

# The sexual and reproductive health knowledge of women in Australia: A scoping review

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## Abstract

**Issue Addressed:** Sexual and reproductive health (SRH) knowledge influences health literacy and promotes positive health behaviours. This scoping review explores the SRH knowledge of women in Australia and reports on knowledge assessment, ways of learning, enablers and barriers, and interventions to improve knowledge.

**Methods:** Seven databases were searched for eligible articles published in English between 2012 and 2022.

**Results:** Eighty-five sources were included for analysis. Data were mapped by knowledge topic and population group and charted against four review objectives. Assessment of knowledge was the primary focus in 59% of sources. Two sources used a validated knowledge assessment tool. Knowledge was assessed using self-assessment, a measurement of correctness, or both. Women learnt about SRH through a range of sources, including healthcare providers, peers, family, internet, and school. Enablers and barriers spanned information content, delivery, timing, accessibility, interactions with those providing information, cultural and gendered norms, pre-migration experiences, and functional health literacy. Nine sources reported on interventions to facilitate SRH knowledge.

**Conclusions:** This review identified topics, population groups, and gaps in assessment of SRH knowledge of women in Australia. Overall, the measurement of women's SRH knowledge is largely conducted using unvalidated tools focusing on specific topics.

**So What?** It is recommended a validated tool be developed to comprehensively assess the SRH knowledge of women in Australia allowing for intersectional population analysis and exploration of knowledge conceptualisation. This would enable assessment of interventions aiming to improve SRH knowledge thereby facilitating improved health literacy and outcomes.

## KEYWORDS

health literacy, knowledge, reproductive health, review, sexual health, women's health

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## 1 | BACKGROUND

Women's sexual and reproductive health (SRH) has been identified as a priority area for improvement in Australia's National Women's Health Strategy 2020–2030.<sup>1</sup> SRH is considered as not simply the absence of disease but a state of physical, emotional, mental, and social well-being across the lifespan.<sup>1,2</sup> It is recognised that action taken to improve information access and knowledge by policymakers and clinicians today will result in improved health outcomes for women and girls into the future.<sup>1</sup>

The people affected by this phenomenon, and the subject of this review, have often been collectively referred to throughout this paper using the term 'woman'. In the pursuit of gender inclusivity, the authors would like to acknowledge we recognise that not all people referred to as women in this review and cited literature, identify with this gendered term.

SRH includes both experiences and conditions that affect sexual function and the reproductive system. These may be experiences that are part of the normal life course of a woman, such as menstruation and menopause, or pathological conditions such as endometriosis, polycystic ovarian syndrome, sexually transmissible infections (STIs), pelvic inflammatory disease, or gynaecological cancers. Factors such as contraception, fertility, and pelvic pain are also considered important in influencing SRH. Perinatal and maternal health, encompassing the experiences of pregnancy, labour, and the postpartum period, is often referred to in combination with women's SRH.<sup>1</sup>

Knowledge is acquired through formal and informal learning opportunities as well as life experience and is collated to form a collection of information, understanding, and skills that are used to make decisions.<sup>3</sup> This knowledge, in addition to a person's ability to access, appraise, and apply health information combines to form the concept of health literacy<sup>4</sup> which is considered to be a measurable outcome of health education.<sup>5</sup>

A woman's knowledge, health literacy, and subsequent decisions made about matters relating to her SRH will have an ongoing impact throughout her entire life. Health literacy is known to be associated with reproductive health knowledge and has also been shown to influence health behaviours, including avoidance behaviour.<sup>6</sup> While health behaviour and decisions are influenced by knowledge and literacy level, these are not the only factors affecting women's access and engagement with SRH care. In Australia, the diverse sociocultural context of an individual's life may include factors influencing health behaviour, not limited to, their cultural world, social and physical environment, sexual history, and gender identity.<sup>1</sup> Other barriers such as access to health services, communication with healthcare providers (HCPs), and gaps in policy and service design also exist and vary in influence on health behaviour amongst population groups.<sup>7</sup> Investments addressing these factors affecting women's health not only benefit the individual women but are an investment in the health of subsequent generations.<sup>8</sup>

While health knowledge is one of a variety of factors influencing SRH health behaviour, the abundance of actions related to improving education, SRH awareness, and access to information outlined in the

National Women's Health Strategy<sup>1</sup> suggest that knowledge has the potential to be a key measure in evaluating the success of such interventions. An examination of the current literature indicates there is currently no comprehensive review of the state of women's SRH knowledge in Australia. Reviews internationally have explored specific populations described as Muslim women,<sup>9</sup> refugee, migrant, and displaced, girls and young women in Africa<sup>10</sup> and women with cystic fibrosis.<sup>11</sup> More broadly, a systematic review<sup>6</sup> investigating the relationship between health literacy and women's reproductive health included 34 articles, 28 of which were conducted exclusively in the United States. The unique sociocultural context within a particular country or population group may influence the ability to translate results of studies to other sociocultural environments. In order to establish a benchmark for measuring SRH knowledge in Australia, it is necessary to examine Australian data.

To improve information access and knowledge regarding SRH, it is essential for policy and healthcare decision-makers to support strategies that help women make choices to positively promote their health and well-being throughout the life course. In order to accurately assess whether actions put into place and national strategies are achieving the intended outcome, it is essential to benchmark the current state of what women in Australia know about SRH.

### 1.1 | Aim

The aim of this review was to explore what is published about women's SRH knowledge in Australia.

## 2 | METHODS

A scoping review was chosen to investigate what women in Australia know about SRH. Scoping reviews aim to map the key concepts surrounding the area of interest<sup>12</sup> and to provide an overview of the existing evidence base.<sup>13</sup> This methodology aligned with our aim to explore and report on what has been published about the concept of women's SRH knowledge. A scoping review framework<sup>12</sup> along with the criteria outlined by the PRISMA checklist<sup>14</sup> were followed to ensure best practices and reproducibility of results.

### 2.1 | Stage 1: Identifying the research question

This scoping review was conducted to address the research question, what do women in Australia know about SRH? Data were extracted and reported against four objectives. These were:

1. How was SRH knowledge assessed and reported?
2. What were the ways women learnt about their SRH?
3. What were the enablers and barriers to women's knowledge of SRH?
4. What interventions were identified to facilitate women's SRH knowledge?

## 2.2 | Stage 2: Identifying relevant studies

### 2.2.1 | Inclusion and exclusion criteria

The concept of interest was the SRH knowledge of women in Australia. Sources were eligible for inclusion if they measured or explored the SRH knowledge of women in Australia. This included sources in which knowledge assessment was not the primary focus but was reported on. Men and gender-diverse populations or people outside of Australia were included only if findings specific to the SRH knowledge of women in Australia were distinctly reported.

Sources reporting SRH knowledge specific to maternal health, such as the maintenance of a healthy pregnancy, or labour and birth were excluded. SRH knowledge related specifically to the perinatal period have been reported on previously.<sup>15,16</sup> However, aspects of SRH knowledge outside of childbearing have received less attention, leaving a gap in the literature related to these critical aspects of women's health knowledge. Fertility, preconception, and abortion were included because these represent women's health issues that are not captured in maternal and perinatal health reporting in Australia.<sup>17</sup> Journal articles and grey literature reporting on research of any methodology, published in English between 2012 and 2022 inclusive, were considered for inclusion against these criteria. These dates were chosen in order to include sources over a significant time frame and to maximise their relevance to the current health system in Australia.

### 2.2.2 | Search strategy

Initially, a preliminary search of PubMed, CINAHL, and Google Scholar was conducted to scope the nature of the research reporting on the issue and identify initial key articles of interest. After reviewing these initial articles, the research question was refined, index terms and key-words were identified, and a search strategy was developed. Comprehensive searches of seven databases, CINAHL, Emcare, Medline, ProQuest, PsycINFO and SCOPUS, and Google Scholar were conducted on 8 December 2022. Terms differed slightly between databases depending upon the nomenclature of relevant medical subject headings or keywords used by for each database. The websites of key organisations in SRH research and the delivery of SRH care were searched, such as the websites for the Multicultural Centre for Women's Health<sup>18</sup> and the Australian Research Centre in Sex, Health and Society.<sup>19</sup> Additionally, Google Scholar and the PsycInfo and Pro-Quest databases include grey literature. Citation tracking was also conducted on sources deemed eligible for inclusion. A sample Medline search strategy is presented in Table 1 below.

## 2.3 | Stage 3: Study selection

The initial database search retrieved 3491 sources. Following manual removal of duplicates, 1618 sources underwent title and

abstract screening, conducted by two members of the research team (GG; MW). Of these, all 331 sources underwent independent full-text review against the inclusion criteria by at least one member of the team (NW or GG). Sources were excluded during full-text review because they did not measure or explore what women know about SRH ( $n = 160$ ), the findings specific to women were not distinct ( $n = 62$ ), they did not report on women in Australia or the findings specific to women in Australia were not distinct ( $n = 23$ ), they were systematic or scoping reviews which captured the same sources as this review without reporting any other relevant findings ( $n = 3$ ), they reported on pregnancy knowledge ( $n = 1$ ), they were published outside the date range for inclusion ( $n = 1$ ) or the article had been retired meaning it was no longer available due to the publisher stating it contained outdated information ( $n = 1$ ). A further five sources were identified through citation tracking and from the websites of relevant organisations and assessed as eligible for inclusion following full-text review against the exclusion criteria. A PRISMA flow diagram illustrating this process is presented in Figure 1.

## 2.4 | Stage 4: Charting the data

Data were independently extracted from the final 85 sources by two members of the research team each (NW, ZB, GG or MW) using a table guided by the four review objectives. Extracted data included author, year of publication, Australian state or territory, title, publication type, data collection method, population, SRH knowledge topic, and findings aligning with each objective. These data points were identified for their capacity to provide context, answer the review aim, and determine gaps in research relevant to the topic of interest. The research team met twice to review data extraction and address any inconsistencies.

## 2.5 | Stage 5: Collating, summarising, and reporting the results

Data were collated and summarised against each of the four objectives by one member of the research team (NW, GG, or ZB). The research team met to discuss preliminary results as they developed. A written report of the findings against each objective follows.

Additionally, to create a visual representation of the populations of women and SRH knowledge topics reported on, sources were categorised by SRH knowledge topic and population groups and presented in the results as a heatmap (Figure 2). The categories were determined by the specific aspects of SRH and population groups reported on in the included sources. The categories presented in the heatmap were selected for their alignment with priority ideas identified in the National Women's Health Strategy.<sup>1</sup> Some sources reported on multiple populations or knowledge topics and as such, were represented in the heatmap multiple times.

**TABLE 1** Sample Medline search strategy.

Search	Terms	Records retrieved 8 December 2022
1	Australia	122 033
2	Australia*	212 728
3	1 or 2	212 728
4	Women	15 164
5	Female	9 519 122
6	Wom*n or female* or girl*	9 934 545
7	4 or 5 or 6	9 934 545
8	Health Knowledge, Attitudes, Practice	125 207
9	Attitude to Health	85 385
10	Health Education	63 257
11	Health Behaviour	55 657
12	Information Seeking Behaviour	3114
13	Health Communication	3117
14	Health Literacy	8660
15	Health Promotion	80 374
16	Sex Education	9207
17	Sexual Behaviour	64 724
18	“health knowledge” or “health information” or information seeking” or information scanning” or “health communication” or “health literacy” or “health behavio*” or “health education” or “health promotion”	390 988
19	8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18	514 395
20	Sexual Health	2273
21	Reproductive Health	4837
22	Women's Health	29 759
23	Contraception	21 679
24	Contraception Behaviour	8988
25	Fertility	43 698
26	Menopause	29 660
27	Menstruation	16 331
28	Menstrual Cycle	14 026
29	Abortion, Induced	29 759
30	Sexually Transmitted Diseases	26 995
31	Gynaecology	20 443
32	“sexual and reproductive health” or “sexual health” or “reproductive health” or contraception or *fertility or “family planning” or menopa* or abortion or “termination of pregnancy” or “sexually transmitted disease” or “sexually transmitted infection” or STD or STI or gynaecolog* or gynecolog* or “sexual rights” or “sexual citizenship”	478 419
33	20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32	518 666
34	3 and 7 and 19 and 33	1124
35	Limit 35 to yr=“2012–2022”	531

### 3 | RESULTS

To investigate what women in Australia know about SRH, 85 sources were included in this scoping review. These sources are presented in Table 2. The sources' year of publication ranged between 2012 and 2022 with the most ( $n = 12$ ) published in 2020 and the least ( $n = 4$ ) in 2016. The majority ( $n = 38$ ) utilised a nationwide approach to

participant location or did not specify location. The next most common locations were Victoria ( $n = 21$ ) and New South Wales ( $n = 14$ ). Tasmania ( $n = 1$ ), the Northern Territory ( $n = 2$ ), and South Australia ( $n = 1$ ) were the least frequent locations. No sources indicated participant location exclusively from the Australian Capital Territory. Most sources exclusively reported a quantitative approach to data collection ( $n = 46$ ), and 31 sources reported qualitative data only.

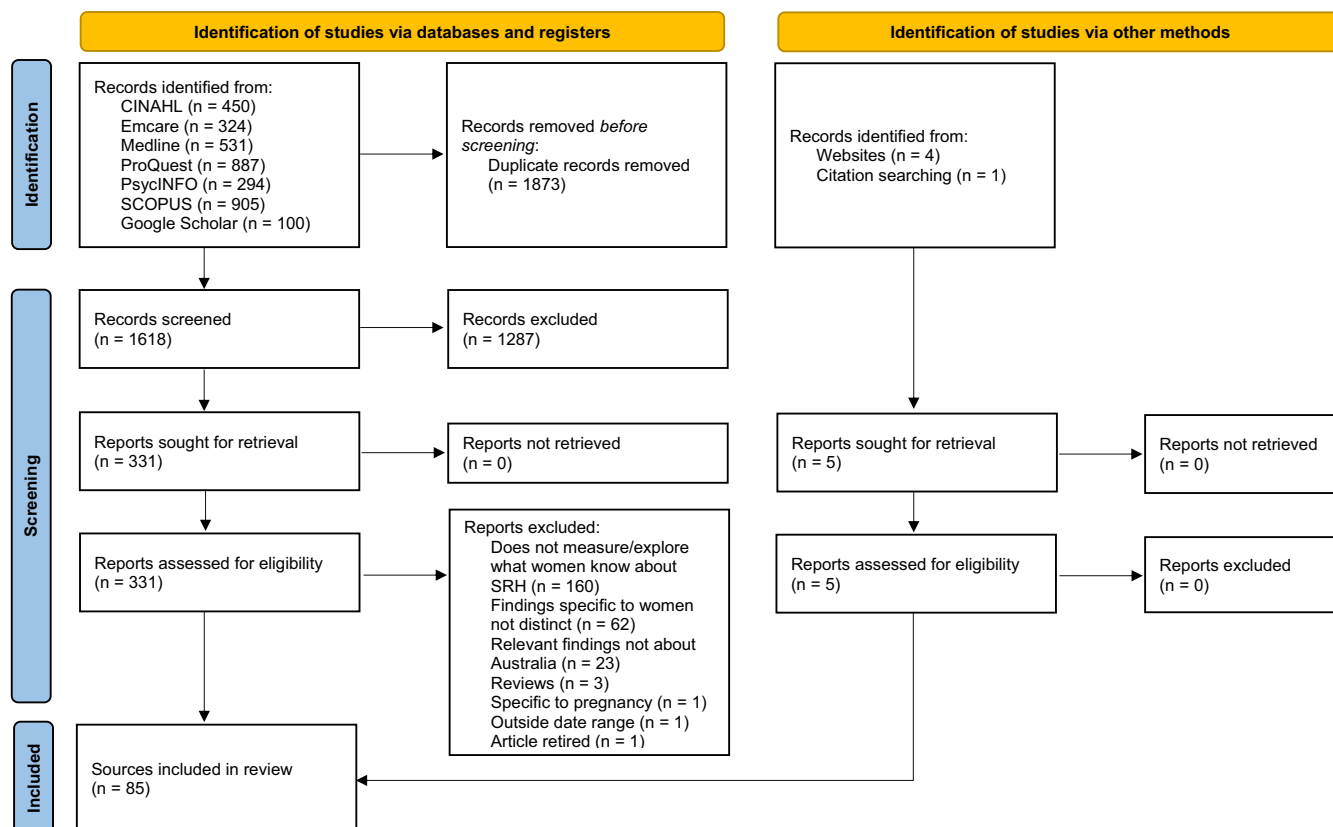


FIGURE 1 PRISMA flow diagram, modified from Page et al.<sup>20</sup>

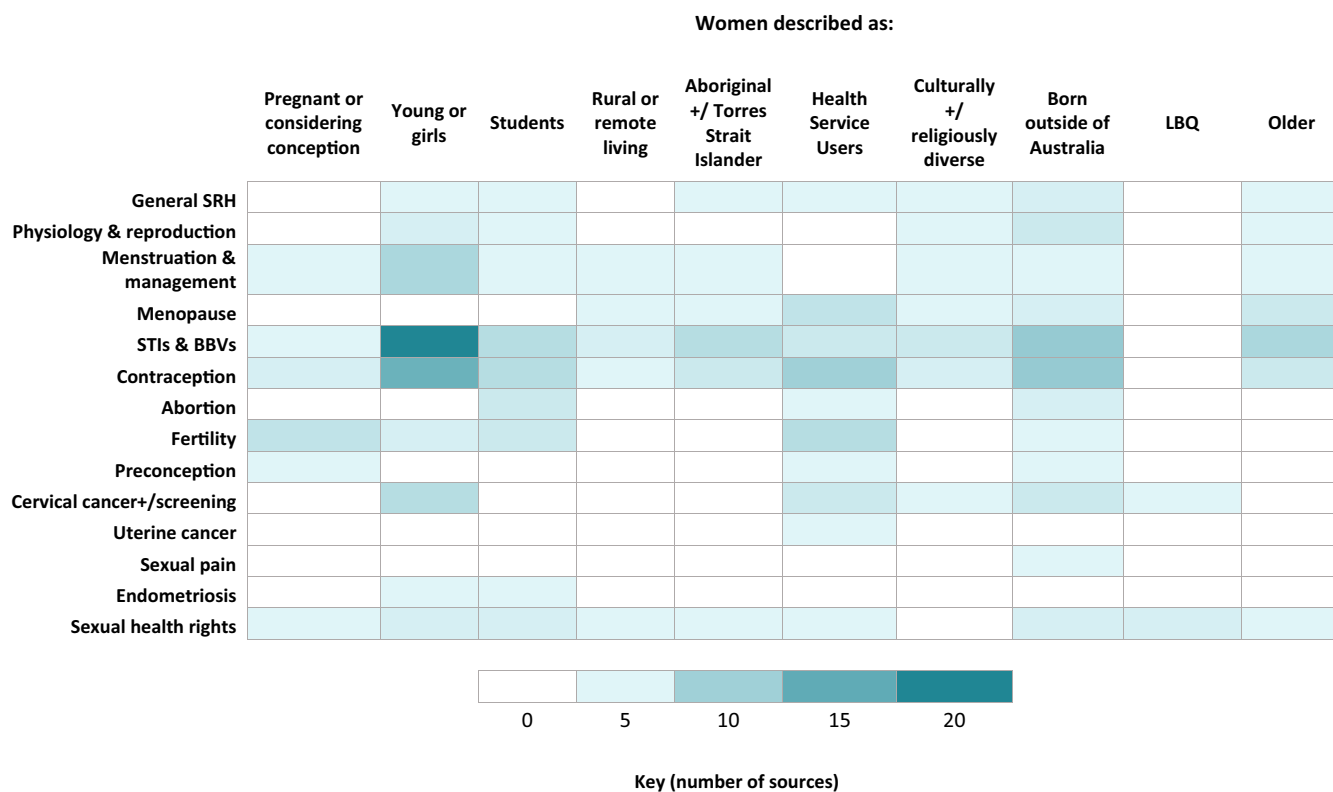


FIGURE 2 Heatmap of SRH knowledge topics and population groups.

TABLE 2 Included sources and key findings.

First author, year, location	SRH topic	Study population	Publication type	Study design (data collection method)	Obj 1: How SRH is reported and assessed	Obj 2: Ways women learn about SRH	Obj 3: Enablers and barriers to SRH knowledge	Obj 4: Interventions to facilitate SRH knowledge
Abraham, 2022, VIC <sup>21</sup>	Cervical cancer screening	Doctors and nurses providing clinical consultations at a sexual health clinic	Letter to the Editor	Quantitative (Survey) <sup>H</sup>	✓	✓		
Anaman, 2017, QLD <sup>22</sup>	Cervical cancer screening	African immigrant women	Journal article	Quantitative (Survey) <sup>S</sup>	✓			
Armour, 2021, National <sup>23</sup>	Menstruation	Women/girls aged 13–25 years	Journal article	Quantitative (Survey) <sup>S</sup>	✓	✓		
Armour, 2022, National <sup>24</sup>	Menstruation	Women/girls aged 14–25 years	Journal article	Quantitative (Survey) <sup>MSV</sup>	✓	✓	✓	✓
Bateson, 2012, National <sup>25</sup>	Safer sex practices (i.e., STI knowledge)	Women aged 18 or over using Internet dating service	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Brotherton, 2012, VIC <sup>26</sup>	Human papillomavirus (HPV) vaccination; cervical cancer screening	Women aged 18–28 years	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Bunting, 2013, National <sup>27</sup>	Fertility	Women and men aged 18–50 years, and trying to conceive for at least 6 months	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Caughey, 2021, National <sup>28</sup>	Fertility (freezing eggs)	Heterosexual women aged 25–44 years, open to having children at some point in life, not pregnant, no diagnosis of medical infertility.	Journal article	Mixed methods (Survey) <sup>MS</sup>	✓			
Cooper, 2018, NSW <sup>29</sup>	Pap screening; HPV vaccination	Young women aged 18–25 years at university	Journal article	Qualitative (Interviews) <sup>MS</sup>	✓	✓		
Curry, 2022, National <sup>30</sup>	Menstrual health education	Young women aged 13–25 years	Journal article	Quantitative (Survey)		✓	✓	
Dean, 2017, QLD <sup>31</sup>	Sexual health (STI and HIV knowledge)	Young men and women aged 16–24 years with Sudanese background	Journal article	Quantitative (Survey) <sup>M</sup>	✓	✓		
Dodd, 2020, National <sup>32</sup>	Cervical cancer screening	Women aged 25–74 years	Journal article	Qualitative (Interviews) <sup>MS</sup>	✓	✓	✓	
Dodd, 2019, NSW <sup>33</sup>	Cervical cancer screening	Women aged 18–74 years	Journal article	Qualitative (Focus groups) <sup>M</sup>	✓	✓	✓	✓
Dolan, 2020, NSW <sup>34</sup>	Contraception	Chinese migrant women born in Asian countries, living in Australia for no more than 10 years	Journal article	Qualitative (Interviews) <sup>H</sup>	✓	✓		
Dorney, 2020, NSW <sup>35</sup>	Emergency contraception (Intrauterine device)	Women or transgender males aged 16–55 years who are clients of a family planning service	Journal article	Quantitative (Survey) <sup>M</sup>	✓			

TABLE 2 (Continued)

First author, year, location	SRH topic	Study population	Publication type	Study design (data collection method)	Obj 1: How SRH is reported and assessed	Obj 2: Ways women learn about SRH	Obj 3: Enablers and barriers to SRH knowledge	Obj 4: Interventions to facilitate SRH knowledge
Duley, 2017, NSW <sup>36</sup>	Reproductive and sexual health	Aboriginal and Torres Strait Islander men and women	Journal article	Mixed methods (Survey Focus groups) <sup>MS</sup>	✓	✓		✓
Evans, 2018, National <sup>37</sup>	Fertility	Women and men aged 18–45 years	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Ezer, 2019, National <sup>38</sup>	Sexuality education—STI, HPV, and Human immunodeficiency virus (HIV) knowledge	Female and male students in years 10–12 (aged approximately 15–17 years)	Journal article	Quantitative (Survey) <sup>M</sup>	✓	✓		
Ezer, 2020, National <sup>39</sup>	Sexuality education—STI, HPV, and HIV knowledge	Female and male students in years 10, 11–12 (aged approximately 15–17 years)	Journal article	Quantitative (Survey) <sup>M</sup>	✓	✓		
Fagan, 2015, QLD <sup>40</sup>	Sexual health knowledge (HIV, STIs)	Aboriginal and Torres Strait Islander males and females aged 15–24 years	Journal article	Mixed methods (Survey) <sup>M</sup> Document review	✓	✓		✓
Ford, 2020, National <sup>41</sup>	Reproductive health; fertility	Women or assigned female at birth aged 18 years and older	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Foster, 2018, NSW <sup>42</sup>	HIV; STIs	Chinese- and Thai-speaking female sex workers	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Garrett, 2015, VIC <sup>43</sup>	Contraception (Long-acting reversible contraception)	Young women aged 17–25 years	Journal article	Qualitative (Interviews Focus groups) <sup>MS</sup>	✓	✓	✓	
George, 2014, NSW <sup>44</sup>	Uterine cancer risk	Women without a history of cancer	Journal article	Quantitative (Survey) <sup>MS</sup>	✓			
Gibson-Helm, 2014, National <sup>45</sup>	Menopause therapy	Women aged 20–41 years; premenopausal or medically induced premature menopause or spontaneous premenopause ovarian failure/insufficiency, did not have PCOS or gonadotropin-releasing hormone agonist therapy	Journal article	Quantitative (Survey) <sup>MS</sup>	✓			
Grant, 2018, TAS <sup>46</sup>	Safe sex and risk; LGBTQIA+ sexuality	Women who identify as queer, bisexual, or pansexual	Journal article	Qualitative (Interviews)	✓			
Grant, 2019, TAS <sup>47</sup>	LGBTQIA+ sexuality/sexual citizenship; cervical cancer screening	Women who self-identified as LBGTQ aged 18–30 years with experience accessing sexual healthcare in Tasmania	Journal article	Qualitative (Interviews)		✓	✓	

(Continues)

TABLE 2 (Continued)

First author, year, location	SRH topic	Study population	Publication type	Study design (data collection method)	Obj 1: How SRH is reported and assessed	Obj 2: Ways women learn about SRH	Obj 3: Enablers and barriers to SRH knowledge	Obj 4: Interventions to facilitate SRH knowledge
Grey, 2022, WA <sup>48</sup>	HIV testing	Migrant Indonesian women over 18 years	Journal article	Qualitative (Interviews) <sup>S</sup>	✓	✓	✓	
Gulich, 2014, National <sup>49</sup>	STIs	Men and women aged 16–69 years	Journal article	Quantitative (Survey) <sup>M</sup>	✓	✓		
Gunasekaran, 2015, VIC <sup>50</sup>	HPV vaccine	Young women aged 16–25 years	Journal article	Quantitative (Survey) <sup>M</sup>	✓	✓		
Gunasekaran, 2013, VIC <sup>51</sup>	HPV vaccine; cervical cancer	Young women aged 16–25 years	Short report	Quantitative (Survey) <sup>M</sup>	✓			
Hammarberg, 2022, National <sup>52</sup>	Contraception; STIs; safe sex; fertility; conception (biology); menstruation	Men and women aged 18–45 years	Journal article	Quantitative (Survey) <sup>MS</sup>	✓			
Hammarberg, 2013, National <sup>53</sup>	Fertility	Men and women aged 18–45 years who wish to have another child	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Hampton, 2015, National <sup>54</sup>	Fertility	Women who attend general practice	Journal article	Quantitative (Survey) <sup>M</sup>	✓	✓		
Hampton, 2017, National <sup>55</sup>	Fertility	Women who attend general practice	Professional magazine	N/A				
Hampton, 2013, National <sup>56</sup>	Fertility	Women attending Assisted Reproductive Technology clinics, English-speaking and menstruated within the last 6 months	Journal article	Quantitative (Survey) <sup>MS</sup>	✓	✓		
Hendriekx, 2021, National <sup>57</sup>	Contraception and pre-pregnancy planning	Women aged 18–50 years pregnant or planning pregnancy with type 1 or 2 diabetes	Journal article	Quantitative (Survey) <sup>M</sup>	✓	✓	✓	
Herbert, 2020, National <sup>58</sup>	Menopause	Women aged 40–64 years; premenopausal, perimenopausal, and early and late postmenopausal	Journal article	Qualitative (Interviews) <sup>M</sup>	✓	✓	✓	
Hewwood, 2016, National <sup>59</sup>	Fertility	Students in years 10–12	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Holton, 2016, National <sup>60</sup>	Fertility	Women aged 18–51 years with and without non-communicable chronic diseases	Journal article	Quantitative (Survey) <sup>S</sup>	✓			
Ireland, 2015, NT <sup>61</sup>	STIs; contraception	Aboriginal women aged 16–50 years living in one remote Australian community	Journal article	Qualitative (Fieldwork Interviews Focus groups) <sup>M</sup>	✓	✓		



TABLE 2 (Continued)

First author, year, location	SRH topic	Study population	Publication type	Study design (data collection method)	Obj 1: How SRH is reported and assessed	Obj 2: Ways women learn about SRH	Obj 3: Enablers and barriers to SRH knowledge	Obj 4: Interventions to facilitate SRH knowledge
James, 2018, QLD <sup>62</sup>	Contraception	Aboriginal women aged 16 years or older and within 12 months postpartum, English-speaking	Journal article	Qualitative (Interviews Focus groups) <sup>MS</sup>	✓	✓	✓	
Jin, 2022, VIC <sup>63</sup>	Hepatitis B virus	First-generation Chinese immigrants from mainland China and immediate descendants, living in Australia for at least 6 continuous months, aged over 18 years	Journal article	Quantitative (Survey) <sup>M</sup>	✓	✓		
Jurgenson, 2014, WA <sup>64</sup>	Menopause	Aboriginal women, aged 18 years or older	Journal article	Qualitative (Interviews Focus groups) <sup>S</sup>	✓	✓	✓	
Lang, 2020, VIC <sup>65</sup>	Pre-Pregnancy Planning	Women born outside of Australia; mean age 30 year (+ – 11 years)	Journal article	Qualitative (Interviews) <sup>M</sup> Focus groups)	✓	✓		
Larsen, 2020, National <sup>66</sup>	Contraception; menstruation	Elite female Australian athletes; mean age 22 + – 5 years	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Leung, 2014, QLD <sup>67</sup>	Contraception	Female and male tertiary students in Far North Queensland; mean age 22 years	Short communication	Quantitative (Survey) <sup>M</sup>	✓	✓		
Lim, 2012, VIC <sup>68</sup>	STIs	Young men and women, aged 16–29 years	Journal article	Quantitative (Survey) <sup>M</sup>	✓	✓	✓	✓
Lyons, 2017, National <sup>69</sup>	STIs	Men and women aged 60 years or more	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Lyons, 2018, National <sup>70</sup>	STIs	Men and women aged 60 years or more	Journal article	Quantitative (Survey)	✓	✓		
Marlow, 2013, National <sup>71</sup>	HPV; HPV vaccination	Men and women aged 18–70 years	Journal article	Quantitative (Survey) <sup>MV</sup>	✓			
Mazza, 2022, National <sup>72</sup>	Contraception	Young women aged 16–25 years	Journal article	Quantitative (Survey) <sup>S</sup>	✓	✓	✓	✓
Mazza, 2014, National <sup>73</sup>	Contraception	Australian women	Short communication	N/a	✓	✓	✓	
Meldrum, 2016, VIC <sup>74</sup>	Contraception; STIs; HIV	Young Muslim women, aged 18–25 years	Journal article	Qualitative (Interviews) <sup>MS</sup>	✓	✓	✓	
Mengesh, 2017, National <sup>75</sup>	SRH healthcare engagement	Women from refugee and migrant backgrounds (from HCP perspectives)	Journal article	Qualitative (Interviews) <sup>H</sup>	✓	✓	✓	

(Continues)

TABLE 2 (Continued)

First author, year, location	SRH topic	Study population	Publication type	Study design (data collection method)	Obj 1: How SRH is reported and assessed	Obj 2: Ways women learn about SRH	Obj 3: Enablers and barriers to SRH knowledge	Obj 4: Interventions to facilitate SRH knowledge
Miller, 2012, VIC <sup>76</sup>	Menstruation	Women aged 18–40 years who exercise	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Mitchell, 2014, National <sup>77</sup>	HIV; STIs; hepatitis; HPV; fertility	Students in years 10–12	Report	Quantitative (Survey) <sup>M</sup>	✓	✓		
Mooney-Somers, 2019, National <sup>78</sup>	Contraception	Women aged 16–35 years	Journal article	Systematic Review <sup>M</sup>	✓	✓		
Mooney-Somers, 2012, QLD <sup>79</sup>	STIs; contraception	Aboriginal or Torres Strait Island people aged 17–26 years	Journal article	Qualitative (Interviews) <sup>M</sup>	✓	✓		
Multicultural Centre for Women's Health, 2021, National <sup>80</sup>	Abortion rights and services; contraception; consent	Refugee and migrant women, female international students	Report	N/a	✓	✓	✓	✓
Munro, 2022, NSW <sup>81</sup>	Menstruation	University students who menstruate (women, non-binary, not specified)	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Newton, 2016, VIC <sup>82</sup>	Abortion	Women (from HCPs perspectives)	Journal article	Quantitative (Interviews) <sup>H</sup>	✓	✓	✓	
Ngum Chi Watts, 2015, VIC <sup>83</sup>	Contraception; STIs; sexual intercourse leading to pregnancy; HIV	Young African Australian mothers aged 17–30 years who have experienced teenage pregnancy; refugee or migrant backgrounds	Journal article	Quantitative (Interviews Focus groups) <sup>MS</sup>	✓	✓	✓	
Ngum Chi Watts, 2013, VIC <sup>84</sup>	Contraception	Young African Australian mothers aged 17–30 years who have experienced teenage pregnancy	Journal article	Qualitative (Interviews) <sup>M</sup>	✓	✓	✓	
O'Mullan, 2019, National <sup>85</sup>	STI prevention	Women aged 45–64 years using an online dating website	Journal article	Qualitative (Interviews) <sup>S</sup>	✓	✓	✓	
Ong, 2012, VIC <sup>86</sup>	Contraception	Women aged 16–50 years attending Family Planning Clinics, sexually active, and not planning to conceive	Journal article	Quantitative (Survey) <sup>S</sup>	✓			
Parajuli, 2020, VIC <sup>87</sup>	Cervical cancer screening	Women aged 18 years or older of refugee background from Bhutan	Journal article	Qualitative (Interviews) <sup>MS</sup>	✓		✓	
Phillips, 2012, QLD <sup>88</sup>	Abortion service access and legal rights	Tertiary students aged 15–54 years	Short communication	Quantitative (Survey) <sup>M</sup>	✓			
Power, 2022, NSW <sup>89</sup>	Cervical cancer screening; anatomy—cervix; HPV	Women aged 18–74 years from African or Middle Eastern backgrounds	Journal article	Mixed methods (Survey Interviews Observations) <sup>M</sup>	✓	✓	✓	✓

TABLE 2 (Continued)

First author, year, location	SRH topic	Study population	Publication type	Study design (data collection method)	Obj 1: How SRH is reported and assessed	Obj 2: Ways women learn about SRH	Obj 3: Enablers and barriers to SRH knowledge	Obj 4: Interventions to facilitate SRH knowledge
Prior, 2019, VIC <sup>90</sup>	Fertility, STIs, contraception	Students aged 18–30 years	Journal article	Quantitative (Survey) <sup>MS</sup>	✓	✓		
Ritter, 2015, NSW <sup>91</sup>	Contraception	Young people aged 14–25 years	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Rogers, 2014, QLD <sup>92</sup>	Contraception; STIs	Mothers and daughters aged 18–55 years from Sudanese or Eritrean background, English-speaking	Journal article	Qualitative (Interviews Focus groups) <sup>MS</sup>	✓	✓	✓	
Rogers, 2015, QLD <sup>93</sup>	SRH communication	Women aged 18–55 years from Sudanese or Eritrean background, English-speaking	Journal article	Qualitative (Interviews Focus groups) <sup>H</sup>	✓		✓	
Sayakhot, 2012, National <sup>94</sup>	Menopause	Australian and Laotian women aged 40–65 years	Journal article	Quantitative (Survey) <sup>MS</sup>	✓	✓		
Scalzo, 2015, VIC <sup>95</sup>	Cervical cancer screening	Women aged 18–69 years	Journal article	Quantitative (Survey) <sup>M</sup>	✓			
Shadbolt, 2013, National <sup>96</sup>	Endometriosis	Women aged 16–25 years	Journal article	Quantitative (Survey) <sup>M</sup>	✓	✓		
Stanzel, 2019, VIC <sup>97</sup>	Menopause	Women aged 45–60 years who had migrated from Horn of Africa nations	Journal article	Qualitative (Interviews) <sup>S</sup>	✓	✓	✓	
Strezova, 2017, NSW <sup>98</sup>	Menopause	Women aged 45–75 years from Macedonian background	Journal article	Qualitative (Group discussions) <sup>S</sup>	✓	✓	✓	
Ussher, 2012, National <sup>99</sup>	Contraception; sexual intercourse; fertility; sexual pain	Assyrian and Karen women (refugee background), married and unmarried	Journal article	Qualitative (Focus groups) <sup>S</sup>	✓	✓	✓	
Wagg, 2020, VIC <sup>100</sup>	Chlamydia testing	Young women aged 18–30 years, sexually active, living regionally or rurally	Journal article	Qualitative (Interviews) <sup>MS</sup>	✓	✓		
Walker, 2021, VIC <sup>101</sup>	Preconception	Women aged 18–45 years: not pregnant	Journal article	Qualitative (Focus groups) <sup>M</sup>	✓	✓	✓	✓
Ward, 2020, ACT <sup>102</sup>	STIs; Blood borne viruses (BBVs)	Aboriginal and Torres Strait Islander youth aged 16–29 years	Report	Quantitative (Survey) <sup>M</sup>	✓	✓		
Ward, 2014, National <sup>103</sup>	STIs; BBVs	Aboriginal and Torres Strait Islander youth aged 16–29 years	Report	Quantitative (Survey) <sup>M</sup>	✓	✓		

(Continues)

TABLE 2 (Continued)

First author, year, location	SRH topic	Study population	Publication type	Study design (data collection method)	Obj 1: How SRH is reported and assessed	Obj 2: Ways women learn about SRH	Obj 3: Enablers and barriers to SRH knowledge	Obj 4: Interventions to facilitate SRH knowledge
Women's Health in the North, 2020, VIC <sup>104</sup>	Contraception; STIs; abortion	International students identifying as women	Report	Qualitative (Group discussions)	✓	✓	✓	
Wray, 2014, NSW <sup>105</sup>	Safe sex; contraception; menstrual products; sexual intercourse; HIV; STIs	Young women aged 18–25 years; heterosexual, unmarried, Muslim immigrants from Iraq, Iran, Afghanistan, Bangladesh or Pakistan; fluent in English	Journal article	Qualitative (Interviews) <sup>M</sup>	✓		✓	

Note: <sup>H</sup>HCP assessment; <sup>S</sup>Self-assessment; <sup>M</sup>Measured assessment; and <sup>Y</sup>SRH knowledge assessment utilised a validated survey tool. Abbreviations: ACT, Australian Capital Territory; NSW, New South Wales; QLD, Queensland; TAS, Tasmania; VIC, Victoria; WA, Western Australia.

In analysing the objectives addressed, it was found that most sources ( $n = 79$ ) addressed how SRH knowledge was assessed. Many sources addressed the ways women learn about their SRH ( $n = 54$ ) and a smaller number reported on the enablers and barriers to women's SRH knowledge ( $n = 31$ ). Only nine sources described interventions to facilitate women's SRH knowledge in Australia. Findings related to each of the review objectives are reported in further detail below.

Additionally, a visual representation of the populations of women and topics of SRH knowledge is presented in the heatmap below including those highlighted in the National Women's Health Strategy<sup>1</sup> (see Figure 2). This heatmap highlights the SRH topics that reviewed sources have concentrated their efforts on within the past 10 years and identifies clear gaps for future research direction and investment. For example, while 19 sources reported on young women and girls' knowledge about STIs and blood-borne viruses, no sources were identified that reported on Aboriginal and/or Torres Strait Islander women's knowledge of sexual pain. The topic General SRH refers to sources in which the specific SRH topic was not reported or SRH knowledge was explored broadly without a specific focus.

### 3.1 | Objective 1: How was SRH health knowledge assessed and reported?

In examining the way SRH knowledge was assessed and reported in the reviewed sources, three key concepts were identified; (i) the focus of knowledge assessment within the source, (ii) the types of assessment tools used, and (iii) the way in which those tools measured SRH knowledge.

#### 3.1.1 | Focus of knowledge assessment within the source

In 59% ( $n = 50$ ) of all sources, the assessment of women's SRH knowledge was considered a primary focus.<sup>24,27,29,31,33,35–37,39,41,44,45,49–54,56–59,61,63,64,66–69,71–74,76–78,84,88,90–96,100,102–105</sup>

Knowledge assessment was considered a primary focus where it was explicitly described in either the title or aim. For example, one study investigated fertility knowledge and beliefs about fertility treatment of men and women trying to conceive.<sup>27</sup> Another qualitative study explored contraception knowledge and attitudes amongst African Australian teenage mothers in Melbourne.<sup>84</sup>

In many cases ( $n = 29$ ), knowledge assessment was not identified within the primary aims of the reviewed source but was reported as part of a broader research topic related to SRH.<sup>21–23,25,26,28,32,34,38,40,42,43,46,48,60,62,65,75,81–83,85–87,89,97–99,101</sup> For example, the primary aim of a Sydney-based study was to assess the confidence in menstrual management of female university students.<sup>81</sup> Knowledge related to menstruation was assessed using four survey items and higher knowledge scores were found to positively predict confidence. In another case, knowledge of female fertility formed part

of a survey to determine Australian women's willingness to freeze their eggs.<sup>28</sup>

A small number of sources ( $n = 6$ ) did not directly explore assessment of SRH knowledge but reported on it in other ways.<sup>30,47,55,70,79,80</sup> For example, one study explored menstrual health education in Australian schools and reported on what information students recalled receiving during health and physical education classes.<sup>30</sup> In another source, older heterosexual Australians were asked to report on sources of STI information.<sup>70</sup>

### 3.1.2 | Assessment tools

In most cases, assessment of SRH knowledge was conducted using assessment tools that were developed by the research teams and authors did not report tool validation. Tool development included both creation of questions directly by the team based on expert knowledge or current evidence on the topic of interest, or by utilising questions from existing questionnaires reported in previous studies. Only two reviewed sources reported using validated tools in their studies. One of these<sup>24</sup> used five validated tools in the context of delivering an educational resource aimed at improving menstrual health literacy. The questions used to measure knowledge on menstrual health however were included in an 11-item questionnaire developed by the research team and were not measured by any of the validated tools. Another source used 15 items from a 29-item validated tool to measure knowledge about human papillomavirus in three countries, including Australian women.<sup>71</sup>

### 3.1.3 | How SRH knowledge was assessed

Within the reviewed sources, SRH knowledge assessment occurred using three strategies. These are indicated in Table 2 using a symbol next to the data collection method (<sup>H</sup> = HCP assessment; <sup>S</sup> = Self-assessment; <sup>M</sup> = Measured assessment; <sup>V</sup> = SRH knowledge assessment utilised a validated survey tool). In 17 sources,<sup>21–23,32,43,46,48,60,62,64,65,72,85,86,97–99</sup> a self-assessment of participants' knowledge on a topic was exclusively used. In the case of a qualitative investigation, for example, during interviews, a woman may have expressed they know a lot or little about an SRH topic.<sup>98</sup> This involved either expressing a subjective measure of how much they know either in response to a specific question measuring knowledge or as an incidental comment describing their knowledge. In studies that utilised quantitative assessment, women may have been asked to quantify how much they know about a topic on a scale, for example, a Likert-style scale.<sup>28</sup>

A second strategy used exclusively in 38 reviewed sources,<sup>25–27,31,33,35–42,49–51,53,54,57,59,63,66–69,71,76–78,88,89,91,95,96,101–103,105</sup> measured and reported whether participants who were asked questions about a topic of SRH answered correctly or not (measured assessment). Where this assessment occurred using a qualitative approach, an assessment of whether responses were correct or not

was reported based on the researcher having analysed the responses to interview questions. When using a quantitative approach, it was common for questions to be asked on SRH topics for which there was a correct and incorrect answer. Participants' scores were then calculated and reported to indicate their knowledge level.

In some sources ( $n = 18$ ),<sup>24,28,29,44,45,52,56,58,61,74,81,83,84,87,90,92,94,100</sup> both subjective self-assessment of knowledge and a measured assessment of knowledge were used to form a broader picture of knowledge of the sample on a topic.

In four sources,<sup>34,75,82,93</sup> the SRH knowledge of women was not directly assessed, but instead was reported on by HCPs. For example, in one source, the contraceptive knowledge of Chinese migrant women living in Australia was described during interviews by health professionals who provided contraceptive care.<sup>34</sup>

Finally, eight sources did not directly assess the SRH knowledge of women in Australia but reported on knowledge more broadly, for example, as a short communication,<sup>73</sup> or reported on other relevant points, such as sources of SRH information<sup>70</sup> or what women learnt during sex education at school.<sup>47</sup>

## 3.2 | Objective 2: What are the ways that women learn about their SRH?

### 3.2.1 | How ways of learning were identified

A total of 54 sources reported on ways that women learnt about their SRH. Typically, survey tools captured the type of information sources that women used or preferred to use, reporting sources by frequency and often using predetermined response options.<sup>23,24,31,54,63,67,70,77,90,94,96,102,103</sup> Other aspects reported on included the perceived trustworthiness of the information source,<sup>23,31</sup> which sources participants most relied on,<sup>70</sup> perceived relevance to participants' own needs,<sup>38,39,77</sup> if participants accessed a specific source,<sup>30,49,57</sup> which sources women were most likely to access<sup>96</sup> and the number of sources women sought information from.<sup>54,56</sup>

Qualitative studies explored women's experiences of learning about a specific aspect of SRH,<sup>32,33,43,47,82–85,92,97–101</sup> such as long-acting reversible contraception (LARC),<sup>43</sup> or a specific way of learning such as school-based education.<sup>47</sup> One systematic review consolidated quantitative and qualitative reports of emergency contraception information sources.<sup>78</sup> Nine sources reported on interventions to facilitate women's learning about SRH.<sup>24,33,36,40,68,72,80,89,101</sup> These are reported against Objective 4.

### 3.2.2 | How women learnt

Within the reviewed sources, the most frequently identified way of learning was through HCPs or services ( $n = 31$ ).<sup>21,23,24,31,33,34,43,50,54,56–58,62,65,70,73,75,77,78,82,84,85,90,94,96–98,100–103</sup> These referred to specific professionals such as nurses<sup>21,23,34,90</sup> or doctors,<sup>21,23,24,31,33,34,43,50,78,85,90,94,96,98,100,102</sup> or

to written or audio-visual materials provided through health services.<sup>57,58,62,90</sup> Trained teachers of fertility awareness were also reported as information sources specific to fertility knowledge.<sup>54,56</sup>

Friends or peers (n = 29)<sup>23,24,34,38,39,47,48,50,54,56,57,62,64,65,67,74,77,78,82–84,90,96,97,99–103</sup> and family (n = 26)<sup>23,24,29,31,34,38,39,43,48,50,57,62,64,65,67,74,77,78,82,90,92,96,97,101–103</sup>

were the next most frequently identified way of learning. Some articles reported on women learning from specific family members such as mothers<sup>23,24,29,31,39,43,64,74,77</sup> or sisters.<sup>23,24,29,31,39,43,64,74,77</sup> Learning from or with partners<sup>48,57,62,102</sup> was similarly but less frequently reported. Nine studies specifically identified learning through others' or own experiences as a way of learning.<sup>39,47,64,65,70,82,83,85,92,99</sup>

According to the reviewed sources, women also reported learning through the internet (n = 23)<sup>23,24,38,39,47,48,54,56,62,63,65,70,77,82,85,90,94,96,97,100–103</sup> and media (n = 18).<sup>23,24,39,48,50,65,67,70,74,78,83,84,94,96,97,100,103</sup> Ways of learning using the internet included online searches,<sup>23,24,47,65,101</sup> social media<sup>23,24,47,48,65,96</sup> and forums.<sup>47,65</sup> Within the sources, media included magazines,<sup>23,24,48,65,67,74,78,94,96,103</sup> books,<sup>48,54,56,70,94</sup> television programs or films,<sup>23,48,50,65,67,96</sup> and pornography or sexually explicit material.<sup>39,48,61</sup>

Finally, 19 reviewed sources<sup>23,24,30,38,39,43,48–50,65,67,74,77,78,92,96,99,100,102</sup> reported on learning through school. They predominantly focused on class content, such as information described as heteronormative and fear-based,<sup>47</sup> or simply identified school as an information source broadly.<sup>43</sup> One quantitative study specifically identified different class types in which girls received SRH information: health and physical education, science or biology and religious instruction.<sup>77</sup> School staff such as counsellors or teachers were also identified specifically as information sources.<sup>77</sup> In a similar vein, professional studies or training, such as those for health professionals, educators or armed forces, were reported as sources of SRH information in a small number of studies.<sup>65,70,74,102</sup>

### 3.3 | Objective 3: What are the enablers and barriers to women's knowledge of SRH?

Barriers or enablers to women's SRH knowledge were reported in 31 sources. Most sources were qualitative (n = 23).<sup>32,33,43,47,48,58,62,64,74,75,82–85,87,92,93,97–99,101,104,105</sup> Factors commonly reported as enablers or barriers included information content, delivery, timing, and accessibility,<sup>30,32,43,47,62,73,74,82,101</sup> interactions with those providing information,<sup>62,64,101</sup> cultural and gendered norms,<sup>47,48,74,83,84,98</sup> pre-migration experiences, and competing priorities<sup>62,74,75,83,84</sup> and functional health literacy.<sup>62</sup>

#### 3.3.1 | Information content

The content of SRH information was repeatedly reported as a barrier or enabler to women's SRH knowledge irrespective of the type of

information source of SRH or knowledge topic. For example, some sources reported that women did not receive sufficient education about a topic such as different types of contraception<sup>43</sup> or that the information was not practical or appropriate to the women's information needs, such as menstruation education in schools.<sup>30</sup> It was reported that the focus of sex and relationships education (SRE) in schools was framed as too biological and sanitised, heteronormative, fear-based, and not encompassing of the holistic aspects of SRH that women and girls required.<sup>30,47,74</sup>

Sources reported misinformation and misconceptions in a range of contexts as a barrier to women's SRH knowledge and this affected the accuracy of information that was shared with peers and daughters.<sup>43,47,62,82–84</sup> Examples included lesbian, bisexual, and queer women being taught that they did not need routine cervical screening in SRE<sup>47</sup> and misinformation about LARC from HCPs and mothers.<sup>43</sup> Reported factors that contributed to misinformation also included pre-migration experiences,<sup>83,84,92</sup> negative parental attitudes and knowledge or lack of knowledge intersecting with cultural and gendered influences.<sup>64,83,84,92</sup>

Some sources suggested that where SRH education or information was not perceived to be meaningful in the context of their lives or health needs, it was deemed insufficient and women or girls were described as disengaging from it or not seeking it out.<sup>30,32,47,74,83,84,101</sup> This may indicate a low priority being attributed to preventative or SRH in the context of competing priorities and cultural and gendered norms, both recurring barriers in a range of reviewed sources.<sup>48,64,74,75,83,84,89,92,93</sup> For example, closed attitudes within families and communities, self-policing and stigma towards discussing SRH were described as limiting SRH knowledge for some women.<sup>48,64,74,75,87,89,92,97–99,104,105</sup> However, for others, exposure to Australian culture and shifting cultural values in Australia could facilitate increased SRH knowledge.<sup>48,93,98,105</sup>

#### 3.3.2 | Information delivery and accessibility

Timing and delivery of health information were also reported as barriers and enablers within the reviewed sources. When women and girls did not have access to SRH information when they needed it or too much information was delivered at once, timing was framed as a barrier to knowledge.<sup>30,32,43,47,62,89</sup> Pamphlets at the point of care were framed as valuable resources.<sup>57,58,62</sup> Being able to interact with and ask questions of an information source online or in person was valued as enabling women's SRH knowledge and often a preference for information delivery.<sup>57,62,89,101</sup> However, interactions with HCPs without specific and current SRH knowledge<sup>43,57,64,73,89</sup> or perceived negative interactions with HCPs or family members were reported as potential barriers that could impede women's SRH knowledge.<sup>58,74,93,97</sup> For example, negative maternal attitudes inhibited women learning from their mothers about SRH<sup>83,84</sup> while other women described feeling judged and concerned about confidentiality, impeding discussion of SRH information needs with HCPs.<sup>58,74,85,99</sup>



It was reported that availability of information in different accessible sources<sup>32</sup> and culturally appropriate information in different languages including engaging interpreters<sup>75,80,87,89,92,93,97,98,104</sup> could facilitate women's SRH. However in one reviewed qualitative study, a lack of functional health literacy, although not formally measured, was suggested amongst Aboriginal women as a barrier to postpartum contraception knowledge, with women described as not knowing what information to ask for, where to find and how to obtain information.<sup>62</sup> This was similarly reflected in other sources around how the women engaged with the internet, reporting difficulties identifying reliable sources of information. Women of migrant backgrounds were also described within the sources as lacking knowledge about the role of health services, and preventative and baseline SRH knowledge, which then prevented them from seeking out further information or HCPs from being able to engage them in SRH education.<sup>75,83,84,87,97</sup>

### 3.4 | Objective 4: What interventions were identified to facilitate women's SRH knowledge?

Of the 85 sources reviewed, only nine directly reported on interventions that aimed to facilitate women's SRH knowledge. Four sources included traditional in-person, face-to-face learning modalities. One of these used a health professional to present information on changes to cervical screening.<sup>33</sup> Two were designed specifically for Australian Aboriginal populations, including SRH education modules delivered in person, and face-to-face workshops on the dilemmas facing Aboriginal youth more broadly but including topics of SRH.<sup>36,40</sup> Power et al.<sup>89</sup> described a range of culturally tailored education forums for women of culturally and linguistically diverse backgrounds that were presented either in person or using an online meeting platform. Four interventions reported by reviewed sources included digital learning modalities including self-paced online education modules on menstrual disturbance symptoms and symptom-relief strategies,<sup>24</sup> SMS text messages on sexual health promotion,<sup>68</sup> an online video on contraception choices<sup>72</sup> and a computer-generated health professional providing preconception lifestyle advice.<sup>101</sup> One source did not report detailed information on the intervention delivery style.<sup>80</sup>

## 4 | DISCUSSION

This scoping review has presented a comprehensive map of what is reported on women in Australia's SRH knowledge. The SRH of women has been identified as a priority health issue in Australia.<sup>1</sup> In this discussion, the authors will address the current gaps in research identified as priorities in the National Women's Health Strategy and the need for a standardised national approach to the measurement of women's SRH knowledge and health literacy that allows for intersectional population analysis.

Health knowledge and health literacy affect health behaviour. It is known that people with limited health literacy are less likely to participate in health promotion and disease detection activities and

experience poorer health outcomes.<sup>106</sup> Health literacy is considered a measurable outcome of health education,<sup>5</sup> and both education and health literacy are modifiable determinants of health.<sup>107</sup> Considering that health knowledge and literacy affect behaviour, a plan for assessment of knowledge in conjunction with health literacy is needed to measure the outcomes of interventions to address the National Women's Health Strategy priorities.

Priority actions to improve education, access to SRH information, diagnosis, treatment and services have been documented within the national strategy.<sup>1</sup> For example, identified actions purport to update SRH curriculums in schools, and to promote information sources for SRH conditions such as endometriosis, polycystic ovarian syndrome and pelvic inflammatory disease, amongst others. However, improvements in service utilisation and notifiable disease rates are suggested to measure the success of identified actions and these rely on individuals making behavioural changes. The Australian Longitudinal Study on Women's Health<sup>108</sup> aims to examine health data, enabling examination of trends in demographic indicators, health outcomes and service utilisation but does not examine knowledge. Similarly, the Australian Study of Health and Relationships primarily investigates demographic measures, sexual behaviours and attitudes<sup>109</sup> and the most recent iteration reported on knowledge related only to the topic of STIs.<sup>49</sup> Internationally, other surveys examining sexual health have also focussed on these behaviour and health outcomes measures with little or no inclusion of knowledge assessment.<sup>110,111</sup>

The National Women's Health Strategy identifies priority groups for which addressing healthcare inequities are a key focus.<sup>1</sup> The heatmap presented in this scoping review (Figure 2) highlights the SRH topics and populations of women where investigation of SRH knowledge has had the most attention within the review time frame and, conversely those that have not been examined. It demonstrates that the populations of women in Australia most commonly investigated were young women or girls, women born outside of Australia, and health service users. Of the priority groups identified in the National Women's Health Strategy,<sup>1</sup> no research was identified explicitly setting out to report on the SRH knowledge of women and girls living with disability, those who experience violence and/or abuse, those affected by the criminal justice system, veterans of Australia's armed services, women from low socioeconomic backgrounds or older women with low financial assets. While research was identified into what women from other priority groups, such as women and girls from rural and remote areas, know about their SRH, clear gaps in the research were apparent.

The heatmap further indicates a focus in the published literature on women's knowledge on topics relating to fertility, contraception, STIs, and cervical screening. Few sources address the topics of endometriosis, menopause, and menstruation. Other topics of SRH that were not identified as the focus of any reviewed source include polycystic ovarian syndrome, primary ovarian insufficiency, chronic pelvic pain, and pelvic inflammatory disease, despite being highlighted as topics on which information should be promoted in the National Women's Health Strategy. Additionally, both endometriosis and chronic pelvic pain are acknowledged as national

priorities for awareness and education in the National Action Plan for Endometriosis.<sup>112</sup>

Opportunities exist to improve women's SRH knowledge using targeted interventions encompassing priority topics and populations, such as those reported in this review. Successful interventions may improve behavioural outcomes such as service utilisation,<sup>1,108</sup> however, a consistent approach to the assessment of SRH knowledge is needed to identify commonalities in knowledge deficits. Doing so would enable the design of targeted interventions that have the potential to positively improve knowledge for the greatest number of women.

Determining a measurable level of SRH knowledge of women in Australia would be impossible to achieve as an outcome of this review due to the variation in design of reviewed studies and tools used. This review and a further search of available international literature did not reveal the existence of a SRH knowledge assessment tool that would adequately measure knowledge amongst a broad population of women in Australia. In China, a recently developed reproductive health literacy questionnaire validated for unmarried youth was identified.<sup>113</sup> Various health literacy tools were reported in an international systematic review investigating the relationship between health literacy and women's reproductive health knowledge,<sup>6</sup> the most common being the Rapid Estimate of Adult Literacy in Medicine.<sup>114</sup> Critical analysis by Dumenci et al.<sup>115</sup> suggests this tool should not be used to make inferences about a person's level of health literacy but rather the ability to read and pronounce health related terms. None of the reviewed tools specifically measured sexual or reproductive health literacy.

In order to maximise the success of interventions designed to improve SRH knowledge, thereby influencing health literacy levels and improving positive health behaviours, we suggest the development of a tool that can be used to assess the SRH knowledge amongst women in Australia. A knowledge assessment tool with considered demographic data design would have the capacity to assess the success of such interventions as well as capture knowledge deficits of specific populations. These should include those who typically face health inequities, such as language barriers or barriers to service access, that is, women from remote locations or those with a disability. As such, the tool should be designed for use in a broad population group but allow for intersectional population analysis. Inclusion of an exploration of how culture influences conceptualisation of SRH knowledge is also recommended to ensure that measurement of this phenomenon is culturally sensitive, recognises experiential knowledge, and achieves the desired outcome.

#### 4.1 | Strengths and limitations

This paper addresses a topic for which no published reviews currently exist. It was led by a team of female health professionals who work in aspects of women's health bringing a background of expertise to the topic of interest. The review did not aim to synthesise the data. Given the variety of sources identified, the topics and populations

investigated, and knowledge assessment tools used, a synthesis of data pertaining to SRH knowledge would have been extremely difficult to achieve. Data synthesis is also outside of the objective of a scoping review. SRH topics related to pregnancy, labour and birth were excluded. The authors consider this strengthens the review allowing for targeted insight into key issues relating to women's health identified as national priorities. The authors did not engage consumer input for this review. Sources were limited to those exploring the SRH of women in Australia. Readers seeking to translate results to international contexts should consider population comparability and income economic status to appraise the transferability of the findings.

## 5 | CONCLUSION

This scoping review included 85 sources for which the SRH knowledge of women in Australia was reported on between 2012 and 2022. The review identifies topics, populations groups and gaps in assessment of SRH knowledge of women in Australia. The measurement of women's SRH knowledge is largely conducted using unvalidated tools focusing on specific topics. It is recommended a validated tool be developed to comprehensively assess the SRH knowledge of women in Australia allowing for intersectional population analysis and exploration of knowledge conceptualisation. This would enable assessment of interventions aiming to improve SRH knowledge thereby facilitating improved health literacy and outcomes.

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No potential conflict of interest was reported by the authors.

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