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Knowledge, attitudes, and practices of community pharmacists providing over-the-counter emergency hormonal contraception: a scoping review

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Abstract

Objectives: Reducing the rate and impact of unintended pregnancy through effective contraception is a public health goal. Since deregulation, globally, ease of access to community pharmacists has enabled them to play a key role in the provision of emergency hormonal contraceptive pills (ECP). The aim of this scoping review is to explore pharmacists' overall knowledge of and attitudes and practices towards the provision of emergency contraception.

Methods: A systematic literature search for the period from 1999 to 2023 was conducted using Scopus, Medline (Ovid), CINAHL, Emcare, Web of Science, and Google Scholar. Keywords such as emergency contraception, emergency contraceptive, morning after pill, plan B, pharmacist, community pharmacist, and pharmacy were applied. Articles published only in English that described the knowledge, attitudes, and practices of community pharmacists providing emergency contraception were included in this review.

Key findings: Twenty studies met the inclusion criteria. Despite positive attitudes towards the provision of ECP, there is a clear deficit in both the knowledge and counselling practices of pharmacists, with some pharmacists lacking an open attitude towards the supply of ECP to adolescents and third parties. Usage of a private counselling area ranged from 0% to 90% highlighting privacy for patients seeking ECPs is lacking during consultations. In countries where practice guidelines are available, these are often not being optimally utilized.

Conclusions: This review has highlighted gaps in pharmacists' knowledge and counselling practices, demonstrating shortcomings in pharmacists' education, training, and application of professional practice guidelines. Future research on ECP guidelines is recommended to improve implementation and usability in practice.

Keywords: emergency hormonal contraception; guidelines; education; barriers; counselling; confidentiality

Introduction

Worldwide, approximately 121 million unintended pregnancies occur each year in women aged 15–49 years, of which 73 million of these will end in abortion [1]. Almost half of all adolescents will have initiated sexual intercourse by the age of 19 [2]. Every year, an estimated 21 million girls aged 15–19 years in low- and middle-income countries become pregnant, with approximately 50% of these pregnancies being unintended [3]. Postcoital contraception, known more commonly as emergency contraception, comes in two forms, emergency hormonal contraceptive pills (ECPs) and copper intrauterine devices (IUDs). The efficacy of ECPs varies, levonorgestrel (LNG) can prevent around 85% of pregnancies occurring, whereas ulipristal acetate (UPA) can prevent up to 97% of pregnancies, when taken before ovulation and within 24 hours of unprotected sexual intercourse (USI) [4]. LNG and UPA are both available over the counter in Australian community pharmacies. LNG has some proven efficacy up to 96 hours after USI but is only licensed for use up to 72 hours after USI [5], however, UPA is more efficacious and can be taken up to 120 hours post-USI. Both ECPs will prevent or delay ovulation occurring but are no longer effective if ovulation has already occurred [4]. ECP provides a safe and effective opportunity to prevent pregnancy after unprotected intercourse, thus contributing to the public health goal of reducing the rate and impact of unintended pregnancy through effective contraception [6, 7]. Between 1990–94 and 2015–19, the global unintended pregnancy rate has declined [1], but there is a global disparity, with better access to sexual and reproductive health in high-income countries than in low- and middle-income countries. The World Health Organization (WHO) emphasizes the importance of ensuring equitable access to all reproductive health services, including emergency contraception [1, 3].

In May 1999, France was the first country to make ECPs available in community pharmacies without a prescription or parental consent, thus, initiating improved accessibility to ECPs for women [8]. The trend continued globally, and to date, ECPs can be obtained without a prescription with direct intervention from a pharmacist in 76 countries, including Australia. In a further 19 countries, the ECP is available by direct access as ECPs are unregulated, not requiring

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direct pharmacist intervention, e.g. in some countries including Norway and South Africa, the ECP is available from schools [9, 10]. Globally, post-deregulation the increased ease of accessibility to ECPs has afforded an important role to community pharmacists, shifting patient access to ECP to pharmacists without the need for General Practitioner (GP) involvement [11]. A study has shown, due to improved accessibility, the proportion of females aged 15–44 who have ever used ECP rose from 4% in 2002 to 28% in 2019 [12]. As the majority of ECP provision has become the responsibility of pharmacists, it is imperative that knowledge and professional practice standards are current, and of high quality to ensure optimal patient-centred care [13]. Patients should be afforded every opportunity to be counselled in a private area, to be treated in a timely and professional manner and be ensured that they can access the ECP, but this is not always the case [11].

Optimization of patient care and positive outcomes in reproductive health is outlined in the World Health Organization Global Family Planning Handbook, which includes thorough, evidenced-based information about all forms of emergency contraception [14]. This guide has been developed by an international group of experts who assess the research evidence and make recommendations for health care services and practice [14]. These recommendations are intended to inform the development or update of national guidelines and policies in reproductive care, including the development of ECP guidelines for pharmacists. (Supplementary Material S1) These professional guidelines outline expected behaviours and actions for pharmacists to provide a consistent standard of practice, which includes obtaining all relevant information, prescribing the correct treatment option, and guiding effective use by the patient [15, 16]. Disparities in the quality and comprehensiveness of patient questioning and counselling have been reported and attributed to a lack of adherence to these practice guidelines [11, 17, 18].

Barriers to accessing ECP have been reported as ranging from misinformation, negative attitudes, or conscientious objection by healthcare professionals, including pharmacists, and financial and regulatory barriers [19–21]. All women, regardless of background, income, or geographical location have the right to equitable and universal access to reproductive health services and information [7]. As pharmacists are the healthcare professional at the forefront of ECP supply, this scoping review aims to explore pharmacists' overall knowledge of, and attitudes and practices (KAP) towards the provision of emergency contraception. The global availability and use of practice guidelines will also be captured.

Methods

A scoping review was undertaken in accordance with the methodological framework proposed by Arskey and O. Malley [22], enhanced by Levac *et al.* [23], and the Joanna Briggs Institute (JBI) [24]. Reporting is in accordance with Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist [25] (Supplementary Material S2).

Eligibility criteria

English language articles, from all countries, in peer-reviewed journals, published between 1999 (the year ECP first became available over the counter) and December 2023 with full-text available and grey literature were considered for inclusion. Articles were considered relevant if they addressed the KAP of pharmacists providing over-the-counter emergency contraception. Articles not based in community pharmacy, related to pharmacy students or non-pharmacists, ECP was not available over the counter, focussed on stock availability, and conscientious objection by pharmacists who refuse to dispense ECP were excluded from the review. Commentaries, editorials, and letters were also deemed ineligible.

Information sources

A comprehensive search of the literature from 1999 to 2023 was performed using: Scopus, Medline (Ovid), CINAHL, Emcare, Web of Science, and Google Scholar electronic databases. The following key word search strategy was used to extract relevant articles pertaining to the provision of ECP in community pharmacy: "emergency contracept*" OR "plan b" OR "morning after pill" AND "pharma*" OR "community pharmac* OR "retail pharmac*" AND limit to English Language. Further eligible articles were identified through hand citation searches (Full search strategy: Supplementary Material S3).

Selection of sources of evidence

All studies identified were imported into EndNote™ and duplicates were removed. Titles and abstracts were screened to identify relevant articles. Full-text articles were screened against eligibility criteria to identify studies to be included in the review. The screenings were independently completed by RN, who charted the data, with the results independently reviewed by BG. Any discrepancies about the inclusion of articles in the review were resolved through discussion with all authors until consensus was reached.

Extracted data and synthesis of results

Extracted studies were analysed, summarized, and presented chronologically in Table 1. The following data characteristics were extracted from the eligible articles: author(s), year of publication and country of origin, aims/objectives, study design, population, and sample size. The knowledge, attitudes, and practices relating to ECP provision were extracted from the articles, as were the key findings, recommendations, and whether professional guidelines were available in the country of origin at the time the study was conducted. Where a study involved information on participants other than pharmacists [26–29], only data regarding pharmacists were extracted.

Results

Selection of sources of evidence

The search strategy yielded a total of 4347 articles from the six databases searched. In the screening process, 3051 duplicates were removed along with nine articles, which predated 1999. The remaining 1287 articles were screened based on their title/abstract. Nine additional articles were found through hand citation chain searches. Of the articles remaining, 1263 articles were excluded during the title and abstract screening. The remaining 33 articles were retrieved for full-text screening, with 13 full-text articles not meeting the inclusion criteria. A total of 20 articles related to the KAP of community pharmacists in the provision of ECP were included in the scoping review [17, 18, 21, 26–42].

Table 1. Characteristics of Included Studies n=20

Author, Year	Aim/Objective	Study design population	Knowledge relating to ECP provision	Attitude towards ECP provision	Practice relating to ECP provision	Key Findings Recommendations GUIDELINES
Fuentes *et al.* [1], 2007, USA	To assess KAP of pharmacists in Puerto Rico regarding ECP	Quantitative: Survey. Pharmacists (n = 332)	**Pharmacist knowledge** 12% more than 3 out of 6 questions correct. Average 1.8 out of 6	51.4% Support non-prescription ECP		Knowledge about ECP is low among pharmacists. **Recommendation** Further education is needed.
Heidarsdottir *et al.* [2], 2009, Iceland	To determine how pharmacists in Reykjavik dispense ECP	Quantitative: Survey. Pharmacists (n = 39)	**Patient questions asked:** 92% How long since USI 26% If breastfeeding 44% Medication taken 78% Previous ECP in cycle	51% Would dispense to males	**Counselling advice** 44% STIs 77% Ongoing Contraception 58% Used private area	Most pharmacists agree on main points of ECP delivery but divided on third party dispensing. Pharmacists play a key role in counselling. **Recommendations** Improve guidelines and use of private counselling areas. **GUIDELINES AVAILABLE (S1)**
Shrader *et al.* [3], 2010, USA	To assess the knowledge and attitudes of physician and pharmacist preceptors who prescribe/dispense ECP in South Carolina.	Quantitative: Survey. Pharmacists (n = 244) Physicians (n = 253)	**Pharmacist knowledge** 11.8% - Knew MoA of LNG 2.2% Knew efficacy of LNG 22.6% Said ECP would harm a foetus	62% Of pharmacists dispensed ECP		Knowledge poor, high level of misperception about ECP use and mode of action caused concern. **Recommendation** Further education is needed
Downing *et al.* [4], 2011, Australia	To assess availability, cost, dispensing processes, and distribution of ECP; assess knowledge and attitude of pharmacists and pharmacy staff.	Qualitative Semi-Structured Interview Pharmacists (n = 34) Quantitative: Survey. Non-pharmacists (n = 111)		Positive attitude towards ECP 68% Would supply <18 67% Would supply third party	**Counselling advice** 85% STI 85% Ongoing Contraception 53% Gave written info 46.5% Used private area	Positive attitude to dispensing and desire to provide confidential youth environment. **Recommendation** Promote referral pathways to GPs and sexual health clinics Develop patient support material. **GUIDELINES AVAILABLE (S1)**
Hussainy *et al.* [5], 2011, Australia	To assess current attitudes and practices of pharmacists in relation to their increased role in ECP provision in Australia	Quantitative: Survey. Pharmacists (n = 427)	**Pharmacist knowledge** 72.4% high knowledge of ECP	44% Would supply <18 31% Would give advanced provision of ECP 36% Would supply third party	**Counselling advice** 91.8% Dosing 90.2% SE 20.4% MoA 54.5% STI 81.9% Ongoing contraception 62.8% Used private area	Pharmacists have access to protocol but did not adhere. Conservative attitudes towards advanced third party and <16 years provision **Recommendation** Revised education needed particularly for advanced provision and supply to <16 years. **GUIDELINES AVAILABLE (S1)**
Queddeng *et al.* [6], 2011, Australia	To investigate the provision of ECP service in community pharmacies in Sydney, Australia.	Qualitative: Simulated patients Pharmacies (n = 100)	**Patient questions asked:** 18% Adequate clinical assessment 78% How long since USI 56% Medication taken or Medical Conditions 7%. If breastfeeding 78% Previous ECP in cycle		**Counselling advice** 94% Dosing 63% SE 5% MoA 9% STI 22% Ongoing contraception 90% Used private area	Lack of uniformity in knowledge, assessment, and procedures when supplying ECP despite the use of protocol. **Recommendation** Clinical and ethical education is needed. Revise and simplify current guidelines. Mandatory private consultation areas. **GUIDELINES AVAILABLE (S1)**

Table 1. Continued

Author, Year	Aim/Objective	Study design population	Knowledge relating to ECP provision	Attitude towards ECP provision	Practice relating to ECP provision	Key Findings Recommendations GUIDELINES
Apikoglu-Rabus *et al.* [7], 2012, Turkey	To assess Turkish pharmacists counselling practices and attitudes towards emergency contraceptive pills.	Quantitative: Survey. Pharmacists (n = 551)		General positive attitude towards ECP 66% Would supply men 32.6% Would supply adolescents	**Counselling advice** 85.7% Dosing 50.1% SE 33.6% MoA 62.7% Pregnancy testing 73.1% Efficacy 48.2% Ongoing contraception	Aspects of counselling practices needed improvement. Negative attitudes displayed regards to <18 and third party provision. **Recommendation** Further education is needed. **GUIDELINES AVAILABLE (S1)**
Mishra *et al.* [8], 2013, India	To evaluate the knowledge and over-the-counter services provided by the pharmacists in Delhi.	Quantitative: Questionnaire Pharmacists (n = 60)	**Patient questions asked:** 67% adequate knowledge 3.3% How long since USI 3.3% Menstrual Cycle 0% Previous ECP in cycle	34% Of patients in study <18	**Counselling advice** 91.7% Dosing 50% SE 53.3% MoA 0% STIs 35% Ongoing contraception 0% Used private area	Improving education will improve quality counselling and reduce misconceptions held by patients. Promote regular contraception and STI prevention. Sexual assault and incest common in India. **Recommendation** Further education is needed. Patient leaflets and promotion of regular contraception to be provided. **GUIDELINES AVAILABLE (S1)**
Hussainy *et al.* [9], 2015, Australia	To determine the supply practices of Victorian community pharmacists in relation to ECP	Quantitative Simulated patients (n = 471)		53.9% Would supply <16 55.2% Would give advanced provision of ECP		Victorian pharmacists' practices are not always in line with guideline recommendations. **Recommendation** Increase pharmacists' awareness of guidelines and revised training, focussing on evidence- practice gaps. **GUIDELINES AVAILABLE (S1)**
Belachew *et al.* [10], 2017, Ethiopia	To assess pharmacy professionals' dispensing practice, knowledge, and attitude towards ECP in Gondar Town, Northwestern Ethiopia.	Quantitative: Survey Pharmacists (n =19) Druggists (n = 33) Pharmacy Technician (n = 8)	**Pharmacist knowledge** 100% Knew dose of ECP 94% Knew MoA of ECP 93.3% Knew SE of ECP 80% Knew C/I of ECP 76.7% Knew efficacy of ECP	65% Positive attitude towards ECP 50% Would supply third party. 14% Would supply <18	**Counselling advice** 70% C/I 70% SE 68.3% Breastfeeding 68.3% STI 58.3% Gave counselling to women with special needs	Knowledge, attitudes, and dispensing practice of ECP were good but there were differences depending on study participant. **Recommendation** Additional training for pharmacy staff in counselling and ECP is needed
Collins *et al.* [11], 2018, Australia	To explore supply of ECP from Australian community pharmacies after the introduction of ulipristal acetate and to explore pharmacists' knowledge, decision-making, attitudes, and beliefs supplying ECP.	Qualitative: Simulated patients Qualitative: Structured Interviews. Pharmacists (n = 42)	**Patient questions asked:** 95% Who is it for 88% How long since USI 62% Medication taken 52% Medical Conditions 45% Menstrual Cycle 43% Allergies 40% When period due 21% If using regular oral contraception 17% If USI was consensual 10% Age of patient 40% If used ECP before 2% If request for ECP was influenced	n = 1 Refused male request n = 3 Asked to speak to female patient	**COUNSELLING ADVICE** 92% Dosing 89% SE 5% STI 34% Ongoing contraception 58% Pregnancy testing 76% Used private area	Despite the introduction of UPA—infrequently supplied. **Recommendation** Further education is needed. Guidelines should be enhanced for utility and user needs. **GUIDELINES AVAILABLE (S1)**

Table 1. Continued

Author, Year	Aim/Objective	Study design population	Knowledge relating to ECP provision	Attitude towards ECP provision	Practice relating to ECP provision	Key Findings Recommendations GUIDELINES
Doci *et al.* [12], 2018, Albania	To explore awareness, KAP towards ECP in Albania	Qualitative: Structured Interviews. Pharmacist (n = 16) Qualitative: Focus Groups (n = 6) Quantitative: Survey. Community Respondents (n = 115) Qualitative: Semi-structured interviews; Key informants (n=19)	**Pharmacist knowledge** 0% Could identify ECP other than LNG Almost none could describe MoA. 63% Could NOT explain SE of ECP 56% Could NOT explain efficacy ECP	38% Expressed concern about women using too frequently	75% Believe written material and resources targeting women would make it easier to provide information to patients	Patients are obtaining ECP directly from pharmacists who lack knowledge, appropriate training/ skills and who are misinformed. Pharmacists in study were unaware they were perpetuating misinformation about ECP. **Recommendation** Need to align national regulatory policies with international standards. Increase medically accurate information in the Albanian language.
Mody *et al.* [13], 2019, USA	To understand knowledge, currently practices, barriers and facilitators for pharmacists prescribing ECP in California.	Quantitative: Survey. Pharmacists (n = 192) Pharmacists giving out OTC ECP (n = 69)	**Pharmacist knowledge** 43% Knew MoA of LNG 60% Knew Efficacy of ECP 38% Knew MoA of UPA 47% Knew UPA more effective if BMI >30 37% When UPA effective 12% Knew C/I of UPA	43% Would supply adolescents. 30% Would supply men		State protocols facilitates pharmacists prescribing ECP, but lack of payment is a barrier. **Recommendation** Increase knowledge with academic detailing and face to face education Overcome barriers by addressing liability, time constraints and payment
Uzun *et al.* [14], 2019, Turkey	To evaluate knowledge and attitude of pharmacists (and pharmacy technicians) on provision of ECP	Qualitative: Simulated patients Pharmacists (n = 37)	**Patient questions asked:** 2.7% How long since USI 0% Medication taken or Medical Conditions 0.37% When period due 0% If using regular oral contraception		**COUNSELLING ADVICE** 100% Dosing 61.3% Correct info ECP use 45.9% SE 2.7% Avoiding nausea and vomiting 5.4% What to do if vomit	Pharmacists (and techs) need to update their knowledge, history taking and counselling skills. **Recommendation** Further education is needed. Guidelines need to be developed to standardize counselling. Patient education material on ECP to be developed. **GUIDELINES AVAILABLE (S1)**
Langer *et al.* [15], 2020, Germany	To determine counselling and dispensing behaviour of pharmacy staff and the factors that may influence this behaviour.	Qualitative: Simulated Patients Pharmacy Visits (n = 199) Pharmacists (n = 75)	**Patient questions asked:** 59.3% Age of Patient 51.8% Why ECP requested 93.5% How long since USI 66.8% When period due 46.2% If could be pregnant 47.2% Medical Conditions 41.2% If breastfeeding 62.8% Medication taken 55.3% Previous ECP in cycle		**Counselling advice** 59.5% SE 53.8% Used a checklist 44.2% Used private area	In cases where private counselling area used, a check list was also used, and this showed significantly better questioning occurred. **Recommendation** Facilities needed for private counselling. Mandatory continuing education Recommend use of checklist Obligation to keep UPA in stock. **GUIDELINES AVAILABLE (S1)**

Table 1. Continued

Author, Year	Aim/Objective	Study design population	Knowledge relating to ECP provision	Attitude towards ECP provision	Practice relating to ECP provision	Key Findings Recommendations GUIDELINES
Shakya *et al.* [16], 2020, Nepal	To explore knowledge, attitude, and dispensing practice of community pharmacists towards ECP in Kathmandu Valley.	Quantitative: Survey. Pharmacists (n = 227)	**Pharmacist knowledge** 65.6% Overall good knowledge 63.4% Knew MoA 73.5% Knew ECP does not protect from STI 67.4% Knew SE 63.4% Said ECP would harm a foetus	93% Positive attitude towards ECP 58% Patients requests for ECP from <16 years old 20% Requests for ECP from men	**Counselling advice** 70% Counsel on ECP 37% Dosing 66.5% SE 46.3% MoA	Only a third of respondents had formal training/study on ECP. Over half of patients are teenagers as early marriage takes place in Nepal. Pharmacists lacked specific vital information and counselling strategies. **Recommendation** Further education and guidelines are needed to improve reproductive health services to women
Ceulemans *et al.* [17], 2022, Belgium	To assess knowledge and counselling preferences of the public and pharmacy staff in Belgium on ECP	Quantitative: Survey; Pharmacists (n = 1039)	**Pharmacist knowledge** Mean knowledge score of 5.0 (±1.6)/10 Good knowledge of dosing/MoA. Poor knowledge of C/I and breastfeeding 33% made an incorrect decision on ECP use in three of the five cases			Limited knowledge on ECP among pharmacy staff in Belgium. Lack of Continuing education **Recommendation** Further education is needed. Guidelines to be developed with supportive checklists. **GUIDELINES DEVELOPED (S1)**
Shaukat *et al.* [18], 2022, Iraq	To assess the KAP of community pharmacists towards emergency contraceptives and their association with sociodemographic variables	Quantitative: Survey; Pharmacists (n = 212)	**Pharmacist knowledge** 74% Good knowledge. 59.4% Knew MoA. 37.7% Knew Dosing 27.4% Said ECP would harm a foetus 43.3% Knew SE 90.09% Knew ECP does not protect from STI	95% Positive attitude towards ECP 33.3% Said <18 should have access to ECP 50.7% Said <18 should be discouraged from using ECP 74% Have supplied to <18	**Counselling advice** 70.2% Counsel on ECP 37.5% MoA 86.9% Dosing 61.3% SE	Good knowledge and positive attitude displayed by pharmacists, but poor practices. No relationship between demographics and variables. **Recommendation** Further education needed for community pharmacists, other pharmacist groups, and awareness for the community.
Akande-Sholabi *et al.* [19], 2023, Nigeria	To assess the KAP of community pharmacists towards emergency contraceptives	Quantitative: Survey Pharmacists (n = 100)	**Pharmacist knowledge** 52.47% good knowledge 65% Knew dosing 52% Knew SE 57% Said ECP is abortifacient 71% Said repeated use would cause breast cancer 59% Said ECP are CI in females <18	51.92% Positive attitude towards ECP 45% Believe <18 have loose morals 57% Believe <21 should not use ECP. 33% Refuse ECP if patient unmarried 56% Refuse ECP to <18	**Counselling advice** 43.6% Good level of practice. 31% Gave written info 32% Gave written info on STI & HIV 35% STI 43% Ongoing contraception	Pharmacists displayed moderate knowledge of ECP with positive attitude. **Recommendation** Further education and awareness intervention is needed.

Table 1. Continued

Author, Year	Aim/Objective	Study design population	Knowledge relating to ECP provision	Attitude towards ECP provision	Practice relating to ECP provision	Key Findings Recommendations GUIDELINES
Nguyen *et al.* [20], 2023, Vietnam	To Investigate Vietnamese community pharmacists and pharmacy customers knowledge, attitudes, and practices about ECP	Quantitative: Survey Pharmacists (n = 400) Customers (n = 396)	**Pharmacist knowledge** Average score 9.98 ± 2.00 (median = 10.00) 53% Knew MoA 81% Knew ECP does not protect from STI 99.5% Knew SE 95% Knew dosing 98% Said overuse causes health issues 80% Said ECP would harm a foetus	Average attitude 55.89 ± 6.17 (median = 56.00)		Pharmacists have relatively good levels of ECP knowledge. **Recommendation** Need for policies to enhance knowledge and attitudes.

C/I, contraindications; MoA, mechanism of action; SE, side effects; STI, sexually transmitted infection.

The PRISMA flow diagram (Fig. 1) outlines the article selection process.

Study characteristics

A review of the resulting studies is presented in Table 1. The included studies were conducted across 13 countries: Australia (n = 5) [17, 18, 21, 27, 32], North America (n = 3) [26, 30, 35], Turkey (n = 2) [33, 36], and one each in Albania [29], Belgium [39], Ethiopia [28], Germany [37], Iceland [31], India [34], Iraq [40], Nepal [38], Nigeria [41], and Vietnam [42]. Three different study designs were utilized across the twenty studies and included quantitative methods (n = 13) [26, 28, 30–35, 38–42], where the participants were asked to complete a survey, qualitative methods (n = 4) [17, 21, 36, 37], including the use of simulated patient scenarios (mystery shopper/caller), and mixed methods, which applied both qualitative and quantitative methods (n = 3) [18, 27, 29].

Study outcomes

Knowledge

Seventeen studies [17, 18, 26, 28–32, 34–42] reported on pharmacists' overall knowledge of ECP or their clinical assessment, when interacting with a patient regarding ECP.

Pharmacists' knowledge

Pharmacists' knowledge was highlighted in 12 studies [26, 28–30, 32, 34, 35, 38–42]. Pharmacists were shown to have a low level of knowledge in three studies [26, 29, 30], an average or adequate knowledge in five studies [34, 35, 39, 41, 42], and good or high level of knowledge in four studies [28, 32, 38, 40]. Incorrect and outdated knowledge was reported in three studies, where respondents believed ECP would harm a developing foetus [26, 38, 40], and in a study in Nigeria 57% of participants believed ECP can be used as an abortifacient [41]. However, reporting on knowledge varied in terms of how the level of knowledge was assessed making comparisons difficult. Hussainy *et al.* [32], reported that 72.4% of pharmacists displayed a high level of knowledge, answering 7–8 out of eight questions correctly using true/false responses. Belachew *et al.* [28], assessed knowledge by asking the participants, "do you know…" to which they replied with a yes/no answer. Shakya *et al.* [38] reported 65.6% of pharmacists surveyed displayed good knowledge, following assessment with multiple choice questions, with a third (34.4%) displaying poor knowledge of ECP. Only one of the twenty studies assessed the knowledge of pharmacists in relation to UPA with pharmacists showed a mixed level of knowledge relating to ECP [39]. Similarly, only one study compared the pharmacists' knowledge of LNG to UPA, and this was with a single question about the mechanism of action (MoA), with results indicating that 43% of pharmacists knew the MoA of LNG, whereas only 38% knew the MoA of UPA [35].

Patient questions asked

Pharmacists are required to assess if a medication is appropriate to be supplied to a patient, with clinical assessment based on relevant questioning of the requesting party. This skill was assessed in six studies [17, 18, 31, 34, 36, 37], with four studies [17, 18, 31, 37] indicating that pharmacists undertook an average or adequate clinical assessment and two studies [34, 36] reporting a very poor clinical assessment,

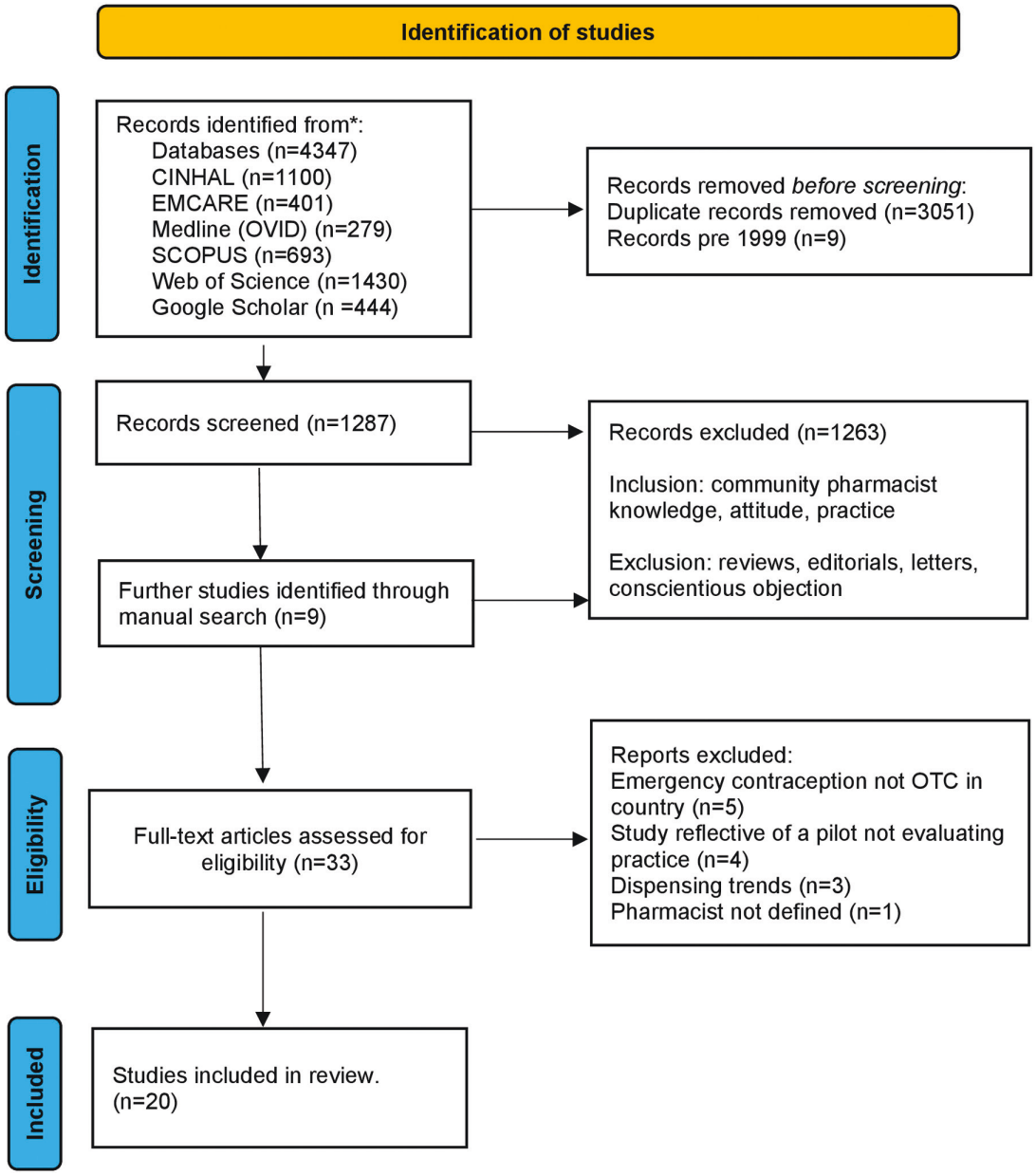

Figure 1. —PRISMA flow diagram: search strategy and study selection.

when interacting with the patient or third party. Varying levels of questioning occurred, and the questions asked were inconsistent. The types of questions asked and how often these questions were asked were displayed in the survey and interview data. There was a clear disparity in what each study considered to be an adequate assessment of information gathering from the patient, with the number of patient questions asked varying from 12 [18], nine [37], down to five or less questions [17, 31, 34, 36]. Two simulated patient studies evaluated patient questioning to determine if UPA would be recommended by the pharmacist [18, 37]. Langer *et al.* [37] reported that appropriate dispensing of UPA was only achieved in 78.9% of cases, this was directly correlated to a higher level of questioning, and this higher level of questioning had a direct positive correlation to the pharmacist using a guideline-recommended checklist (Supplementary Material S1). Collins *et al.* [18] reported that no checklist was used by any pharmacist and there was a variation in the number of patient questions asked, UPA was not always offered or supplied when appropriate.

Attitudes

Sixteen studies [18, 21, 26–35, 38, 40–42] explored pharmacists' attitudes towards dispensing ECP. A positive attitude was reported overall, which translated into their practice. In addition to reporting general attitude, two further sub-themes relating to attitude were identified from the studies, including the supply of ECP to adolescents and third parties.

The majority of countries have no legal age limit for the supply of ECP, but it is considered appropriate to supply to an adolescent from 13 years of age provided the pharmacist is satisfied the patient is mature enough to understand the ECP [43]. Despite this, pharmacists' attitudes around supply to adolescents (aged 18 and under) varied as reported in ten studies [27, 32–35, 38, 40–42]. Mishra *et al.* [34] reported

34% of the patients supplied ECP were adolescents as a result of sexual assault, incest, failure of barrier contraceptive, or after unprotected intercourse. Pharmacists (45%) surveyed in Nigeria believed under 18-year olds requesting ECP had loose morals, and 33% also said ECP should be refused if the female is unmarried [41]. Downing *et al*. [27] reported that 68% Australian pharmacists had a positive attitude towards supplying to persons under 18 years and Hussainy *et al*. [21], reported 53.9% of pharmacists would supply to a person under 16 years. In contrast, in six other global studies, including another study in Australia in 2011, less than half of pharmacists surveyed would supply ECP to persons under 18 years [32, 33, 35, 38, 40, 41].

Seven studies [18, 27, 28, 31–33, 35] reported pharmacists' attitudes in the provision of ECP to a third party. Four studies indicated that more than 50% of pharmacists would supply ECP to males/partners/third party [27, 28, 31, 33]. In Iceland [31], 50% of pharmacists surveyed were willing to supply to males, and of these 55% requested to speak to the female patient on the phone before supply. Three Australian studies were included in these results, with only one showing a positive attitude towards third-party supply [27]. The second, a patient-simulated, study [18] showed 25% (11 cases) of requests for ECP were from males, and in 3 cases the pharmacist requested to speak to the female patient, and in 1 case supply was refused. In the third study, 59.7% of pharmacists declined supply as the request did not come from the intended user [32]. In California, 70% of pharmacists questioned did not feel comfortable suppling the ECP to males [35].

Counselling practices

Fourteen of the 20 studies explored counselling practices among pharmacists [17, 18, 27–29, 31–34, 36–38, 40, 41]. The reported level of counselling varied greatly between studies with differing key information being provided to patients. Counselling points identified included dosing schedule [17, 18, 32–34, 36, 38], side effects [18, 32, 40], explanation of mode of action (MoA) [17, 32–34, 38, 40], advice regarding sexually transmitted infections (STI's) [17, 18, 27, 28, 31, 32, 41], and regular ongoing contraception [17, 18, 27, 31–34, 41].

When dealing with the sensitivity of ECP requests the use of a private counselling area or room is strongly recommended, but this did not always occur. The level of use of a private counselling area or room was reported in seven studies [17, 18, 27, 31, 32, 34, 37], with usage ranging from 90% of the time to never.

Guidelines

Half of the studies in the review were from countries that had emergency contraceptive practice guidelines in place [17, 18, 27, 31–34, 37]. Californian pharmacists have family planning guidelines, but not specific emergency contraceptive guidelines [35]. Guidelines in Belgium have recently been developed [39], while three other studies proposed that guidelines should be developed, but to date, these have not been published [29, 36, 39]. In three Australian studies [17, 27, 32] checklists and protocols were available, but not always utilized. (See Supplementary Material S1 for guidelines).

Discussion

This scoping review explored the knowledge, attitudes, and practices of community pharmacists, providing over-the-counter emergency contraception. As a global study, it considered the perspectives from different countries, from low, to middle, and high-income countries. Despite an overall positive attitude towards the provision of ECP, the findings of the review demonstrate shortcomings in both knowledge and counselling practices of pharmacists. The review also revealed that some pharmacists lack an open attitude towards the supply of ECP to adolescents and third parties. In countries where practice guidelines are available, pharmacists demonstrated a greater understanding of ECP supply, however, a lack of both adherence to and application of the guidelines was observed [17, 18].

Although there has been limited research into the knowledge, attitudes, and practices of pharmacist suppling ECP, a strength of the review is the findings are from several countries, including high-income, and low- to middle-income countries. However, no relevant studies have been conducted in Latin America, China, and Japan which limits the generalisability of these findings. The exclusion of non-English articles from this review could also have excluded relevant articles for this review, A further limitation lies with the comparability of the findings, especially in the case of knowledge, as there is no standardized measurement tool that classifies the outcome as either good or poor, in relation to the percentages achieved for knowledge questions.

Knowledge

In 2001 when ECP was deregulated in the UK, community pharmacists showed a lack of knowledge regarding ECP [44]. Almost 25 years later, there is a distinct variance in the levels of knowledge of ECPs displayed by pharmacists globally [17, 18, 26, 28–32, 34–42]. Even though pharmacists are the primary providers of ECP, studies report pharmacists' knowledge of ECP does not differ from that of other health professionals [45]. In studies where knowledge was considered poor [26, 29, 30], or average [34, 35, 39, 42], it is difficult to determine a common cause. Most of the studies recommended that there was a need for further or ongoing education for pharmacists in the form of extended professional development or refresher training [17, 18, 26, 28, 30, 32–41]. Enhancing clinical education to increase knowledge was confirmed by an Ethiopian study where, despite no formal practice guidelines, pharmacists displayed a high level of knowledge of ECP [28]. This could be the result of pharmacy schools in Ethiopia revising their curriculum to be more patient focussed, aiming to produce pharmacists with the necessary knowledge, skills, and attitude to deliver quality clinical pharmacy practices, including the provision of ECP [28].

When looking at options for further education on ECP, continuing professional development (CPD) is an option that improves and reinforces the knowledge and skill base of health professionals, including pharmacists [46]. Main *et al*. [47] reported that over the past 10 years, research on health practitioners including pharmacists, has shown that CPD is effective in increasing practitioner knowledge, but fails to indicate how this goes on to change clinical practice [47]. The systematic review found CPD is most effective when it is interactive, involving multiple exposures, and focussed on outcomes considered important by practitioners [47].

Additionally, short refresher training programs, developed directly from current guidelines and references, significantly improved the knowledge and counselling practices of participant pharmacists [48].

Attitudes

This review reported pharmacists' reservations towards the supply of ECP to adolescents, despite 2 studies reporting many of their patients were adolescents [34, 38]. Even though ECP will not harm a foetus, the only clinical contraindication to ECP use is a known pregnancy [49]. There is no reason, aside from mental maturity, not to supply ECP to adolescent patients [14, 43]. All three of the Australian studies, examining ECP supply to adolescents, were conducted when published guidelines did not restrict supply to under 16 years by a pharmacist. In the most recent of the studies by Hussainy *et al*. [21], pharmacists still had a poor understanding of the guidelines with many refusing supply, requesting parental consent, or a prescription. Other studies in this review indicated a lack of willingness towards supply to adolescents (under 18 years old) stemmed from cultural or religious beliefs about sex before marriage, rather than a clinical indication [28, 33, 35, 40, 41]. In some low- to middle-income countries, ECP availability to adolescents may be crucial due to high rates of sexual assault and incest [14, 34, 40]. While the patient may not disclose sexual assaults, it has been suggested that in the USA, of the 333,000 sexual assaults and rapes, 22,000 consequent pregnancies may have been preventable with emergency contraception [50].

Refusal to supply ECP to a third party, without the patient being present, compromises the patient's ability to gain timely access to treatment. Whilst appropriate questioning of a third party or a phone call to the patient may be required, ECPs are safe and effective to supply to third party [18]. Research into ECP supply to men has been scarce, although it is documented in legislation and professional practice guidelines that pharmacists may supply to a third party in the same way as they would supply a patient [13, 43, 51]. In a study by Nguyen *et al*., examining the provision of ECP to men, despite the majority of participants having reservations they still agreed men should have access to ECP and that pharmacy is an acceptable setting for that to occur [51].

Practices

Counselling provides a patient with verbal and written information about medications, including ECPs [52]. Given the sensitivity of ECP counselling there is a preference to maintain patient privacy when this occurs [37]. Practice guidelines from Australia, Germany, and the UK (Supplementary Material S1), along with World Health Organisation's Family Planning Handbook for Providers, state a pharmacist should respect the patient's privacy and maintain confidentiality when consulting on ECPs [14, 43]. This review has highlighted that the privacy of the patient seeking ECPs was lacking during consultations. Pharmacists have an ethical and legal obligation to maintain a patients' privacy and confidentiality, and in doing so establish a rapport to gain patient trust in a supportive environment. Requesting ECP from a pharmacist can be a sensitive subject and gaining patient trust is essential in the relationship between a clinician and a patient. Studies have shown the lack of privacy to be a concern to patients and a barrier to trust and communication [53].

Practice guidelines

UPA and LNG are most efficacious if taken within 24 hours of USI. Practice guidelines recommend UPA be offered as the preferred choice of ECP because of its higher level of efficacy and longer therapeutic window [4, 43]. In Germany, despite access to ECP being limited by high costs, this practice is being followed [54]. Elsewhere, barriers to the supply of UPA have been seen as a lack of knowledge, cost to the patient, and pharmacy stock issues [18, 37, 55]. Professional practice guidelines play a fundamental role in optimizing patient outcomes by helping clinicians make the best evidence-based decisions for their patients [56]. These guidelines are used not only to help streamline a particular process but also to enhance education, dispensing, and counselling practices. Practice guidelines have been shown to useful for but often underutilized in practice by pharmacists and clinicians alike [15, 16, 56]. Yet, they remain integral to improving healthcare, patient outcomes, patient evaluation, and consistency of care [56]. Pharmacists lacking uniformity and adequacy in their knowledge of ECP and clinical assessment of the patient, and consistently had poor interpretation and application of guidelines. Poor knowledge in addition to, poor utilization of practice guidelines is consistent with prior research findings that suggested substantial improvements in adherence to guidelines were achieved by general practitioners who participated in focussed education programmes [57].

Implications for pharmacy practice

As trusted and accessible "on-the spot" healthcare providers [30] the pharmacist's role in patient-centred care is increasing [17]. Knowledge, history taking, and counselling practices are crucial elements of patient-centred care [36, 38]. Lack of knowledge and non-adherence to guidelines has led to sub-optimal practices, compromising patient confidentiality, and increased the likelihood of misinformation and poor counselling being provided to patients who require clear, safe, and accurate guidance and support for the prevention of unintended pregnancy [17, 26, 28, 29, 32, 34]. Clinical knowledge is the basis of information gathering; there is substantial evidence to show that inadequate information gathering occurs in the provision of a range of over-the-counter situations [58]. Research indicates a direct correlation between better knowledge and more positive attitudes leading to subsequent enhanced practice [59].

Recommendations

For patients to obtain optimal ECP service provision, pharmacists should routinely review their knowledge, information gathering, and counselling practices to adhere to practice guidelines and professional standards. The development of a practice standard that requires ECP consultations are confidential, within a private counselling area, will enable patient privacy, and will improve counselling methods utilized by pharmacists [17, 31, 33]. In 2022, the Pharmaceutical Society of Australia produced new guidelines indicating that a "checklist" should not be used before dispensing as this is perceived as a barrier to the consultation [43]. In contrast, two studies in Belgium [39] and Germany [37] recommended the use of checklists for pharmacists. Queddeng *et al*., stated, "the protocol may have been relevant in 2004 but is excessive according to international standards today" [17]. Lack of patient counselling, including information on STIs and

ongoing contraception, confirm a shortfall in the interpretation and adherence of pharmacists to practice guidelines and the need for new or improved guidelines [17, 18, 29, 36, 38, 39, 42]. Identification as to why this translational gap exists will assist in determining an appropriate and relevant level of patient assessment to enable the pharmacist to provide optimal, professional, and patient-centred service [13, 18, 21].

Conclusion

This review has highlighted that there are gaps in pharmacists' knowledge of, and attitudes, and practices towards the provision of ECP in community pharmacy. The knowledge of ECP displayed by pharmacists was shown to be inconsistent and inadequate. In the main, pharmacists displayed positive attitudes but remained conservative about supplying ECPs to adolescents and third parties. Counselling practices showed patients were not provided with comprehensive information regarding ECP. Additionally, privacy was neither acknowledged nor maintained by failing to utilize counselling rooms or areas during the supply of ECPs. ECP Practice guidelines, developed to assist information gathering and counselling practices were underutilized, with areas of key questioning being overlooked. Pharmacists are however well placed within the community to improve ECP awareness by offering education and guidance, including providing quality counselling on dosing, adverse effects, and ongoing contraception. Future research should look at ways to improve the translation and implementation of ECP guidelines to assist pharmacists in maintaining professional practice standards. Focused education should be undertaken on counselling to optimize the care delivered to patients requesting emergency contraception in community pharmacy.

Supplementary Material

Supplementary data are available at *International journal of Pharmacy Practice* online.

Author contributions

R.N. made substantial contributions to the conception, analysis, interpretation, drafting, reviewing, and final approval of the version to be published. R.R., S.T., and B.G. all made substantial contributions interpretation, to the review for intellectual content and final approval of the version to be published.

Conflict of interest

The authors declare that they have no conflicts of interest to disclose.

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