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Review

Review

Integrating sexual and reproductive health into pre-travel consultations

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Abstract

Background: Casual sex during travel is a major preventable factor in the global transmission of sexually transmissible infections (STI). Pre-travel consults present an excellent opportunity for practitioners to educate travellers about sexual and reproductive health (SRH) and safety. This scoping review aims to explore and understand the extent to which SRH is included in pre-travel consultations.

Methods: PubMed, Embase, Cumulative Index to Nursing and Allied Health Literature, Scopus, Medline and Web of Science were systematically searched for primary research articles exploring whether health care practitioners (HCP) included SRH in pre-travel consultations. Extracted findings were synthesized and presented in narrative form.

Results: Findings across 13 articles suggest HCPs infrequently broached SRH in pre-travel consultations with HCP discomfort, and lack of time and resources presented as key barriers. Urban practice settings, HCP experience, training in travel medicine and traveller characteristics such as sexual orientation were positively associated with discussions about SRH. SRH advice reported was general in nature, primarily focusing on safer sex, condoms or unspecified STI advice. Risk assessments based solely on age or stereotypes around sexual preferences led to key aspects of SRH care being missed for some (e.g. SRH was less likely to be discussed with older travellers).

Conclusions: HCPs frequently miss opportunities to integrate SRH into pre-travel consultations. Strategies to promote HCP confidence and awareness present a promising means to boost the frequency and quality of SRH advice disseminated. Integrating culturally safe and responsive SRH history-taking and advice into pre-travel consultations may contribute to global reductions in STI transmission and promote traveller SRH well-being.

Key words: Travel, sexual health, review, provider, reproductive health

Introduction

International travel has become increasingly accessible over the last few decades. This surge in movement between countries has contributed to accelerating the global transmission of human immunodeficiency virus (HIV) and other sexually transmissible infections (STI), along with other blood-borne viruses (BBV) and a range of other infectious diseases.[1–3] Understandably, travel medicine consultations predominantly focus on more prominent threats to the traveller's well-being such as malaria and diarrhoea.[4] However, it is essential to advance our knowledge and integration of STIs and BBVs given their global rise.[5] For example, as many as a third of newly diagnosed HIV infections amongst Swiss citizens in 2018 were acquired abroad[6] and 25.5% of cases of gonorrhoea diagnosed in Nordic countries between 2008 and 2013 were associated with travel.[7] One review published in 2006 reported that 10–50% of STI diagnoses in low and middle-income countries had foreign sexual contact as their only risk factor.[2] More recently, multi-country outbreaks of Zika virus[8] and Mpox[9] via sexual transmission amongst travellers have triggered global concern.

Casual sex (sexual contact outside of a romantic or dating relationship)[10] whilst travelling is a major factor in the global transmission of STIs. Three studies have found a 3-fold increase in the likelihood of acquiring an STI associated with casual sex whilst travelling abroad, compared with casual sex in one's home country.[11–13] A systematic review provided evidence that an estimated 20.4% of travellers engaged in travel-associated casual sex, with 49.4% of these casual sexual encounters being unprotected.[14] One reason for an increased likelihood of casual sex occurring amongst travellers may be situational disinhibition, whereby travellers engage in different sexual behaviours than they would at home.[15,16] Consequently, this link between international travel and casual sex combined with the asymptomatic nature of many STIs and their high prevalence in many popular travel destinations may compound the risk of STI acquisition whilst travelling.[17,18]

Another concern linked to travel and the increased rate of STI transmission is the increasing global rates of antimicrobial resistance (AMR).[19,20] International travel has been suggested as driving the spread of drug resistance to multiple first and second-line antibiotic treatments, as has been reported in many common STIs (e.g. *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Mycoplasma genitalium*, *Trichomoniasis*, and Syphilis).[20] The World Health Organization stresses that even if new antibiotics are developed, without concurrent infection prevention strategies, antibiotic resistance will remain a threat to human health.[21,22] Thus, a vital part of AMR prevention is not only increased access to preventative measures but also increased awareness and education regarding sexual and reproductive safety whilst travelling.

There is mixed evidence for the role that integrating sexual and reproductive health (SRH) into pre-travel consultations can have on protective health behaviours (i.e. engaging in safer sex).[23,24] However, the comprehensive integration of SRH into consultations is undoubtedly a positive public health strategy. Understanding the extent to which SRH advice is integrated into travel consultations and the specific content included is needed to inform how SRH can be best integrated into routine clinical practice. This scoping review aimed to synthesize the current literature on how frequently SRH advice has been integrated into pre-travel consultations, what type of content is explored and to highlight barriers and enablers to the incorporation of this aspect of health advice into pre-travel consultation.

Methods

Reporting and registration

Given the anticipated heterogeneity and breadth of questions, a scoping review was determined to be the best review approach. This scoping review followed the PRISMA for Scoping Reviews guidelines (see Supplementary Materials for completed table)[25] and was pre-registered with PROSPERO (CRD42022352083).

Primary and secondary outcomes

The primary outcome measure of the review was the proportion and frequency of inclusion of SRH advice (e.g. general STI education, condom use advice, sexual history-taking) in travel medicine consults. Advice could be verbal, as well as the dissemination of physical resources and online links to resources. The secondary outcomes of interest were (i) the SRH content disseminated by health care practitioners (HCPs) during pre-travel consultations (e.g. focus on STIs, HIV and other BBVs, safer sex practices) and (ii) the barriers and facilitators to HCPs integrating sexual health into travel medicine consultations.

Search strategy

Six databases [PubMed, Embase, Cumulative Index to Nursing and Allied Health Literature, Scopus, Medline and Web of Science] were searched in September 2022 for this review. Initially, Google Scholar was used to identify relevant papers, and the titles and abstracts of these were used to inform search terms used for the systematic search. The search strategy was devised by four members of the research team (C.S., J.M., J.A.F., J.A.D.) in collaboration with a university librarian and contained strings of terms relating to (i) healthcare professionals, (ii) sexual health, (iii) travel medicine, (see Appendix 1 for full strategy). Reference lists of included studies were also reviewed.

Inclusion/exclusion criteria

Pre-travel SRH advice was defined as any intervention delivered in a healthcare setting by an HCP to provide education, resources (e.g. condoms, contraception) or pharmacological prophylaxis [e.g. pre-exposure prophylaxis (PrEP)] to prevent negative health outcomes and promote traveller health whilst away from home. All primary research that reported on whether HCPs provided SRH advice in pre-travel consults was eligible for inclusion. Papers could include any epidemiological study design if full-text was available. Articles were excluded if they did not have results relevant to SRH or were not available in English. Articles that focused only on traveller experiences during the consultation and or their behaviours whilst travelling were excluded.

Article selection process

Database searches were conducted with duplicates removed. Title/abstract and full-text screens were conducted by two

authors (J.M. and C.S.). Finally, the reference lists of selected papers were screened for identification of further relevant papers. More details regarding the selection process may be found in Appendix 2.

Data extraction and analysis

Data were extracted by C.S. into Microsoft Excel, and three studies were cross-referenced by J.A.F. (23% of the total yield) to monitor reliability. C.S. and J.A.F. agreed fully on the three-sample data extractions. Extraction focused on study characteristics and variables that aligned with the research aims. The data and all outcomes extracted from the included studies were compiled and synthesized to summarize and explain the findings as relevant to specified research questions, with this analysis presented in narrative form.[26] Given the nature of the scoping review and the heterogeneity amongst data outcomes, meta-analyses were not conducted.

Results

Overview of studies

The search strategies yielded 2786 unique articles for title and abstract screening. Of the 53 eligible for full-text screening, 10 articles met inclusion/exclusion criteria for data extraction and three additional eligible studies were identified by reference list searching.[27–39] Figure 1 provides a summary of the study selection process.

A summary of all studies is presented in Table 1. The included articles were published from 1994 to 2022 with seven studies published before 2010.[28,30–33,35,39] Four studies were conducted in North America,[27,28,35,38] four in Europe,[30,31,36,39] three in Australia,[29,32,33] one in the Middle East[37] and one in Asia.[34] One study had a global sample by studying members of the International Society of Travel Medicine.[35]

Twelve of the 13 studies were quantitative, whereas one was qualitative.[27] Of the quantitative studies, 11 were cross-sectional[28–36,38,39] and one was a single-arm intervention evaluation (before-and-after).[37] Data were collected using a variety of strategies, and a range of multidisciplinary travel medicine providers were involved, with physicians the key HCPs in 12 of 13 studies.[27–33,35–39]

Content covered in consultations

There was variability in the content of information included during pre-travel consultations. Most papers reported on SRH advice related to safer sex, condom use and non-specified STI advice (e.g. where 'Type of travel advice' was reported as 'STI'[37]).[28,31,32,34–39] STIs were 'always' discussed in 19.7–30.3% of cases, and unsafe sex in 11.8–22.9% of cases.[32,37] One study reported that 43% of respondents provided counselling regarding STI prevention.[31] One study reported the frequency of discussions around the modes of transmission of hepatitis A–C as well as HIV in consultations and found them to be 73, 41, 24 and 37%, respectively.[29] One study emphasized casual sex whilst travelling and broader content such as harassment and assault.[27] Overall, the content included only focused on the prevention of STIs.

Frequency of SRH inclusion in consultations

Overall, the studies identified showed considerable heterogeneity in the inclusion of SRH content in travel medicine consultations. Rates varied between 8.3 and 84.1%,[34,38,39] although rates of inclusion were scarcely reported as a percentage. When using a Likert scale, the inclusion of SRH topics in consultations, as reported by HCPs, ranged from 19.7% of respondents 'always' providing relevant information[37] to 76% 'usually' providing advice.[35] One study noted that HCPs in Ottawa had 'rarely discussed [STBBIs]. It's really only an overview'.[27]

Some studies reported on the hypothetical inclusion of some SRH topics based on case scenarios. One study surveying primary care physicians in France presented HCPs with three scenarios: (i) a pregnant woman visiting an all-inclusive resort in Senegal for a week, (ii) a 75-year-old diabetic travelling for 3 weeks in Thailand and (iii) a 25-year-old man going on a 1-month trip to Peru.[36] Participants were least likely to recommend condom usage and vaccination for hepatitis A and B for scenario 1, despite hepatitis vaccination being safe in pregnancy[40] (26, 32, 28%), compared with scenario 2 (33, 72, 69%), and were most likely to recommend it for scenario 3 (77, 91, 92%). A survey of general practitioners in Australia identified that 30% of practitioners were 'very likely' to conduct a sexual health history for a 45-year-old person presenting for vaccinations before travelling to Bali.[33] A North American survey of travel health clinic doctors and nurses before the availability of antiretroviral therapy reported that 6% of participants recommended counselling on safer sex for a single female traveller compared with 25% for a single gay male traveller.[28]

Barriers and predictors of SRH inclusion in travel consultations

HCP factors. Findings from interviews of HCPs in Ottawa, Canada, noted barriers such as finding it difficult to discuss safer sex with travellers, not feeling it is the responsibility of the travel clinic, time limits, lack of suitable resources (including limited sexual health training) and perceptions that sexual health behaviours are private.[27] Individual HCP factors also influenced their propensity to include SRH in travel medicine consultations.[31] Specifically, training in travel medicine (OR 1.9, CI 1.5–2.5), use of information systems (OR 1.7, CI 1.1–2.7), geographical location (e.g. West vs East Germany) (OR 1.5, CI 1.0–2.1), practising in an urban clinic (OR 1.7, CI 1.2–2.5) and specializing in general practice rather than internal medicine (OR 1.9, CI 1.4–2.5) were factors associated with increased SRH advice in consults. In one instance, however, researchers identified no specific demographic variables of practitioners that predicted the correct provision of HIV-related information in response to hypothetical scenarios presented as part of their study.[30] Another study using hypothetical scenarios showed that male and female GPs were equally likely to conduct an SRH history with travellers to Bali.[33]

Traveller factors. Whilst sociodemographic features of travellers were not thoroughly explored, one study demonstrated SRH counselling was included at significantly higher rates for travellers identified as men who have sex with men than female travellers.[28] Synthesis of the results from this paper suggested that

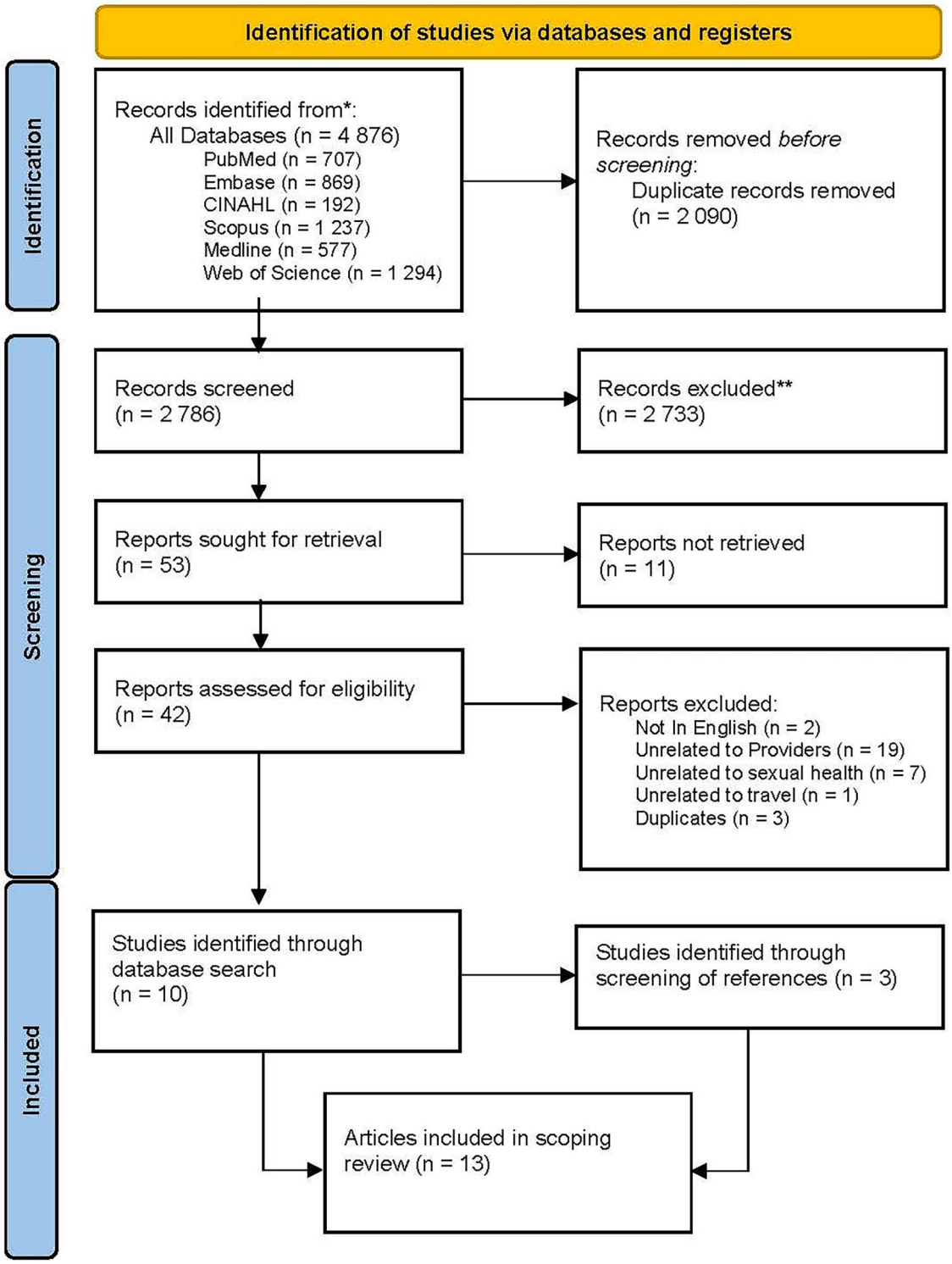

Figure 1 Overview of the study selection process

practice setting, experience and travellers' characteristics (e.g. sexual preferences) appeared to be important predictors of SRH inclusion.

Discussion

This scoping review assessed the frequency of SRH inclusion in pre-travel consultations, topics discussed (e.g. condom usage, contraception and STI/BBVs), and barriers and facilitators to including SRH in pre-travel consultations. Findings suggest that despite the well-documented links between international travel and STI acquisition,[1–3] there was little consistency in the frequency and quality of pre-travel SRH advice delivered by HCPs to travellers.

This review identified that HCPs inconsistently broached SRH topics in pre-travel consultations. Additionally, our

Table 1 Overview of the included studies

Author	Country	Data	Sample Size	Provider type	Outcomes
Gareau 2022	Canada	Interview	13 (Providers)	Public health nurses, physicians and non-clinical administrators	(i) Respondents use risk-assessment approaches and/or practical or purpose driven interventions but describe little emphasis on sexual health, on reminders of possible harassment and assault and on no-sex policies. (ii) Respondents noted challenges such as limited time for discussion, lack of suitable resources and perceptions that sexual behaviours of adverse travellers are private.
Keystone 1994	USA and Canada	Survey	175 (Providers)	Nurses and physicians	Recommendations given by only 6% of respondents for single female travellers in scenarios 1 and 3 vs to 25% of respondents to a male homosexual traveller in scenario 2 ($p < 0.01$).
McGuinness 2015	Australia	Survey	18 (Providers)	Infectious disease physicians and registrars (trainee doctors)	Transmission of hepatitis A, B, C and HIV discussed 73, 41, 24 and 37% of the time, respectively.
Porter 2004	UK	Survey	154 (Providers)	General practitioners, practice nurses, occupational health nurses, occupational health physicians	An average score of 6.8/18 (37.7%) accuracy of HIV advice given in response to questionnaires including hypothetical scenarios
Ropers 2004	Germany	Survey	1320 (Providers)	Primary care physicians	SRH discussed 43% of the time; differences in advice associated with training in travel medicine, use of information systems, geographic areas (West vs East Germany), practice areas (urban vs rural) and specialty (general practice vs internal medicine)
Seelan 2003	Australia	Survey	213 (Providers)	General practitioners	(i) Frequency of STI discussion during consultations: always (30.3%), mostly (32.3%), sometimes (29.9%), never (7.0%), not sure (0.5%). (ii) Frequency of unsafe sex discussions during consultations: always (22.9%), mostly (21.9%), sometimes (42.3%), never (12.9%), not sure (−)
Temple-Smith 1999	Australia	Survey	444 (Providers)	General practitioners	(i) Frequency of taking sexual history in patient with recent overseas travel: very common (50%), medium (32%), not common (18%); (ii) percent "very likely" to take sexual history for a pre-travel consultation for Bali: 30% (M), 31%(F)
Yamamoto 2022	Japan	Medical Records	9700 (Records)	Unspecified	809 (8.3%) of clients were given advice on risks and prevention of STDs based on region of travel
Hill 1996	Global	Survey	341 (Providers)	Nurse, physicians, others (unspecified)	SRH advice given during consult (i) usually (76%), sometimes (23%); (ii) advice in written form (61%) vs advice audio-verbally (18%)
Piotte 2013	France	Survey	150 (Providers)	Primary care physicians	Likelihood of SRH advice provided in three hypothetical scenarios: case 1 (26%), case 2 (33%), case 3 (77%)
Al-Hajri 2011	Qatar	Intervention	76 (Providers)	Primary care physicians	SRH advice given during consults: (i) STIs: always (19.7%), mostly (14.5%), sometimes (22.4%), never (14.5%), not sure (28.9%); (ii) unsafe sex: always (11.8%), mostly (22.4%), sometimes (21.1%), never (19.7%), unsure (25%)
Hamer 2017	USA	Medical Records	15 440 (Records)	Nurses, nurse practitioners and physicians	Proportion of records at each site with evidence of SRH advice given during consults: Site 1: N/A; Site 2: 54.4% (1151/2116); Site 3: 12.8% (179/1396); Site 4: 84.1% (5595/6655); Site 5: 68.2% (1048/1537); Total: 68.1% (7973/11 704)
Burnett 2005	Scotland	Medical Records	496 (Records)	Nurses and unspecified physicians	18% patents received information on STIs

knowledge of what specifically was discussed is limited as this was poorly described in the studies. For example, the majority of papers solely described the information covered as STI advice or 'STI prevention'.[30–32,34,35,37–39] A widely variable frequency and poorly described SRH content are concerning given the high incidence of unprotected casual sex amongst travellers,[14,22] its associated risk of STI/HIV transmission and acquisition[11–13] and mounting concerns over global antibiotic resistance.[21,22] More thoroughly described studies are necessary to improve our understanding of the content and quality of SRH information disseminated during pre-travel consultations. Furthermore, a more thorough analysis of participant sociodemographic factors would clarify whether the inconsistency in inclusion of SRH in different consults is explained by different traveller risk stratifications by practitioners because of the personalized nature of this health advice.

Increased dissemination of SRH advice alone may not substantially change behaviours or reduce the risk of negative SRH outcomes,[23] especially if advice is not comprehensive and aligned with the nuanced and culturally responsive needs and behaviours of the traveller.[41] For example, two of the included papers[27,34,38] were conducted after the availability of HIV PrEP, and though one mentions HIV[27], there was a noted lack of information provided about this effective biomedical HIV prevention strategy (e.g. whether it was discussed with travellers or recommended).[42,43] This is despite the researchers emphasizing that HIV and STI prevention amongst travellers is essential.

The provision of emergency contraception and other ongoing contraceptive options is also merited, given the unreliable access to such medications overseas because of differing brand names, language barriers and cultural taboos around the use of contraception.[44] Inadequate supply to cover the length of travel and lack of knowledge about how to adjust contraceptive pill schedules to a destination's time zone has been shown to disrupt adherence to contraception and merit inclusion in pre-travel consultations.[44] All women and men of reproductive age should be advised to take supplies of prophylactic and emergency contraception to cover the length of their trip. Travellers taking the oral contraceptive pill should be educated on how to adjust their contraceptive pill schedule, the decreased efficacy of their contraception in the presence of diarrhoea, vomiting or certain antibiotics (e.g. doxycycline used for malaria chemoprophylaxis) and precautions to be taken on long-haul flights to reduce risk of venous thromboembolic events.[45] Given that cross-sectional surveys in Europe demonstrate an 8.6% incidence of unwanted sexual encounters during overseas holidays, with damaging impacts such as unwanted pregnancy,[46–48] contraception counselling should be a vital component of SRH counselling.

Ultimately, the included studies predominantly focused on optimizing health outcomes by reducing the risk of STIs through education and the provision of specific barrier methods, i.e. condoms. Given travel medicine's focus on disease prevention[49] (reflected in multiple guidelines on providing SRH to travellers[50,51]), it may be important to consider additional information that a traveller may need. For example, comprehensive SRH may involve information on the safety of sexuality expression in certain travel destinations to avoid discrimination. The pragmatics of this falls outside the scope of this review and travel medicine consultations; however, the literature suggests that many factors determine where travellers go, including a destination's sociocultural safety.[52] This review highlights a knowledge gap in risk assessment and comprehensive delivery of advice. Addressing this is essential so that individuals have access to appropriate information to make informed choices when considering their travel destinations and sexual behaviours.

In light of these considerations, it is also important to explore ways to facilitate purposeful conversations around SRH in travel medicine consultations. Research has identified that HCPs in primary care settings may, at times, avoid discussing SRH.[53,54] Yet, these conversations can enhance agency and health literacy, particularly amongst priority sub-groups who are known to experience barriers accessing information and discussing SRH (e.g. migrants and international students).[55–58] Travellers may not be comfortable initiating discussions with HCPs regarding SRH topics, whereas HCPs may be waiting for the traveller to initiate these discussions[41] or be reluctant to broach them, potentially because of discriminatory and stigmatizing attitudes and practices.[59] Consequently, this can place responsibility on travellers to disclose their sexual intentions, which could be a barrier to receiving the SRH advice they need. Raising awareness of STIs through thorough risk assessments is, at times, difficult; however, our review, in line with previous research, suggests that it should be considered important in the travel medicine context.[50] One-size-fits-all risk assessments in travel medicine are, however, no longer appropriate.[60] Therefore, practitioners need to consider how best to integrate SRH history into pre-travel consultations to formulate personalized risk assessments and deliver optimal support responsive to the needs of individual travellers. This includes understanding the purpose of travel and exploring, if any, potential sexual behaviours travellers may be interested in whilst travelling.

When a personalized risk assessment was done, it seemed that HCPs tended to rely on demographics such as age as indicators in risk assessment. For example, a young solo traveller was more likely to be identified as a higher-risk person necessitating SRH inclusion in consultations when compared with a 75-year-old male or pregnant individual.[36] Even though younger travellers may be a population more associated with STI acquisition, relying solely on age as a guiding factor may potentially miss other 'at-risk' travellers, considering the increasing STI prevalence and poorer STI knowledge amongst older age groups.[61,62] Furthermore, STI acquisition during travel in pregnant women can lead to deleterious effects since untreated STIs can have serious health outcomes for the unborn child.[63] In studies conducted before the availability of effective antiretroviral therapy for HIV, there may have also been greater emphasis on SRH delivery to specific demographic groups. Overall, routine age- or demographic-based screening can act as a useful tool[64]; however, if history-taking/risk assessments are not conducted properly, there is potential for misidentification of risk, stigmatizing of travellers and missed opportunities for practitioners to optimize individual and community health outcomes. An intervention to prevent this misidentification may involve the incorporation of relevant questions into screening questionnaires often given to patients in travel clinics before seeing the HCP, thus allowing for these responses to prompt further discussion during the appointment.

We identified a range of barriers to including SRH content during pre-travel consultations. These included personal

perceptions/misconceptions of risk associated with sexual behaviour and travel, HCPs feeling ill-informed regarding SRH, not wanting to offend travellers and low perceived responsibility.[27] Logistical barriers such as time restraints leading to de-prioritization of diseases perceived as less common and lack of educational resources were also identified.[27] Geographic factors, such as practice settings, can also be influential.[31] These indicate that barriers exist across multiple socioecological levels and concerted efforts to address these intersecting personal, HCP and system-level factors are needed.[65]

Our findings reaffirmed the need for adequate training in SRH.[31] Potential efforts to address these barriers may include advocating for greater funding and opportunities to provide regular education regarding SRH. To reduce HCP concerns about having difficult conversations (i.e. 'talking sex'), offering information leaflets directly to travellers is a viable alternative.[66] Access to information systems such as electronic medical records and health information exchange software that reduce time constraints and streamline comprehensive care may also assist in alleviating system-level barriers to the dissemination of SRH in consultations.[67] More research is needed to quantify how accurate and comprehensive current SRH advice is, how it can be incorporated into clinical practice in the diverse range of settings where travel medicine is conducted and what impact it has on traveller SRH.

Seven studies were published before 2010, which may not reflect more contemporary attitudes towards SRH in travel medicine consultations and current STI and AMR prevalence. This presented a limitation to the quality of critical analysis we could carry out. Furthermore, the heterogeneity of rates of SRH inclusion in pre-travel consults made it difficult to synthesise outcomes in a meaningful way to provide assertive statements regarding the inclusion of SRH in travel contexts. Additionally, the advice provided to travellers in several studies was poorly documented and only defined as STI advice without specific context or definitions. Therefore, we advocate for increased research within this area to help alleviate knowledge gaps identified within this review.

Strengths and limitations

A strength of this review is the inclusion of studies from a range of countries, providing a more nuanced understanding of SRH inclusion and integration across multiple sociocultural and health system contexts. However, the cultural beliefs and taboos surrounding SRH in the countries in which this primary research was carried out were not explored. These broader sociocultural beliefs may contribute to the variable rates of SRH inclusion in pre-travel consults across the included studies. Our broad search terms allowed for the identification of a range of travel consultation contexts, including specialized travel clinics and primary care. However, a limitation of this review pertains to the inclusion criteria specifying that articles reporting on whether HCPs provided SRH advice in pre-travel consults were eligible for inclusion. This focus on the perspectives of HCPs may have resulted in physicians being key participants in 12 of 13 studies and overlooked papers with traveller-reported data on the inclusion of sexual health advice in travel consults, representing a further target for future research. This also introduces publication bias with regard to the publications included, as there was a paucity of traveller-reported data published. A final limitation is that our findings are limited by the highly variable levels of reporting of the frequency and content of SRH information discussed within travel consultations.

Conclusion

Pre-travel consultations present a significant opportunity to provide comprehensive SRH advice and healthcare. This scoping review fills a vast knowledge gap, and is the first to our knowledge to synthesize the current paucity of research around the clinical practice of pre-travel SRH counselling. The findings of this review suggest SRH content is infrequently included and, when offered, is broad in nature and not always adequately responsive to the nuanced needs and risks of the individual traveller. Various factors were identified as barriers to providing SRH content, including traveller characteristics and HCP preference, as well as broader systemic and sociocultural factors. Increased SRH knowledge and pragmatic advice on having potentially difficult conversations for HCP are starting points. Future research and clinical practice guidelines need to consider how culturally safe and responsive SRH advice and history-taking can be integrated into pre-travel consultations. This concerted effort will contribute to global reductions in STI/BBV transmission and improvements in SRH well-being amongst travellers.

Supplementary data

Supplementary data are available at *JTM* online.

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Author contributions

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[equal], Approval manuscript [equal]), Jo Durham (Writing—review & editing [equal], Approval manuscript [equal]), Amy B. Mullens (Writing—review & editing [equal], Approval manuscript [equal]), Satrio N. Istiko (Writing—review & editing [equal], Approval manuscript [equal]), and Judith A. Dean (Conceptualization [equal], Methodology [equal], Formal analysis [supporting], Supervision [lead], Writing—review & editing [equal], Approval manuscript [equal])

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Data availability

Primary data from this study is available from authors on reasonable request.

References

1. Deane KD, Parkhurst JO, Johnston D. Linking migration, mobility and HIV. *Trop Med Int Health* 2010; **15**:1458–63.
2. Ward BJ, Plourde P. Travel and sexually transmitted infections. *J Travel Med* 2006; **13**:300–17.
3. Rogstad KE. Sexually transmitted infections and travel. *Curr Opin Infect Dis* 2019; **32**:56–62.
4. Steffen R, deBernardis C, Baños A. Travel epidemiology–a global perspective. *Int J Antimicrob Agents* 2003; **21**:89–95.
5. National Academies of Sciences E, Medicine, Health *et al*. Washington (DC). In: Crowley JS, Geller AB, Vermund SH (eds). *Sexually Transmitted Infections: Adopting a Sexual Health Paradigm*. National Academies Press (US) Copyright 2021 by the National Academy of Sciences. All rights reserved, 2021.
6. Boillat-Blanco N, Cavassini M, Genton B. Travelers' exposure to HIV and HIV-infected travelers. *Rev Med Suisse* 2018; **14**:918–21.
7. Beauté J, Cowan S, Hiltunen-Back E, Kløvstad H, Velicko I, Spiteri G. Travel-associated gonorrhoea in four Nordic countries, 2008 to 2013. *Euro Surveill* 2017; **22**:30537. https://doi.org/10.2807/1560-7917.Es.2017.22.20.30537.
8. Osman S, Preet R. Dengue, chikungunya and Zika in GeoSentinel surveillance of international travellers: a literature review from 1995 to 2020. *J Travel Med* 2020; **27**:taaa222. https://doi.org/10.1093/jtm/taaa222.
9. Kinoshita R, Sassa M, Otake Set al. Impact of airline network on the global importation risk of Mpox, 2022. *Epidemiol Infect* 2023; **151**:e60–27.
10. Dubé S, Lavoie F, Blais M, Hébert M. Consequences of casual sex relationships and experiences on adolescents' psychological well-being: a prospective study. *J Sex Res* 2017; **54**:1006–17.
11. Mårdh PA, Arvidson M, Hellberg D. Sexually transmitted diseases and reproductive history in women with experience of casual travel sex abroad. *J Travel Med* 1996; **3**:138–42.
12. Bavastrelli M, Midulla M, Rossi D *et al*. Sexually active adolescents and young adults: a high-risk group for chlamydia trachomatis infection. *J Travel Med* 1998; **5**:57–60.
13. Mercer CH, Fenton KA, Wellings K, Copas AJ, Erens B, Johnson AM. Sex partner acquisition while overseas: results from a British national probability survey. *Sex Transm Infect* 2007; **83**:517–22.
14. Vivancos R, Abubakar I, Hunter PR. Foreign travel, casual sex, and sexually transmitted infections: systematic review and meta-analysis. *Int J Infect Dis* 2010; **14**:e842–51.
15. Apostolopoulos Y, Sönmez S, Yu CH. HIV-risk behaviours of American spring break vacationers: a case of situational disinhibition? *Int J STD AIDS* 2002; **13**:733–43.
16. Eiser JR, Ford N. Sexual relationships on holiday: a case of situational disinhibition? *J Soc Pers Relat* 1995; **12**:323–39.
17. Tanton C, Johnson AM, Macdowall W *et al*. Forming new sex partnerships while overseas: findings from the third British national survey of sexual attitudes & lifestyles (natsal-3). *Sex Transm Infect* 2016; **92**:415–23.
18. Romanowski B. 'Imported' sexually transmitted diseases. *Can Fam Physician* 1990; **36**:1311–4.
19. Silverberg B, Moyers A, Hinkle T, Kessler R, Russell NG. 2021 CDC update: treatment and complications of sexually transmitted infections (STIS). *Venereology* 2022; **1**:23–46.
20. Tien V, Punjabi C, Holubar MK. Antimicrobial resistance in sexually transmitted infections. *J Travel Med* 2020; **27**:taz101. https://doi.org/10.1093/jtm/taz101.
21. (WHO) WHO. Antibiotic resistance 2020 updated 15 November 2021. https://www.who.int/news-room/fact-sheets/detail/antibiotic-resistance (1 May 2023, date last accesed).
22. Tacconelli E, Carrara E, Savoldi A *et al*. Discovery, research, and development of new antibiotics: the who priority list of antibiotic-resistant bacteria and tuberculosis. *Lancet Infect Dis* 2018; **18**:318–27.
23. Croughs M, Remmen R, Van den Ende J. The effect of pre-travel advice on sexual risk behavior abroad: a systematic review. *J Travel Med* 2014; **21**:45–51.
24. Croughs M, Van Gompel A, Boer E *et al*. Sexual risk behavior of travelers who consulted a pretravel clinic. *J Travel Med* 2008; **15**:6–12.
25. Tricco A, Lillie E, Zarin W *et al*. Prisma extension for scoping reviews (Prisma-SCR): checklist and explanation. *Ann Intern Med* 2018; **169**:467–73.
26. Popay J, Roberts H, Sowden A *et al*. Guidance on the conduct of narrative synthesis in systematic reviews: A product from the esrc methods programme. 2006.
27. Gareau E, Phillips KP. Key informant perspectives on sexual health services for travelling young adults: a qualitative study. *BMC Health Serv Res* 2022; **22**:145.
28. Keystone JS, Dismukes R, Sawyer L, Kozarsky PE. Inadequacies in health recommendations provided for international travelers by North American travel health advisors. *J Travel Med* 1994; **1**:72–8.
29. McGuinness SL, Spelman T, Johnson DF, Leder K. Immediate recall of health issues discussed during a pre-travel consultation. *J Travel Med* 2015; **22**:145–51.
30. Porter JF, Knill-Jones RP. Quality of travel health advice in higher-education establishments in the United Kingdom and its relationship to the demographic background of the provider. *J Travel Med* 2004; **11**:347–53.
31. Ropers G, Krause G, Tiemann F, du Ry van Beest Holle M, Stark K. Nationwide survey of the role of travel medicine in primary care in Germany. *J Travel Med* 2004; **11**:287–94.
32. Thava Seelan S, Leggat PA. Health advice given by general practitioners for travellers from Australia. *Travel Med Infect Dis* 2003; **1**:47–52.
33. Temple-Smith MJ, Mulvey G, Keogh L. Attitudes to taking a sexual history in general practice in Victoria, Australia. *Sex Transm Infect* 1999; **75**:41–4.
34. Yamamoto K, Asai Y, Nakatani I *et al*. Characteristics and potential quality indicators for evaluating pre-travel consultations in Japan hospitals: the Japan pretravel consultation registry (J-PRECOR). *Trop Dis Travel Med Vaccines* 2022; **8**:6.
35. Hill DR, Behrens RH. A survey of travel clinics throughout the world. *J Travel Med* 1996; **3**:46–51.
36. Piotte E, Bellanger AP, Piton G, Millon L, Marguet P. Pre-travel consultation: evaluation of primary care physician practice in the Franche-Comté region. *J Travel Med* 2013; **20**:221–7.

37. Al-Hajri M, Bener A, Balbaid O *et al.* Knowledge and practice of travel medicine among primary health care physicians in Qatar. *Southeast Asian J Trop Med Public Health* 2011; **42**:1546–52.
38. Hamer DH, MacLeod WB, Chen LH *et al.* Pretravel health preparation of international travelers: results from the Boston area travel medicine network. *Mayo Clin Proc Innov Qual Outcomes* 2017; **1**:78–90.
39. Burnett JC, Buchan F, Mackenzie AR. Review of 1 year's activity in the Grampian travel clinic: the importance of the oil industry. *J Travel Med* 2005; **12**:122–6.
40. General recommendations on immunization — recommendations of the advisory committee on immunization practices (ACIP). *MMWR Recomm Rep* 2011; **60**:1–64.
41. Mullens AB, Kelly J, Debattista J, Phillips TM, Gu Z, Siggins F. Exploring HIV risks, testing and prevention among Sub-Saharan African community members in Australia. *Int J Equity Health* 2018; **17**:62.
42. Anderson PL, Glidden DV, Liu A *et al.* Emtricitabine-Tenofovir concentrations and pre-exposure prophylaxis efficacy in men who have sex with men. *Sci Transl Med* 2012; **4**:151ra25.
43. Brett-Major DM, Scott PT, Crowell TA *et al.* Are you pepped and prepped for travel? Risk mitigation of HIV infection for travelers. *Trop Dis Travel Med Vaccines* 2016; **2**:25.
44. Martins SL, Hellerstedt WL, Bowman SB, Brady SS, Mason SM. International travel as a context for sexual and contraceptive behaviors: a qualitative study of young women traveling outside the U.S. *Arch Sex Behav* 2020; **49**:1039–52.
45. Yung A, Leder K, Torresi J *et al. Manual of Travel Medicine*, 3rd edn. IP Communications, Melbourne, Australia. 2011.
46. Kennedy KM, Flaherty GT. The risk of sexual assault and rape during international travel: implications for the practice of travel medicine. *J Travel Med* 2015; **22**:282–4.
47. Calafat A, Hughes K, Blay N *et al.* Sexual harassment among young tourists visiting Mediterranean resorts. *Arch Sex Behav* 2013; **42**:603–13.
48. Borwein ST. Contraception in female travellers: challenges and solutions. *J Travel Med* 2019; **26**:taz071. https://doi.org/10.1093/jtm/taz071.
49. Aw B, Boraston S, Botten D *et al.* Travel medicine: What's involved? When to refer? *Can Fam Physician* 2014; **60**:1091–103.
50. Herman J, Patel D. Advising the traveller. *Medicine (Abingdon)* 2018; **46**:59–65.
51. Cornelisse VJ, Wright EJ, Fairley CK, McGuinness SL. Sexual safety and HIV prevention in travel medicine: practical considerations and new approaches. *Travel Med Infect Dis* 2019; **28**:68–73.
52. Karl M, Muskat B, Ritchie BW. Which travel risks are more salient for destination choice? An examination of the tourist's decision-making process. *J Dest Mark Manage* 2020; **18**:100487.
53. Warzywoda S, Fowler JA, Nourse C *et al.* Syphilis in pregnancy: a qualitative investigation of healthcare provider perspectives on barriers to syphilis screening during pregnancy in south-East Queensland. *Sex Health* 2023; **20**:330–8.
54. Smith AKJ, Holt M, Haire B, Newman CE. Issues associated with prescribing HIV pre-exposure prophylaxis for HIV anxiety: a qualitative analysis of Australian providers' views. *J Assoc Nurses AIDS Care* 2021; **32**:94–104.
55. Engstrom T, Waller M, Mullens AB *et al.* STI and HIV knowledge and testing: a comparison of domestic Australian-born, domestic overseas-born and international university students in Australia. *Sex Health* 2021; **18**:346–8.
56. Engstrom T, Waller M, Mullens AB *et al.* STI and HIV testing: examining factors that influence uptake among domestic Australian-born, domestic overseas-born and international tertiary students studying in Australia. *BMC Public Health* 2023; **23**:505.
57. Mundie A, Lazarou M, Mullens AB, Gu Z, Dean JA. Sexual and reproductive health knowledge, attitudes and behaviours of Chinese international students studying abroad (in Australia, the UK and the US): a scoping review. *Sex Health* 2021; **18**:294–302.
58. Vujcich D, Reid A, Brown G *et al.* HIV-related knowledge and practices among Asian and African migrants living in Australia: results from a cross-sectional survey and qualitative study. *Int J Environ Res Public Health* 2023; **20**:4347. https://doi.org/10.3390/ijerph20054347.
59. Kaladharan S, Daken K, Mullens AB, Durham J. Tools to measure HIV knowledge, attitudes & practices (KAPs) in healthcare providers: a systematic review. *AIDS Care* 2021; **33**:1500–6.
60. Flaherty GT. One size does not fit all: towards personalized risk assessment in travel medicine. *J Travel Med* 2018; **25**:tay076. https://doi.org/10.1093/jtm/tay076.
61. Smith ML, Bergeron CD, Goltz HH, Coffey T, Boolani A. Sexually transmitted infection knowledge among older adults: psychometrics and test-retest reliability. *Int J Environ Res Public Health* 2020; **17**:2462. https://doi.org/10.3390/ijerph17072462.
62. Crawford G, Lobo R, Brown G, Macri C, Smith H, Maycock B. HIV, other blood-borne viruses and sexually transmitted infections amongst expatriates and travellers to low- and middle-income countries: a systematic review. *Int J Environ Res Public Health* 2016; **13**:1249. https://doi.org/10.3390/ijerph13121249.
63. Mullick S, Watson-Jones D, Beksinska M, Mabey D. Sexually transmitted infections in pregnancy: prevalence, impact on pregnancy outcomes, and approach to treatment in developing countries. *Sex Transm Infect* 2005; **81**:294–302.
64. Iragorri N, Spackman E. Assessing the value of screening tools: reviewing the challenges and opportunities of cost-effectiveness analysis. *Public Health Rev* 2018; **39**:17.
65. Kilanowski JF. Breadth of the socio-ecological model. *J Agromedicine* 2017; **22**:295–7.
66. Gott M, Galena E, Hinchliff S, Elford H. "Opening a can of worms": GP and practice nurse barriers to talking about sexual health in primary care. *Fam Pract* 2004; **21**:528–36.
67. Snyder CF, Wu AW, Miller RS, Jensen RE, Bantug ET, Wolff AC. The role of informatics in promoting patient-centered care. *Cancer J* 2011; **17**:211–8.

Appendix 1—Search strategy

Block 1: Health care practitioner terms
Practitioner*, GPs, PCP*, Nurse*, Clinician*, Doctor*, Physician*, Provider*, Consult*, Advice*

Block 2: Sexual health terms
Contracept*, Condom*, HIV, Human immunodeficiency virus, Acquired immune deficiency syndrome, AIDS, STI, Sexually transmitted, STD, Sexual health, Reproductive health, Safe sex, Intercourse, Prostit*, sexual partners, sexually transmissible disease*, sexually transmissible, Venereal, sexual risk, sexual behav*, sex work*, sex holiday, PreP, Pre-exposure prophyla*, PeP, Post exposure prophyla*, sexuality, Recreational sex, Spontaneous sex, Unprotected sex, Casual sex

Block 3: Travel medicine terms
Travel clinic*, Overseas travel*, Traveller*, Traveler*, Travelling, Occupational travel*, Corporate travel*, Vacation*, touris*, Backpack*, Pre-travel, Holiday, expat*, Aid-work*, Mining, Abroad, Oversea*

Appendix 2—Selection process

Initial database searches were conducted by C.S. and J.M. Duplicates were removed using EndNote tools and manual inspection. Two researchers (C.S. and J.M.) independently screened the titles and abstracts of one-half of the total yield each. Disparities regarding eligibility by full-text review were discussed between C.S. and J.M. and reconciled in collaboration with J.A.F. and J.AD. Full-text review was conducted by C.S. and J.M. independently, with disagreeme.nts resolved through group deliberation. Lastly, the reference lists of the selected papers were screened for identification of further relevant papers.