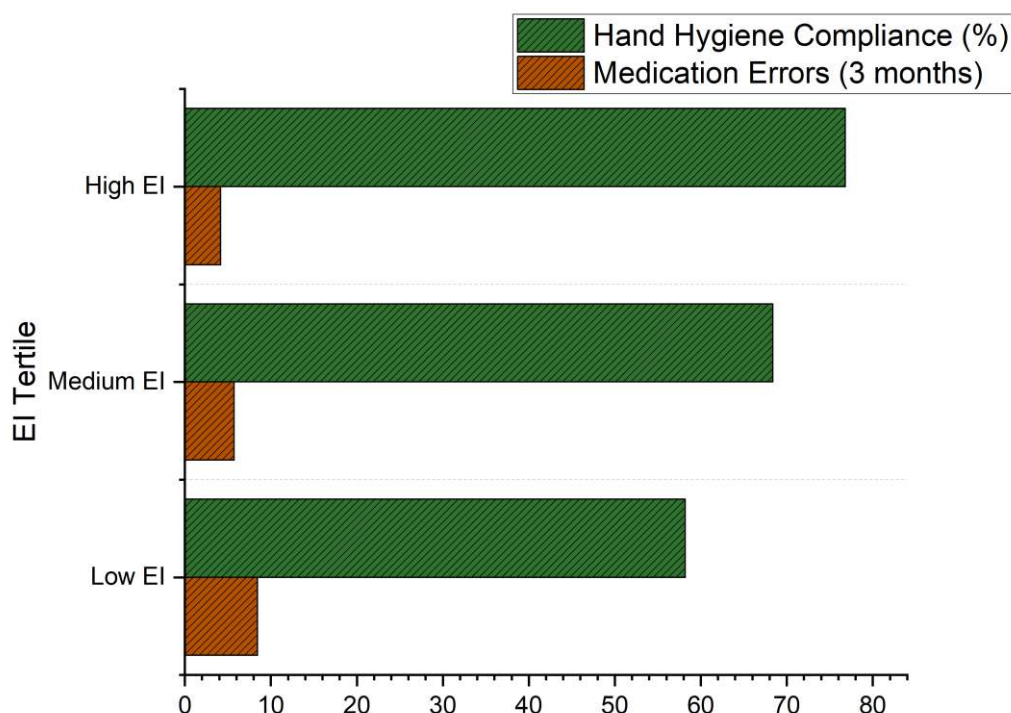


Figure 2. *Medication Errors and Hand Hygiene Compliance by Nursing Leader EI Tertile (N =235).*

The number of medication errors/unit decreased from 8.45 in the low-EI tertile to 5.72 in the medium-EI tertile to 4.15 in the high-EI tertile, a 50.9% reduction between the lowest and highest EI tertiles, for the 3-month reporting period. Hand hygiene compliance increased from 58.2% in low-EI units, to 68.4% in medium-EI units and 76.8% in high-EI units. Overall, the results of Figures 1 and 2 indicate an incremental improvement pattern, whereby higher nursing leader EI levels were associated with progressively better staff wellbeing and patient safety indicators. This pattern of incremental improvements, while not establishing causality due to the cross-sectional design, suggests a consistent association between nursing leader EI and multiple domains of nursing practice outcomes.

Research Question 5 (RQ5): What are the predictors of positive nursing practice outcomes?

Patients' clinical adherence was the dependent variable of the stepwise multiple linear regression model, which included the four dimensions of the WLEIS as the independent variables: Self-Emotion Appraisal, Others' Emotion Appraisal, Use of Emotion, and Regulation of Emotion. Table 12 presents the final three-step multiple linear regression model predicting clinical adherence from the WLEIS dimensions. In Step 1, the highest predictor ($\beta = .42, p < 0.001$) was *Others' Emotion Appraisal* (which corresponds to what is commonly termed 'empathy'), explaining a large amount of variance in clinical adherence. *Regulation of Emotion* (corresponding to 'self-regulation') was added in Step 2 ($\beta = 0.31, p < 0.001$), and *Use of Emotion* (relating to motivation and social skills) was added in Step 3 ($\beta = 0.20, p = 0.011$). *Self-Emotion Appraisal* did not meet the criteria for inclusion in the final model.

The final model explained 38% of the variance in clinical adherence ($R^2 = 0.38$, Adjusted $R^2 = 0.36$), and was statistically significant, $F(3, 231) = 47.12, p < 0.001$. There were no multicollinearity issues, as the variance inflation factor for all of the predictors ranged from 1.85 to 2.10.

Step	Predictor (WLEIS Dimension)	B	SE	β	t	p	VIF
1	Constant	2.45	0.32		7.66	<0.001*	
	Others' Emotion Appraisal	0.38	0.08	0.42	4.75	<0.001*	1.85
2	Constant	1.98	0.35		5.66	<0.001*	
	Others' Emotion Appraisal	0.32	0.07	0.36	4.57	<0.001*	1.92
	Regulation of Emotion	0.28	0.06	0.31	4.67	<0.001*	1.88
3	Constant	1.65	0.38		4.34	<0.001*	
	Others' Emotion Appraisal	0.28	0.07	0.31	4	<0.001*	2.1
	Regulation of Emotion	0.24	0.06	0.27	4	<0.001*	2.05
	Use of Emotion	0.18	0.07	0.2	2.57	0.011*	1.95
*=significant test; †=Others' Emotion Appraisal is conceptually equivalent to empathy; ‡=Regulation of Emotion is conceptually equivalent to self-regulation; §=Use of Emotion relates to motivation and social skills.							

Table 12. Descriptive statistics for stepwise multiple linear regression of clinical adherence predictors are presented ($N = 235$).

Note to Table 12

Self-Emotion Appraisal did not meet the inclusion criteria for the final model. The final model explained 38% of the variance in clinical adherence ($R^2 = .38$, Adjusted $R^2 = .36$; $F(3, 231) = 47.12$, $p < 0.001$). Outcome variable: clinical adherence composite score. All statistics were estimated using cluster-robust regression procedures with nursing leader as the clustering variable.

DISCUSSION

Overview

This section discusses the results of this present study with reference to the literature reviews on emotional intelligence and Nursing Practice Outcomes. This study addressed a critical gap in the nursing leadership literature by providing the first quantitative evidence on the relationship between nursing leader emotional intelligence and comprehensive nursing practice outcomes in the specific healthcare context of District Mardan, Khyber Pakhtunkhwa, Pakistan. Prior research in the region had established relationships between EI and individual outcomes such as burnout [4,22] and job satisfaction [9,12,18] but had not examined the broader array of nursing practice measures including medication errors and clinical adherence in a single study. Furthermore, no previous

investigation had focused specifically on District Mardan's semi-urban healthcare setting, which presents unique challenges including resource constraints, varying hospital tiers (tertiary, secondary, primary, and private), and specific workforce dynamics documented in the KPK nursing literature [4,18,20].

The mechanisms through which nursing leader EI may influence staff outcomes are multifaceted. First, through emotional contagion, leaders with high EI can transmit positive emotional states to their staff, creating a more supportive and less stressful work environment. Second, emotionally intelligent leaders are better equipped to provide social support, recognize staff distress, and intervene before burnout develops. Third, high EI leaders model effective emotional regulation, which staff may adopt through observational learning, thereby enhancing their own coping capacities. Fourth, emotionally intelligent leadership fosters psychological safety, where staff feel comfortable reporting errors and discussing concerns without fear of blame—a critical factor for patient safety. These mechanisms are particularly relevant in resource-constrained settings like District Mardan, where staff face high workloads and limited institutional support.

The discussion is presented in terms of the five research questions and four hypotheses that were explored in this study. The results are presented in context with the existing international evidence and regionally in the context of Khyber Pakhtunkhwa (KP), Pakistan.

The level of emotional intelligence amongst nursing leaders in District Mardan

The overall mean score of emotional intelligence of all the nursing leaders in District Mardan was 4.35 (SD = 0.85) which represents moderate level of EI on seven point scale. Self-Emotion Appraisal was the highest dimension (mean = 4.82) and Regulation of Emotion was the lowest (mean = 3.98). The results of this study coincide with previous research that reported moderate EI levels among nurses in tertiary health care hospitals in KPK [4], as well as studies that found moderate EI levels among nursing staff in Peshawar [4]. This moderate EI as observed in the

present study could be attributed to the fact that formal leadership development programmes are not easily available in District Mardan hospitals, a challenge that has been highlighted in the context of nursing workforce challenges in Pakistan [17]. It is noteworthy that the scores on Regulation of Emotion are relatively low. This dimension shows how well individuals control and regulate their own emotions, especially important in clinical settings in which there is a high degree of stress. This is consistent with observations that the roles of nursing leaders are often emotionally challenging tasks, such as staffing, workload, and time-sensitive decision-making, which all require the nursing leader to have a strong ability to regulate their emotions [1,3]. The implication is that, in this context, targeted leadership development interventions that focus specifically on emotional regulation may result in positive outcomes that lead to increased nursing leadership effectiveness.

Differences in Job Satisfaction between Nursing Leaders and Staff Nurses

Overall job satisfaction was significantly higher among the nursing leaders than staff nurses (mean = 2.92 vs. mean = 2.64; $p = 0.039$); but on the 5-point scale overall satisfaction is low to moderate for all the nurses of District Mardan. The result is similar to previous research which found that nurses in Pakistan were generally unhappy with the low levels of resources, pay, patient-nurse ratio, and professional development [18]. A high level of satisfaction in this context is related to the factors of structural/organizational factors, which are found to be the main causes of dissatisfaction in this context, because there are significant differences in the subscales of extrinsic rewards, scheduling, family–work balance, praise and recognition, and control and responsibility. By comparison, there are no significant differences for coworkers' relations or coworker interaction opportunities, which shows that interpersonal aspects of the work environment are relatively more satisfactory. The pattern indicates that policies aimed at remuneration, workload distribution, and recognition systems within the teams will be more effective than team-building efforts. The results were consistent with previous research which concluded that organizational factors in the nursing

workforce mediated between EI and job satisfaction [12].

Correlations between Emotional Intelligence and Practice Outcomes

As hypothesized, there was a significant positive moderate correlation between nursing leader EI and job satisfaction among staff, $r(233) = 0.42, p < 0.001$. This result is in line with the general literature, which has found positive correlations between EI and organizational commitment among nurses [6,9,11], and demonstrated that leaders' EI positively correlates with nurses' psychological empowerment and work engagement [11,29]. The results of the correlations found in the present study support the mediation of job satisfaction between EI and job performance identified by Chauhan, R. et al., (2022) [12].

To test Hypothesis 2, a significant moderate negative correlation was found between nursing leader EI and staff burnout, $r(233) = -0.38, p < 0.001$. This finding aligns with the significant negative correlation between EI and burnout syndrome among KPK nurses [4,22], and is consistent with findings that there is a significant association between EI and burnout syndrome among Pakistani clinicians [22]. Potentially, leader EI can help to diminish staff burn out by fostering more emotionally support work environments, which would be in line with research noting that high EI nurse managers employ more effective conflict management strategies, which in turn lead to healthier ward climates [9,10]. Medication errors were also negatively correlated with EI, $r(233) = -0.31, p < 0.001$, and positively correlated with clinical adherence, $r(233) = 0.35, p < 0.001$. The emotional competencies of nursing leaders are not only related to the wellbeing of nurses, but also to patient safety outcomes, as demonstrated in previous research on EI and delivery of healthcare quality [16].

Clinical Outcomes by Emotional Intelligence Tertile

The units with high-EI nursing leaders had scores that were significantly higher than the units with

low-EI nursing leaders on each of the five indicators of clinical safety. The gradient between the lowest and the highest tertiles resulted in a 50.9% reduction in medication errors and a 76.8% improvement in hand hygiene compliance compared to 58.2% in low-EI units. The incremental improvement pattern supports Hypothesis 3 and suggests a significant association between nursing leader EI and patient safety indicators at the unit level. The clinical significance of these findings cannot be overstated. In a healthcare system where medication errors are a leading cause of preventable harm, a 50.9% reduction represents a substantial improvement in patient safety. Similarly, the 18.6 percentage-point increase in hand hygiene compliance has direct implications for infection prevention, particularly in a context where healthcare-associated infections are underreported and contribute significantly to morbidity and mortality. These improvements are not merely statistical artifacts but represent tangible benefits for patients and staff alike.

These results are consistent with the international literature. In the study conducted by Turjuman, F. et al., (2023) and Liu, N., et al., (2023) [29,30], high EI nurse managers were more likely to demonstrate transformational leadership behaviours, which are linked with better staff performance and patient outcomes relating to safety. A similar study [13] found EI was also significant in predicting the quality of work in healthcare workers during the COVID-19 pandemic. However, the present study extends these findings in novel ways by demonstrating the practical significance of leader EI in a semi-urban hospital setting in Pakistan, where healthcare resources are limited and the burden of preventable errors is high.

At the health system level, these findings have important implications for the KPK Health Department's ongoing efforts to strengthen nursing leadership and improve healthcare quality. Our findings suggest that investing in EI development for nursing leaders could be a cost-effective strategy to improve both staff wellbeing and patient safety outcomes, complementing existing efforts to address structural challenges such as staffing ratios and infrastructure deficits. Unlike system-level reforms that require substantial capital investment, EI development programs can be

implemented at relatively low cost through workshops, mentorship, and reflective practice groups. However, it is important to recognize that leader EI is not a panacea. The low-to-moderate job satisfaction scores observed across both leaders and staff nurses indicate pervasive dissatisfaction with structural factors such as compensation, workload, and recognition. These systemic issues require policy interventions at the organizational and governmental levels. EI development should be viewed as a complementary strategy that can enhance the effectiveness of leaders within existing constraints, but cannot replace the need for structural reforms. The most effective approach is likely to combine EI development for nursing leaders with systemic improvements in working conditions, compensation, and professional development opportunities.

Methodological Considerations Regarding Hierarchical Data Structure

An important methodological consideration in this study is the hierarchical structure of the data, with staff nurses nested within nursing leaders. The use of robust standard errors addresses the non-independence of observations arising from this clustering. The intraclass correlation coefficients (ICC) ranging from 0.12 to 0.18 across outcome variables indicate that 12-18% of the variance in staff outcomes was attributable to differences between nursing leaders. This moderate clustering effect underscores the importance of accounting for the hierarchical structure in the analysis. While robust standard errors provide valid inference for the relationships examined, the inability to use multilevel modelling due to the limited number of nursing leaders ($n = 39$) means that we could not formally partition variance into between-leader and within-leader components. The consistent finding that leader EI significantly predicts staff outcomes, even after accounting for clustering through robust standard errors, strengthens confidence in the robustness of these relationships. Nevertheless, replication with larger samples of leaders that would permit multilevel modelling is warranted to confirm these findings and to explore potential cross-level interactions.

Predictors of Positive Nursing Practice Outcomes

Three WLEIS dimensions emerged as significant predictors of clinical adherence in the final regression model: Others' Emotion Appraisal (conceptually equivalent to empathy; $\beta = 0.31$), Regulation of Emotion (conceptually equivalent to self-regulation; $\beta = 0.27$), and Use of Emotion ($\beta = 0.20$). Self-Emotion Appraisal (self-awareness) did not meet the inclusion criteria for the final model and was excluded. The final model, comprising these three predictors, explained 38% of the variance in clinical adherence ($R^2 = 0.38$, Adjusted $R^2 = 0.36$). Consistent with Hypothesis 4, Others' Emotion Appraisal and Regulation of Emotion emerged as the strongest predictors, while Use of Emotion made a smaller but statistically significant contribution to the model.

This emphasis on empathy (Others' Emotion Appraisal) as a predictor aligns with Alsufyani, A.M. et al., (2020) and Aseery, M., et al., (2023) [10,15] who observed that empathy promotes communication, conflict resolution, and teamwork among healthcare professionals, which are all interrelated with the ability to make adherence to clinical protocols. In the context of District Mardan, where healthcare resources are limited and patient-to-nurse ratios are often high, leaders who can accurately perceive and understand the emotions of their staff (high Others' Emotion Appraisal) are better equipped to address staff concerns, reduce tension during periods of high workload, and foster a supportive environment that facilitates adherence to clinical protocols. The importance of self-regulation (Regulation of Emotion) as a predictor is consistent with the theoretical work of Saha, S., et al., (2023) and Wong, C. S., et al., (2002) [2,3] who highlighted the ability to comprehend, control and regulate emotions as being crucial for successful nursing leadership. In the high-stress clinical environment of District Mardan hospitals, leaders who can regulate their own emotional responses—particularly during crises such as staffing shortages, equipment failures, or medical emergencies—are better able to maintain composure, make sound decisions, and model appropriate emotional responses for their staff, thereby promoting a calm and focused clinical environment that supports protocol adherence. The predictive contribution of social

skills further suggests that leaders who can effectively use their emotions to facilitate communication and build relationships (Use of Emotion) are able to foster team cohesion and collaboration, which are essential for maintaining consistent clinical standards. The findings from these show that it is important to emphasize empathy and self-regulation training, as the two most important elements of leadership development programmes using EI in this context.

Theoretical Implications

The findings of this study extend existing theoretical frameworks on emotional intelligence and nursing leadership in several important ways. First, while previous research has established EI as a predictor of individual outcomes such as job satisfaction [9] and burnout [22], the present study demonstrates that leader EI has cascading effects across multiple domains of nursing practice, simultaneously influencing staff wellbeing and patient safety indicators. This suggests that EI should be conceptualized not merely as an individual competency but as an organizational resource with system-level consequences. Second, the identification of empathy (Others' Emotion Appraisal) and self-regulation (Regulation of Emotion) as the strongest predictors of clinical adherence extends the theoretical understanding of which EI components matter most in healthcare leadership. While some frameworks emphasize all EI components equally, our findings suggest that in the high-stress, resource-constrained environment of semi-urban Pakistani hospitals, the ability to understand others' emotions and regulate one's own responses may be particularly salient. This aligns with conservation of resources theory, which posits that individuals in resource-scarce environments prioritize emotional competencies that help preserve psychosocial resources [32]. Third, the incremental improvement pattern observed between leader EI tertiles and both staff outcomes and patient safety indicators supports a threshold model of EI effectiveness. Rather than a simple presence/absence effect, incremental improvements in leader EI were associated with incremental improvements in outcomes, suggesting that leadership development efforts should aim for

continuous improvement rather than binary competence.

CONCLUSION

Summary of Key findings

This study was quantitative cross sectional study which explored the relationship between EI of Nursing Leaders and Nursing Practice outcome in public and private hospital of district Mardan, Khyber Pakhtunkhwa, Pakistan. There are five main findings from the analysis.

The first results which were obtained by District Mardan nursing leaders showed moderate level of overall EQ (mean = 4.35, SD = 0.85), the strongest dimension was Self-Emotion Appraisal and the weakest dimension was Regulation of Emotion.

Secondly, nursing leaders reported significantly higher overall job satisfaction than staff nurses [$t(233) = 2.08, p = 0.039$]; however, both groups demonstrated overall job satisfaction levels within the low-to-moderate range on the five-point scale (leaders: mean = 2.92, SD = 0.72; staff: mean = 2.64, SD = 0.78), indicating a generally unsatisfactory work environment for the nursing workforce in District Mardan.

Third, nursing leader EI was strongly and positively associated with staff job satisfaction and clinical adherence, and strongly and negatively associated with staff burnout and medication errors, highlighting the wide effects of nursing leader EI on nursing practice outcomes.

Fourth, the clinical safety performance of units with high-EI nursing leadership was significantly better, with 50.9% fewer medication errors, and high compliance rates and documentation accuracy for hand hygiene compared to units with low-EI nursing leadership.

Fifth, The final regression model, which included three predictors—Others' Emotion Appraisal (empathy; $\beta = 0.31$), Regulation of Emotion (self-regulation; $\beta = 0.27$), and Use of Emotion ($\beta = 0.20$)—explained 38% of the variance in clinical adherence ($R^2 = 0.38$, Adjusted $R^2 = 0.36$). While Use of Emotion was a statistically significant predictor in the model, Others' Emotion Appraisal and

Regulation of Emotion emerged as the strongest independent predictors. The findings of all four a priori research hypotheses were supported. Nursing leader EI was significantly associated with staff wellbeing and patient safety outcomes in District Mardan.

Theoretical Contributions

This study offers several contributions to the existing literature. First, it provides baseline quantitative data regarding EI levels of nursing leaders in District Mardan, addressing a missing dimension in the regional literature identified in previous studies [17,18,22]. Second, it extends the evidence on the EI-nursing outcomes relationship to a new semi-urban healthcare context in Pakistan, complementing and building upon prior research conducted in other parts of KPK. Third, unlike most previous studies that focused on single outcomes (job satisfaction or burnout), this study presents a more comprehensive picture of leader EI effects by simultaneously examining multiple nursing practice outcomes—including medication errors, patient falls, pressure ulcers, hand hygiene compliance, and documentation accuracy—alongside staff wellbeing indicators. Fourth, by identifying empathy and self-regulation as the strongest predictors of clinical adherence, the study provides specific, actionable targets for leadership development interventions in resource-constrained settings. This adds to the existing evidence on the EI-nursing outcomes relationship in a new semi-urban healthcare context in Pakistan and builds on previous evidence from the KPK region [4,18]. Additionally, this study presents a more complete picture of the effects of leader EI than most studies to date, as it considers a variety of nursing practice outcomes that are not typically assessed separately in other studies – such as medication errors, patient falls, pressure ulcers, hand hygiene compliance, and documentation accuracy – along with job satisfaction and burnout.

Practical Implications

Based on the findings of this study, there are some important practical implications for the nursing

leadership in District Mardan and KPK in general.

The study offers empirical evidence to support the value of investing in EI for leadership development programmes focused on nursing leaders for hospital administrators and nursing superintendents. Development programmes should target the competencies of empathy and self-regulation in particular, as these were the strongest correlates of positive outcomes, and the weakest area of EI identified was regulation of emotion. Similar interventions, including reflective practice groups, emotional regulation workshops, and mentorship programs, have been shown to have a positive impact on enhancing EI-related skills among nursing leaders in similar contexts as reported by Saikia et al. (2024) [31].

The KPK Health Department discovered that nursing staff and leaders had lower to moderate levels of job satisfaction, suggesting a need for systemic policy interventions related to compensation, workload, scheduling, and recognition. These structural factors seem to affect job satisfaction even when people have low or high levels of EI and are a concern at the population level that can't be solved by leadership development.

The findings support the integration of EI development to pre-registration and post-registration nursing education programs, as suggested by Bibi et al. (2025) [19] who have shown that there was a significant relationship between EI and academic achievements of the undergraduate nursing students in Pakistan.

Limitations

A few restrictions of the present study should be noted. First, the cross sectional design does not allow causal inferences to be made – the correlational results indicate association, but do not imply causation or that other unmeasured confounding variables have not had an impact. To determine causal relationships between nursing leader EI and practice outcomes, a longitudinal study design would be necessary. Secondly, the clinical outcomes data were self-reported by nursing staff and not

derived from hospital record, so there was a risk of social desirability bias and recall error, including for the frequency of adverse events over 3 months. Future research should aim to complement the self-reported results with objective administrative data in order to establish a triangulation. Third, the study was conducted only in District Mardan and results of the study may not be generalizable to other districts of KPK or other provinces of Pakistan, as they could vary in healthcare infrastructure, staffing norms and cultural context. Fourth, the relatively small number of nursing leaders ($n = 39$) that were available may be representative of the available sample, but it is not sufficient to provide enough statistical power for subgroup analyses. Fifth, EI of staff nurses was not evaluated, and thus, the potential moderating or mediating effect of staff nurse EI on the relationship of leader EI and outcomes was not examined. Sixth, although robust standard errors were used to address clustering, the hierarchical structure of the data (staff nurses nested within nursing leaders) represents an important methodological consideration. The limited number of nursing leaders ($n = 39$) precluded the use of multilevel modelling, which would have been the preferred approach with a larger sample of leaders. With only 39 level-2 units, multilevel models would have been underpowered for reliable random effects estimation [27,28].

Future studies with larger samples of nursing leaders across multiple districts or provinces should employ multilevel modelling to fully account for the hierarchical structure and to examine cross-level interactions between leader-level characteristics (e.g., EI dimensions) and staff-level outcomes (e.g., job satisfaction, burnout). This would also allow for the examination of mediating and moderating effects at both levels of the hierarchy.

Recommendations for Future Research

Given the above limitations, the following suggestions for future studies are offered. Further research is required to find causal relationships and determine effectiveness, through the implementation of longitudinal and experimental designs, especially randomized controlled trials of

EI-based leadership development interventions. Multi-district and multi-provincial studies would enable regional variations to be explored in nursing leader EI and determinants across Pakistan. Objective administrative adverse event and clinical outcome data should be added to the self-reported data in future studies. Investigating the moderator or mediator of the leader EI–outcomes relationship for staff nurse EI is warranted. Finally, the qualitative research component to explore nursing leaders experiences of emotional intelligence in a clinical context would lend context to an evidence base set by this study and related studies.

Conflicts of interest

The authors have no conflict of interest to declare with regard to the research, authorship or publication of this article.

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Author Contributions

Shabir Muhammad, Muhammad Awais: Conceptualization, Methodology, Data Collection, Formal Analysis, Writing – Original Draft, Writing – Review and Editing, Project Administration.

Muhammad Ishaq, Bilal Khan: Supervision, Conceptualization, writing – Review and Editing.

Muhammad Hilal: Data Collection, Resources, Writing – Review and Editing.

Huzefa Amir, Adnan: Data Collection, Resources, Writing – Review and Editing.

Abdur Rahman, Waqar Alam: Supervision, Writing – Review and Editing, Corresponding Author responsibilities.

Ethical Approval

The procedures of this study were carried out in compliance with the declaration of Helsinki. The study was approved by the Institutional Review Board (IRB) of Elizabeth Rani College of Nursing and Allied Health Sciences, Mardan, Khyber Pakhtunkhwa, Pakistan (Approval No. ERCON/IRB/2025/07; date of approval: 15 July 2025).

Data Availability Statement

The data underlying this article cannot be shared publicly because it contains potentially identifying information about participants and should only be disclosed with their written informed consent. Data that support the findings of this study are available from the corresponding author upon reasonable request, subject to ethical restrictions. The Raw data of the participants cannot be shared freely to ensure the confidentiality and anonymity of the participants as approved by the Institutional Review Board of Elizabeth Rani College of Nursing and Allied Health Sciences, Mardan under approval No ERCON/IRB/2025/07.

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REFERENCES

1. Lambert, S. (2021). Role of emotional intelligence in effective nurse leadership. *Nursing Standard*, 36(12), 45-49. <https://doi.org/10.7748/ns.2021.e11782>
2. Wong, C. S., & Law, K. S. (2002). The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study. *The Leadership Quarterly*, 13(3), 243-274. [https://doi.org/10.1016/S1048-9843\(02\)00099-1](https://doi.org/10.1016/S1048-9843(02)00099-1)
3. Saha, S., Das, R., Lim, W. M., Kumar, S., Malik, A., & Chillakuri, B. (2023). Emotional intelligence and leadership: Insights for leading by feeling in the future of work. *International Journal of Manpower*, 44(4), 671-701. <https://doi.org/10.1108/IJM-12-2021-0690>
4. Ullah, S., Rafique, S., Sultan, A., Ahmed, F., & Khan, A. (2022). Emotional intelligence and burn out among nurses working in tertiary hospitals of KPK: Emotional intelligence and burn out. *Pakistan Journal of Health Sciences*, 3(2), 11-16. <https://doi.org/10.54393/pjhs.v3i02.68>
5. Alonazi, W. B. (2020). The impact of emotional intelligence on job performance during COVID-19 crisis: A cross-sectional analysis. *Psychology Research and Behavior Management*, 13, 749-757. <https://doi.org/10.2147/PRBM.S263656>
6. Al-Oweidat, I., Shosha, G. A., Baker, T. A., & Nashwan, A. J. (2023). The relationship between emotional intelligence and organizational commitment among nurses working in governmental hospitals in Jordan. *BMC Nursing*, 22(1), 195. <https://doi.org/10.1186/s12912-023-01361-2>
7. Majeed, N., & Jamshed, S. (2020). Nursing turnover intentions: The role of leader emotional intelligence and team culture. *Journal of Nursing Management*, 28, 1-11. <https://doi.org/10.1111/jonm.13144>
8. Alwali, J., & Alwali, W. (2022). The relationship between emotional intelligence, transformational leadership, and performance: A test of the mediating role of job satisfaction. *Leadership & Organization Development Journal*, 43(6), 928-952. <https://doi.org/10.1108/LODJ-10-2021-0486>

9. Soriano-Vázquez, I., Cajachagua Castro, M., & Morales-García, W. C. (2023). Emotional intelligence as a predictor of job satisfaction: The mediating role of conflict management in nurses. *Frontiers in Public Health*, 11, 1249020. <https://doi.org/10.3389/fpubh.2023.1249020>
10. Aseery, M., Mahran, S., Felemban, O., Aseery, M. Y., & Mahran, S. M. (2023). The relationship between emotional intelligence and conflict management strategies from the nurse managers' perspective. *Cureus*, 15(3). <https://doi.org/10.7759/cureus.35669>
11. Alotaibi, S. M., Amin, M., & Winterton, J. (2020). Does emotional intelligence and empowering leadership affect psychological empowerment and work engagement? *Leadership & Organization Development Journal*, 41(8), 971-991. <https://doi.org/10.1108/LODJ-07-2020-0313>
12. Chauhan, R., Kaul, V., & Maheshwari, N. (2022). Impact of emotional intelligence on job performance of nurses with mediating effect of job satisfaction. *Asia Pacific Journal of Health Management*, 17(2), 1-8. <https://doi.org/10.24083/apjhm.v17i2.1257>
13. Alam, F., Yang, Q., Rütelionè, A., & Bhutto, M. Y. (2023). Virtual leadership and nurses' psychological stress during COVID-19 in the tertiary hospitals of Pakistan: The role of emotional intelligence. *Healthcare*, 11(11), 1537. <https://doi.org/10.3390/healthcare11111537>
14. Kitsios, F., Papageorgiou, E., Kamariotou, M., Perifanis, N. A., & Talias, M. A. (2022). Emotional intelligence with the gender perspective in health organizations managers. *Heliyon*, 8(11). <https://doi.org/10.1016/j.heliyon.2022.e11488>
15. Alsufyani, A. M., Baker, O. G., & Alsufyani, Y. M. (2020). Consequences of emotional intelligence in nursing: A concept analysis. *Erbil Journal of Nursing and Midwifery*, 3(1), 82-90. <https://doi.org/10.15218/ejnm.2020.10>
16. Oweidat, I., Alzoubi, M., Shosha, G. A., Ta'an, W., Khalifeh, A., Alzoubi, M. M., Al-Mugheed, K., Alabdullah, A. A. S., Abdelaliem, S. M. F. (2024). Relationship between emotional intelligence and quality of healthcare delivery. *Frontiers in Psychology*, 15, 1423235.

<https://doi.org/10.3389/fpsyg.2024.1423235>

17. Zaman, N., Memon, K. N., Zaman, F., Khan, K. Z., & Shaikh, S. R. (2021). Role of emotional intelligence in job performance of healthcare providers working in public sector hospitals of Pakistan. *Journal of Mind and Medical Sciences*, 8(2), 245-251. <https://doi.org/10.22543/7674.82.P245251>
18. Suleman, Q., Syed, M. A., Mahmood, Z., & Hussain, I. (2020). Correlating emotional intelligence with job satisfaction: Evidence from a cross-sectional study among secondary school heads in Khyber Pakhtunkhwa, Pakistan. *Frontiers in Psychology*, 11, 240. <https://doi.org/10.3389/fpsyg.2020.00240>
19. Bibi, S., Khurshid, S., Jamil, A., Gul, A., & Parveen, K. (2025). Emotional intelligence and academic success among undergraduate nursing students in Pakistan: A cross-sectional study. *NURSEARCHER*, 5(3), 9-14. <https://doi.org/10.54393/nrs.v5i3.172>
20. Aisha, Ahmad, R., & Ali, U. (2024). Role of emotional intelligence in life satisfaction among hospital nurses in Pakistan. *NURSEARCHER*, 4(1), 47-50. <https://doi.org/10.54393/nrs.v4i01.74>
21. Zahir, S., Khan, K., Khan, M., Zahid, M., Arshad, K., Shahbaz, M., Khattak, A. A., Mazhar, S., Khan, A. S., & Malalai, Z. (2024). Evaluating emotional intelligence among undergraduate medical students: A cross-sectional study from Peshawar, Pakistan. *Pakistan BioMedical Journal*, 7(6). <https://doi.org/10.54393/pbmj.v7i6.1114>
22. Badshah, A., Yousaf, A., Mehboob, U., & Khan, M. B. (2025). Correlation of burnout syndrome with emotional intelligence among clinicians at workplace. *Pakistan Journal of Medical Sciences*, 41(1), 83. <https://doi.org/10.12669/pjms.41.1.9725>
23. McCloskey, J. C., & Mueller, C. W. (1990). *The McCloskey/Mueller Satisfaction Scale*. St. Louis, MO: Mosby.
24. Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of*

Occupational Behaviour, 2(2), 99-113. <https://doi.org/10.1002/job.4030020205>

25. Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, 1(3), 185-216. <https://doi.org/10.1177/135910457000100301>
26. Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory* (3rd ed.). New York, NY: McGraw-Hill.
27. Maas, C. J. M., & Hox, J. J. (2005). Sufficient sample sizes for multilevel modeling. *Methodology*, 1(3), 85-91. <https://doi.org/10.1027/1614-2241.1.3.86>
28. McNeish, D. M., & Stapleton, L. M. (2016). The effect of small sample size on two-level model estimates: A review and illustration. *Educational Psychology Review*, 28(2), 295-314. <https://doi.org/10.1007/s10648-014-9287-x>
29. Turjuman F, Alilyyani B. Emotional intelligence among nurses and its relationship with their performance and work engagement: A cross-sectional study. *Journal of Nursing Management*. 2023;2023:5543299. <https://doi.org/10.1155/2023/5543299>
30. Liu N, Wang L, Yin J. Impact of transformational leadership on the person-organization fit of Chinese nurses: The moderating effect of emotional intelligence. *Nursing Open*. 2023;10(7):4586-4596. <https://doi.org/10.1002/nop2.1706>
31. Saikia M, George LS, Unnikrishnan B, Nayak BS, Ravishankar N. Thirty years of emotional intelligence: A scoping review of emotional intelligence training programme among nurses. *International Journal of Mental Health Nursing*. 2024;33(1):37-51. <https://doi.org/10.1111/inm.13235>
32. Hobfoll SE. Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*. 1989;44(3):513-524. <https://doi.org/10.1037/0003-066X.44.3.513>