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A Thematic Synthesis of the Roles of Nurses at Safer Consumption Sites

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Abstract

Opioid use, particularly via injection, is associated with an increased risk of infection, injury, and death. Safer consumption sites (SCSs), where people may consume previously obtained drugs under observation, have been shown to reduce these risks among people who use drugs. Most SCSs employ nurses, but there is limited research into their roles. The objective of this article is to describe and synthesize the roles of nurses at SCSs to better understand their importance in a rapidly proliferating public health intervention. We extracted data from 48 qualitative, quantitative, peer-reviewed, and gray literature, as well as primary source narrative articles on SCSs, whether they were explicitly about nursing or not. We coded each mention of nurses or nursing in each article and identified 11 descriptive themes or roles that SCS nurses carry out. From these, we identified the following three analytical themes or hypotheses about the character of these roles: (a) The primary aim of SCS nursing care is to reduce morbidity and mortality; (b) SCS nurses create a therapeutic community; and (c) SCS nurses engage in research, professional activities, and activism to better understand and promote SCSs. More research into the roles of SCS nurses is needed to better serve a vulnerable population.

Keywords: Drug Consumption Room, Harm Reduction, Harm Reduction Nursing, Nursing Roles, Safer Consumption Site, Supervised Consumption Site, Supervised Injection Facility

In 2017, drug use worldwide caused an estimated 42 million years of healthy life lost to premature death and disability (United Nations Office on Drugs and Crime, 2019). Globally, over 53 million people in 2017 had used opioids, and in the United States alone, opioid overdoses accounted for 47,000 deaths (United Nations Office on Drugs and Crime, 2019). Those who inject drugs are at an increased risk of infectious disease, injury, and overdose death (Degenhardt et al., 2018; Larney et al., 2017). The rise of synthetic opioids like fentanyl and its analogues has contributed to the overdose crisis worldwide (United Nations Office on Drugs and Crime, 2019). As one way of mitigating the inherent health risks of drug use, safer consumption sites (SCSs) are venues where people who use drugs (PWUD) may consume substances under observation, often by health care professionals. SCSs have been shown to significantly reduce opioid overdose mortality and provide numerous health benefits to people who inject drugs (KPMG, 2010; Marshall et al., 2011; Potier et al., 2014; Salmon et al., 2010). As the potential for more SCSs grows, especially in the United States, we seek to better understand the role of nurses in these venues. To our knowledge, there are few studies on the roles of nurses in SCSs, despite the fact that nurses are present at most SCSs (Woods, 2014) and appear to play a key role in their functioning. The aim of this article is to describe and synthesize the roles of nurses at SCSs as described in the literature.

BACKGROUND

The Open Drug Scene

The open drug scene, where illicit drugs are obtained and/or consumed, tends to be chaotic and dangerous. Often, injection occurs in public (Fairbairn et al., 2008; Small, Moore, Shoveller, Wood, & Kerr, 2012) and is associated with multiple negative consequences including risk of assault and theft (Davidson et al., 2018; DeBeck et al., 2011; McNeil & Small, 2014; Sutter et al., 2019). Reusing and sharing syringes are common (Latkin et al., 1994; McNeil & Small, 2014). Injection is usually rushed to avoid detection, leading to skipped steps and riskier injection practices (McNeil & Small, 2014; Rhodes et al., 2007; W. Small et al., 2007). Requiring assistance with injection (because of disability, lack of knowledge, or challenging site of injection) is prevalent (Cheng et al., 2016; Wood, Spittal, et al., 2003), and those seeking assistance may pay "hit doctors" with money, drugs, or sexual exchange (Fairbairn et al., 2010; Small, Moore, et al., 2012). These PWUD are especially vulnerable to HIV infection (Lappalainen et al., 2015), soft-tissue infection (Lee et al., 2013), overdose, assault, theft (Fairbairn et al., 2010; McNeil, Small, Lampkin, et al., 2014), coercion, and rape (McNeil, Dilley, et al., 2014).

Safer Consumption Sites

SCSs, also known as supervised injection facilities, supervised consumption sites, or drug consumption rooms, are places

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where PWUD may consume preobtained drugs under medical and/or nursing observation. SCSs are based on the principles of harm reduction, which acknowledge two realities: that people are not always ready to stop using drugs and that drug use can cause serious and even fatal harm. Harm reduction offers PWUD tools to promote safety until, if ever, they are ready to quit (Harm Reduction Coalition, n.d.). SCSs have been shown to decrease mortality (Kennedy et al., 2017; Marshall et al., 2011) and overdose rates while increasing safer injection behaviors (Kennedy et al., 2017; Potier et al., 2014) and access to drug treatment (DeBeck et al., 2011; Kennedy et al., 2017; E. Wood et al., 2006). At the same time, they have not been associated with increased rates of addiction exacerbation. Instead, SCSs seem to largely support goals of addiction treatment (Kennedy et al., 2017). Despite millions of supervised injections in SCSs worldwide, there has never been an overdose death reported at an SCS (Kennedy et al., 2017).

The first SCS was opened in Switzerland in 1986. As of 2017, there were more than 100 SCSs worldwide (European Monitoring Centre for Drugs and Drug Addiction, 2017a), including 90 in Europe (European Monitoring Centre for Drugs and Drug Addiction, 2017b), more than 10 in Canada (Government of Canada, 2017), one in Australia (Goodhew et al., 2016), and one unsanctioned SCS in the United States (Kral & Davidson, 2017). More are being considered across the United States (Harm Reduction Coalition, 2018) and Canada (Government of Canada, 2017). Most SCSs allow injection only, although some SCSs in Europe allow smoking or nasal inhalation of drugs (Hedrich, 2004; Kennedy et al., 2017; Wolf et al., 2003). Most SCSs employ health care workers, most of whom are nurses (Woods, 2014). Given the prevalence of nursing care as a component of SCSs, a detailed examination of the role of nursing within these spaces is important.

Service User Profile

SCSs are designed to help the most vulnerable PWUD: those who use frequently, in public, with high-risk methods. Many service users have never had any contact with drug treatment services (Hedrich, 2004). In Australia, 82% of service users have been diagnosed with a psychiatric disorder, 70% are socially isolated, and all experienced a median of 3 traumatic events before the age of 16 years. More than half have attempted suicide, and a third have a history of self-harm. Yet, only 24% receive mental health treatment (Goodhew et al., 2016). Because SCSs may be service users' only contact with the health care system, they represent an opportunity for nurses and other health professionals to improve the health of a highly vulnerable population. To better understand how the role of nurses and the profession of nursing within these important spaces is being represented, this article will describe and synthesize the roles of nurses at SCSs as derived from a purposive review of the literature.

METHODS

Given a paucity of studies specifically investigating nursing interventions and outcomes at SCSs, a systematic or scoping review of quantitative research was not performed. We used an iterative search process to achieve saturation of concepts, rather than an exhaustive search of the literature as would be done in a scoping or systematic review. Iterative, or purposive, searching lends itself well to synthesis of qualitative research because the aim is to identify and interpret the range of themes found in the literature, not to statistically analyze quantitative metadata (Thomas & Harden, 2008). We chose thematic synthesis as a methodology because it enables the analysis of qualitative, quantitative, peer-reviewed, and gray literature (Thomas & Harden, 2008), thereby providing both a broad and detailed view of the state of SCS nursing. We used three first-person articles from a peer-reviewed nursing magazine because they provided a level of detail not found in the academic and gray literature, although we acknowledge the methodological weakness of these sources. Our literature search was conducted from May to August 2017, after which we began developing the article. One author (AC) screened, appraised, extracted, coded, and analyzed the literature, while regularly discussing and refining findings with the other author (JL).

Search Process

In consultation with a health sciences librarian, we searched PubMed, the Cumulative Index to Nursing and Allied Health Literature, Medline, and Google Scholar for the following keywords: "supervised injection," "supervised injecting," "supervised consumption," "safer injection facility," and "drug consumption room." An ancestry or citation tracking search was also performed. In addition, we included gray literature produced by the European Monitoring Centre for Drugs and Drug Addiction and the International Network of Drug Consumption Rooms. We excluded non-English and unpublished manuscripts as well as those not describing the roles of nurses. We excluded documents if safer consumption or a synonym was not explicitly mentioned in the title or abstract. We also excluded documents discussing SCSs in relation to health policy, legal issues, feasibility, and cost-effectiveness. These documents tend to discuss SCS as an idea or possible intervention and do not describe the roles of nurses from a firsthand perspective. For example, a number of articles discuss the feasibility of SCS in a given city that does not yet have an SCS. Therefore, the authors do not describe nursing care that is actually taking place. We retained articles containing any content describing the roles of nurses in SCSs up to August 2017, whether or not the focus was specifically related to the roles of nurses. Our search yielded 48 articles dating from 1992 to 2016.

Data Extraction and Coding

One author (AC) extracted every paragraph, and surrounding paragraphs if relevant, containing any mention of nurses or nursing from each article, excluding those citing other sources. This text was pasted into an Apple Pages document. This author then inductively coded each individual mention of nurses or nursing according to its content. Coding involved

summarizing the general meaning of each section of extracted text and listing these in another Apple Pages document.

Thematic Synthesis

Codes were then grouped into descriptive themes or roles using Apple Pages software. The author (AC) then used Apple Numbers spreadsheet software to develop a table summarizing these themes. Extracted text was then reexamined and deductively sorted into the descriptive roles, creating and merging roles as needed to more accurately reflect article content and themes. Finally, analytical themes, or hypotheses, were inferred from the descriptive themes. Discussion with the second author (JL) throughout the process refined the final themes.

RESULTS

We identified 11 roles carried out by nurses in relation to SCSs, ranging from the purely clinical to those occurring outside the SCS environment. We synthesized three analytical themes, or hypotheses, from the descriptive themes or roles: (a) The primary aim of SCS nursing care is to reduce morbidity and mortality; (b) SCS nurses create a therapeutic community; and (c) SCS nurses engage in research, professional activities, and activism to better understand and promote SCSs.

Document Characteristics

The literature search yielded 48 documents mentioning nurses or nursing care at SCSs (see Table 1). Sixty-six percent of the articles appraised sites in Canada. The other locations were Europe (20%), Australia (9%), and multiple continents (4%). Documents varied widely in the depth of information provided on nursing roles. All but three documents mentioned the presence of nurses at SCSs; two articles that did not were descriptions of nurse activism (Association of Registered Nurses of British Columbia, 2016; Gold, 2003), and the third employed a nurse to carry out part of the research (Lloyd-Smith et al., 2008). Three of the documents mentioned that SCSs were staffed by nurses but did not describe their roles further (Dubois-Arber et al., 2008; Hedrich, 2004; Kimber et al., 2005). Other documents provided more detailed descriptions, but in general, these were incidental to the focus of the article. A minority of documents (n = 8), all Canadian, focused specifically on SCS nursing roles. There was only one article, Lightfoot et al. (2009), that had the express purpose of thoroughly describing nursing roles at an SCS. Several studies explicitly assessed aspects of nursing care at SCSs (Lloyd-Smith et al., 2009, 2010; W. Small et al., 2008; R. A. Wood et al., 2008). Two documents described nursing activities in relation to SCSs in a narrative fashion (Gold, 2003; R. A. Wood, Zettel, & Stewart, 2003). One article was an issues brief by the Association of Registered Nurses of British Columbia (2016).

Nursing Roles

We identified 11 roles encompassing a breadth of nursing interventions, from common activities such as wound care to less common roles such as activism. Evidence for each of the roles varied; most documents stated that nurses were responsible for reversing overdoses, for example, whereas only a handful of documents discussed activism. The roles support each of the three analytical themes.

The Primary Aim of SCS Nursing Care Is to Reduce Morbidity and Mortality The purpose of most SCSs is to save lives and reduce injury (Woods, 2014). Nurses carry out four roles related to this focus: observing injection and responding to overdose, providing safer injection education, providing primary nursing care, and creating a safer environment and respite.

Observing injection and responding to overdose SCS nurses observe service users as they prepare and inject drugs (E. Wood et al., 2005), monitor them afterward, and respond in the event of overdose or toxicity. In Europe (excluding the Netherlands), 84% of SCSs employ nurses (Woods, 2014). They, along with physicians, are involved in most overdose responses (Hedrich, 2004). SCSs in Australia and Canada also employ nurses to observe injections and respond to emergencies (KPMG, 2010; Lightfoot et al., 2009).

Observing drug preparation and injection enables nurses to intervene in risky practices as they occur (Fast et al., 2008). Nurses may monitor service users more closely if they have consumed a potent drug or high dosage (Kappel et al., 2016). In the event of drug overdose or toxicity, nurses observe service users' respiratory rate, level of consciousness, and skin color (Zlotorzynska et al., 2014). They monitor vital signs and stimulate unconscious service users (Kappel et al., 2016; Kerr et al., 2007). When necessary, nurses secure service users' airways and administer oxygen (Kappel et al., 2016; Kerr et al., 2007; Salmon et al., 2010). In addition, they administer naloxone as needed (Kappel et al., 2016; McNeil, Dilley, et al., 2014; Small, Moore, et al., 2012; van Beek, 2003). Nurses may also contact emergency medical services (McNeil, Small, Lampkin, et al., 2014).

Creating a safer environment and respite The presence of nurses at SCSs creates an environment that service users view as respite from the open drug scene (Jozaghi, 2012; Jozaghi & Andresen, 2013; Krusi et al., 2009; W. Small et al., 2008). The SCS serves as an escape from the dangers of theft, assault, and police persecution (Jozaghi & Andresen, 2013). SCSs protect service users from the trauma of overdosing and seeing friends overdose in places without immediate medical or nursing care (Kappel et al., 2016). They report a sense of safety, reduced risk, and being watched over by nurses (Jozaghi & Andresen, 2013; Kerr et al., 2007; McNeil, Dilley, et al., 2014). This experience reinforces service users' reliance upon the SCS (Jozaghi & Andresen, 2013; KPMG, 2010; McNeil, Dilley, et al., 2014).

In addition to the safer environment, nurses provide harm reduction equipment. This includes syringes (Dietze et al., 2012; McNeil, Dilley, et al., 2014; W. Small, Ainsworth, et al., 2011), sterile injection equipment, alcohol wipes (McNeil, Dilley, et al., 2014; Small, Ainsworth, et al., 2011), and naloxone kits (Dietze et al., 2012). The combination of sterile equipment with safer injection education encourages safer injection practices (Fast et al., 2008; Jozaghi, 2012).

TABLE 1 Characteristics of Documents Describing the Roles of Nurses at Safer Consumption Sites (SCSs), 1995–2017

Article	Study Design	Peer Reviewed?	Location	No. of Facilities Studied	Source of Evidence on Nursing Roles	Explicitly Examines Nursing Roles?
Association of Registered Nurses of British Columbia (2016)	Issues brief	No	Canada: British Columbia	0	Authors	Yes: advocacy
Broadhead et al. (2002)	Qualitative: ethnographic + interviews	Yes	Europe, Australia: Germany, Switzerland, Sydney	19	Authors	No
Dietze et al. (2012)	Qualitative: narrative/ case study/ editorial	Yes	Europe: Germany, Spain (Barcelona and Berlin)	3	Authors	No
Dubois-Arber et al. (2008)	Quantitative: retrospective cohort	Yes	Europe: Switzerland (Geneva)	1	Authors	No
Fairbairn et al. (2008)	Qualitative: semistructured interviews + thematic analysis	Yes	Canada: Insite, Vancouver	1	Authors	No
Fairbairn et al. (2010)	Qualitative: semistructured interviews + thematic analysis	Yes	Canada: Insite, Vancouver	1	Authors, SCS clients	No
Fast et al. (2008)	Qualitative: semistructured interviews + thematic analysis	Yes	Canada: Insite, Vancouver	1	SCS clients	Yes: safer injection education
Gold (2003)	Narrative/case study	No	Canada: Vancouver	0	Author	Yes: SCS history, with emphasis on the role of nurses
Goodhew et al. (2016)	Quantitative: cross-sectional	Yes	Australia: Medically Supervised Injecting Centre, Sydney	1	Authors	No
Hedrich (2004)	Report: review + ethnographic	No	Europe, Australia, Canada	64	Author; non-English articles	No
Haemmig (1995)	Narrative/case study	No	Switzerland	1 (multiple locations)	Author	No

(continues)

TABLE 1	Characteristics of Documents Describing the Roles of Nurses at Safer Consumption Sites (SCSs), 1995–2017, Continued					
Article	**Study Design**	**Peer Reviewed?**	**Location**	**No. of Facilities Studied**	**Source of Evidence on Nursing Roles**	**Explicitly Examines Nursing Roles?**
Jozaghi & Andresen (2013)	Qualitative: semistructured interviews + thematic analysis	Yes	Canada: Insite, Vancouver	1	SCS clients	No
Jozaghi (2012)	Qualitative: semistructured interviews + thematic analysis	Yes	Canada: Insite, Vancouver	1	SCS clients	No
Kappel et al. (2016)	Qualitative: ethnographic + interviews	Yes	Europe: Denmark	5	Authors; SCS clients; SCS staff	No
Kerr et al. (2005)	Quantitative: cross-sectional survey + visit logs + nursing notes Qualitative: historical (using primary sources)	Yes	Canada: Vancouver	1	Authors; SCS clients; SCS volunteers; media stories	No
Kerr et al. (2007)	Qualitative: semistructured interviews + thematic analysis	Yes	Canada: Insite, Vancouver	1	Authors; SCS clients	No
Kimber et al. (2005)	Quantitative: cross-sectional survey	Yes	Europe: Germany, Switzerland, Spain, The Netherlands	15	SCS staff	No
KPMG (2010)	Report: qualitative semistructured interviews and surveys + quantitative – cross-sectional, multiple sources, data analysis	No	Australia: Medically Supervised Injecting Centre, Sydney	1	Authors; SCS clients; SCS staff	No
Krusi et al. (2009)	Qualitative: semistructured interviews + thematic analysis	Yes	Canada: Dr. Peter Centre, Vancouver	1	Authors; SCS clients; SCS staff	No
Lightfoot et al. (2009)	Narrative/case study	Yes	Canada: Insite, Vancouver	1	Authors	Yes: nursing roles in general
Lloyd-Smith et al. (2008)	Quantitative: prospective cohort	Yes	Canada: Insite, Vancouver	1	Authors	No

(continues)

TABLE 1 Characteristics of Documents Describing the Roles of Nurses at Safer Consumption Sites (SCSs), 1995–2017, Continued

Article	Study Design	Peer Reviewed?	Location	No. of Facilities Studied	Source of Evidence on Nursing Roles	Explicitly Examines Nursing Roles?
Lloyd-Smith et al. (2009)	Quantitative: prospective cohort	Yes	Canada: Insite, Vancouver	1	Authors; SCS staff (nursing notes, referrals); electronic medical record	Yes: nursing care of cutaneous infections
Lloyd-Smith et al. (2010)	Quantitative: prospective cohort	Yes	Canada: Insite, Vancouver	1	Authors; hospital records; electronic medical record (nursing notes, referrals); SCS clients	No
Marshall et al. (2009)	Quantitative: prospective cohort	Yes	Canada: Insite, Vancouver	1	Authors; SCS clients	No
McNeil, Small, Lampkin, et al. (2014)	Qualitative: ethnographic + interviews	Yes	Canada: Vancouver	2 (1 sanctioned, 1 unsanctioned where assisted injection is offered)	Authors; SCS clients	No
McNeil, Dilley, et al. (2014)	Qualitative: semistructured interviews + thematic analysis	Yes	Canada: Dr. Peter Centre, Vancouver	1	SCS clients	No
Peacey (2014)	Report: qualitative – semistructured interviews + thematic analysis	No	Europe: The Netherlands (Amsterdam and Rotterdam)	4	SCS clients	No
Petrar et al. (2007)	Quantitative: cross-sectional survey	Yes	Canada: Insite, Vancouver	1	SCS clients	No
Reddon et al. (2011)	Quantitative: prospective cohort	Yes	Canada: Vancouver	1	SCS clients	No
Salmon et al. (2010)	Qualitative: ecological	Yes	Australia: Medically Supervised Injecting Centre, Sydney	1	Authors	No
D. Small et al. (2006)	Narrative/case study	Yes	Canada: Insite, Vancouver	1	Authors	No
W. Small et al. (2008)	Qualitative: semistructured interviews + thematic analysis	Yes	Canada: Insite, Vancouver	1	Authors; SCS clients	Yes: health care access

(continues)

TABLE 1	Characteristics of Documents Describing the Roles of Nurses at Safer Consumption Sites (SCSs), 1995–2017, Continued					
Article	**Study Design**	**Peer Reviewed?**	**Location**	**No. of Facilities Studied**	**Source of Evidence on Nursing Roles**	**Explicitly Examines Nursing Roles?**
W. Small, Shoveller, et al. (2011)	Qualitative: ethnographic + interviews	Yes	Canada: Insite, Vancouver	1	Authors	No
W. Small, Ainsworth, et al. (2011)	Qualitative: semistructured interviews + thematic analysis	Yes	Canada: Insite, Vancouver	1	Authors; SCS clients	No
W. Small, Wood, et al. (2012)	Qualitative: community-based research; ethnographic + interviews	Yes	Canada: Vancouver	1	SCS volunteers; people who inject drugs	No
W. Small, Moore, et al. (2012)	Qualitative: semistructured interviews + thematic analysis	Yes	Canada: Insite, Vancouver	1	SCS users	No
Solai et al. (2006)	Qualitative: ethnographic + interviews	Yes	Europe: Switzerland (Geneva)	1	SCS staff	No
Toth et al. (2016)	Qualitative: semistructured interviews + thematic analysis	Yes	Europe: Denmark	5	Authors	No
Tyndall et al. (2006)	Quantitative: cross-sectional electronic medical record analysis	Yes	Canada: Insite, Vancouver	1	Authors; electronic medical record	No
van Beek (2003)	Narrative/case study	No	Australia: Medically Supervised Injecting Centre, Sydney	1	Author	No
Wolf et al. (2003)	Qualitative: ethnographic + interviews	Yes	Europe: The Netherlands	31	Authors	No
R. A. Wood, Zettel, & Stewart (2003)	Narrative/case study	No	Canada: Dr. Peter Centre, Vancouver	1	Authors	Yes: program description
E. Wood et al. (2004)	Description of methodology for SCS evaluation	Yes	Canada: Insite, Vancouver	1	Authors	No
E. Wood et al. (2005)	Quantitative: prospective cohort	Yes	Canada: Vancouver	1	Authors	No

(continues)

TABLE 1 Characteristics of Documents Describing the Roles of Nurses at Safer Consumption Sites (SCSs), 1995–2017, Continued						
Article	Study Design	Peer Reviewed?	Location	No. of Facilities Studied	Source of Evidence on Nursing Roles	Explicitly Examines Nursing Roles?
E. Wood et al. (2006)	Narrative/case study	Yes	Canada: Insite, Vancouver	1	Authors	No
R. A. Wood et al. (2008)	Quantitative: prospective cohort	Yes	Canada: Insite, Vancouver	1	Authors; SCS clients	Yes: safer injection education
Woods (2014)	Report: quantitative – cross-sectional survey	No	Europe: Denmark, Germany, Luxembourg, Norway, Spain, Switzerland	39	Authors	No
Zlotorzynska et al. (2014)	Quantitative: cross-sectional	Yes	Canada: Insite, Vancouver	1	Authors	No

Providing safer injection education Nurses at SCSs observe service users prepare and inject drugs, which enables them to intervene in risky injection practices and address knowledge deficits (Dietze et al., 2012; Fast et al., 2008; Jozaghi, 2012; Jozaghi & Andresen, 2013; Kappel et al., 2016; Kerr et al., 2005, 2007; Krusi et al., 2009; Lightfoot et al., 2009; McNeil, Small, Lampkin, et al., 2014; Small, Moore, et al., 2012; W. Small, Wood, et al., 2012; R. A. Wood et al., 2008). One nurse intervened before a service user injected into healing tissue and showed her alternative sites (Fast et al., 2008). Nurses may provide safer injection education before or after injection, one-on-one or in small groups (Lightfoot et al., 2009). The education may be initiated by the nurse or the service user (Wolf et al., 2003). Service users receive tailored information as needed (Fast et al., 2008; Lightfoot et al., 2009), at a comfortable pace, and repeatedly over the course of multiple interactions. The education is delivered verbally, visually, and physically; service users prefer the latter to simple verbal instruction (Fast et al., 2008). Service users may have had years of experience injecting drugs but, until a nurse taught them, were not aware of how to do so more safely (R. A. Wood, Zettel, & Stewart, 2003).

SCS nurses may educate service users on hygiene, drug preparation, or injection itself. Through discussions with multiple service users, nurses become familiar with the variety and potency of the local drug supply and can pass that information on to other service users. One service user reported that a nurse informed him what drug he was using, which he had not known, and advised him to cut his dose in half. This advice, in his opinion, saved him from overdosing. In addition, she taught him how to prepare and filter the drug (Kerr et al., 2007). Nurses may also advise service users to wait before consuming more drugs if they have consumed a particularly high dosage or potent drug already (Kappel et al., 2016).

Service users value the safer injection education they receive from nurses and say it has changed their injection behaviors (Jozaghi, 2012). They describe the education as accurate and hygienic (Fast et al., 2008) and contrast it with the inadequate information they receive on the streets. They report feeling comfortable asking nurses questions (Kerr et al., 2007) and prefer injecting at SCSs in part because of the safer injection education they receive there (W. Small, Moore, et al., 2012).

Assisted injection is almost universally prohibited at SCSs (Fairbairn et al., 2008; Kerr et al., 2005; Lightfoot et al., 2009; McNeil, Small, Lampkin, et al., 2014; van Beek, 2003). Instead, nurses show techniques as much as possible without physically assisting in the act of consumption (McNeil, Small, Lampkin, et al., 2014). Although nurses may go so far as to align a needle with the vein for service users who are having difficulty self-injecting, it is not always adequate (Kerr et al., 2005; McNeil, Small, Lampkin, et al., 2014; W. Small, Wood, et al., 2012). As a result, service users may leave to find a "hit doctor" outside the SCS (Fairbairn et al., 2008; McNeil, Small, Lampkin, et al., 2014; Small, Shoveller et al., 2011).

Providing primary nursing care Because SCSs are often service users' only point of contact with the health care system, nurses tend to address a wide range of acute and chronic problems that may not have received any prior care. Nurses observe service users for injuries and infections (Lightfoot et al., 2009; Lloyd-Smith et al., 2009; W. Small et al., 2008; E. Wood et al., 2004); assess wounds; and give advice about severity, treatment, and when to seek further care. They provide comprehensive wound care (Haemmig, 1995; Jozaghi, 2012; Jozaghi & Andresen, 2013; Kappel et al., 2016; Lightfoot et al., 2009; Lloyd-Smith et al., 2009, 2010; W. Small et al., 2008). Nurses also may provide hospital follow-up care (W. Small et al., 2008). In one study, 27% of service users at Insite, an SCS in Vancouver, Canada, received nursing

care for cellulitis or an abscess. In fact, care for skin infections accounted for 65% of all nursing interventions (Lloyd-Smith et al., 2009). In the Netherlands, most service users had seen an SCS physician or nurse for care (Peacey, 2014). In Danish SCSs, it is illegal for nurses to provide wound care (Kappel et al., 2016; Toth et al., 2016). However, they do monitor service users for infections and refer them to nearby clinics (Kappel et al., 2016).

Aside from wound care, SCS nurses provide a variety of preventive and primary nursing interventions. These include first aid (Jozaghi & Andresen, 2013; Kappel et al., 2016; Lloyd-Smith et al., 2009), immunizations, infectious disease testing (Jozaghi, 2012; Lightfoot et al., 2009), pregnancy testing (Lloyd-Smith et al., 2009), health counseling (Dietze et al., 2012; Jozaghi, 2012; Lloyd-Smith et al., 2009; E. Wood et al., 2004), safer sex advice and supplies (Marshall et al., 2009), and circulating a list of dangerous sex trade patrons (Lightfoot et al., 2009). The accessibility of SCSs improves nurse contact with particularly vulnerable groups. One study found that, after injection and syringe exchange, service users with HIV used nursing care more than any other intervention (Reddon et al., 2011). At the Dr. Peter Centre, a residence for people with HIV/AIDs that offers SCS services in Canada, nurses report that they are able to intervene earlier in skin infections because service users are less likely to hide their drug use (Krusi et al., 2009). Nursing care may also substitute for more comprehensive medical care when service users are unwilling to seek the latter (W. Small et al., 2008).

SCS Nurses Create a Therapeutic Community Although not a primary focus, a substantial aspect of SCS nursing care is creating a therapeutic community to support the health and well-being of PWUD. Nurses accomplish this by offering meaningful presence, building relationships and affirming worth, providing mental health nursing care, and increasing service users' access to outside services.

Being present SCS nurses provide meaningful presence for service users. Service users state that the presence of nurses is reassuring and that because nurses are present they know they will be cared for in the event of overdose (McNeil, Dilley et al., 2014). Nurses are available as needed, even in the middle of the night, which service users find reassuring (W. Small et al., 2008). Service users also report that nurses bear witness to their experiences in a way that makes them feel seen and understood (R. A. Wood, Zettel, & Stewart, 2003). Nurses acknowledge not only the suffering of service users but also their humanity and their existence (Jozaghi & Andresen, 2013). Thus, through presence, nurses offer service users fundamentally meaningful human experiences that are rare in the open drug scene.

Building relationships and affirming worth SCS nurses and service users develop compassionate and respectful relationships with each other that service users experience as rare, transformative, and promoting self-worth. Both nurses and service users describe these relationships as meaningful and nonjudgmental (Fast et al., 2008; Lightfoot et al., 2009). They say they promote dignity (Jozaghi & Andresen, 2013; Kappel et al., 2016; Lightfoot et al., 2009), care, trust, hope, optimism, respect, and a sense of belonging (Jozaghi & Andresen, 2013). Key aspects of the nurse–service-user relationship are unconditional acceptance (W. Small et al., 2008; W. Small, Ainsworth, et al., 2011) and respectful treatment, which provide service users a respite from shame (Kappel et al., 2016; W. Small, Ainsworth, et al., 2011). Nurses also seek to promote personal empowerment and self-confidence (Lightfoot et al., 2009). As a result, service users report that they feel supported and appreciate the bonds they share with nurses (R. A. Wood, Zettel, & Stewart, 2003). Such bonds may increase service users' desire to live (Jozaghi & Andresen, 2013).

Nurses say that by developing trusting relationships they can set boundaries with service users, enabling them to further the therapeutic nature of the relationship (Kappel et al., 2016). Service users note that this trust makes them less hesitant to ask for education and nursing care (McNeil, Dilley et al., 2014). This allows nurses to intervene sooner when service users have abscesses (Krusi et al., 2009). Nurses have time to get to know service users (Krusi et al., 2009), which enables them to tailor care to each individual (Lightfoot et al., 2009). These close relationships are reflected in service users' positive opinions of nurses (Peacey, 2014; Petrar et al., 2007; E. Wood et al., 2006).

The role of nurses in responding to drug overdose goes beyond simply saving lives. When they see nurses running to save a life and comforting those who are revived, other service users imagine themselves being valued and cared for like that as well. They begin to internalize that sense of worth. As service users come to value themselves more, their sense of empowerment increases (Jozaghi, 2012).

Offering mental health nursing care SCS nurses provide formal and informal psychological support to service users (Kappel et al., 2016; Lloyd-Smith et al., 2009; R. A. Wood, Zettel, & Stewart, 2003). This includes intervening in mental health crises (Jozaghi, 2012; Kappel et al., 2016; Lightfoot et al., 2009) and offering crisis response in the event of sexual assault (Lightfoot et al., 2009). Nurses listen to service users share their challenges and support their positive motivations (Kappel et al., 2016).

Increasing access to services For many service users, SCS nurses are their first point of contact with the health care system. Nurses make referrals and enable access to other health and social services (Dietze et al., 2012; Jozaghi, 2012; Kappel et al., 2016; Reddon et al., 2011; Tyndall et al., 2006; Woods, 2014). They are instrumental in increasing service users' awareness of when they should seek further care (W. Small et al., 2008). Nurses may connect service users to primary care, hospital treatment (Kappel et al., 2016; Tyndall et al., 2006), drug treatment, social services (Kappel et al., 2016), and sexual health care (Marshall et al., 2009). They assist service users in accessing HIV/AIDS specialist care, health clinics for First Nations service users, pregnancy outreach, street nurses, housing resources, income assistance, and food support (Lightfoot et al., 2009). Nurses may arrange and pay for transportation to the hospital or other medical care (Jozaghi, 2012; Jozaghi & Andresen, 2013; W. Small et al., 2008). At the SCS in Australia, a nurse helps maintain continuity of care from the SCS to inpatient and outpatient drug

treatment (KPMG, 2010). In one study (Tyndall et al., 2006), almost a third of all referrals to medical services were made by nurses. Nurses appear to reduce morbidity and health care costs by referring service users with serious infections sooner, resulting in significantly shorter hospital stays (Lloyd-Smith et al., 2010).

SCS Nurses Engage in Research, Professional Activities, Ethical Deliberation, and Activism to Better Understand and Promote SCSs Nurses engage in roles occurring outside their immediate clinical responsibilities at SCSs. Although these do not represent forms of direct bedside care, these broader policy and advocacy roles of nursing appear to be important to the establishment and improvement of SCSs.

Conducting research and participating in professional activities Nurses contribute to, conduct, and author research related to SCSs (Gold, 2003; Goodhew et al., 2016; Kappel et al., 2016; Kerr et al., 2005; KPMG, 2010; Krusi et al., 2009; Lightfoot et al., 2009; Lloyd-Smith et al., 2008, 2009, 2010; W. Small, Shoveller, et al., 2011; Toth et al., 2016; R. A. Wood, Zettel, & Stewart, 2003). They organize, present at, and attend conferences or symposia on SCSs (Broadhead et al., 2002; R. A. Wood, Zettel, & Stewart, 2003). In the process of developing SCSs, nurses have visited other facilities to learn how they are run, collaborated with other health care and grassroots groups, run a pilot project to gauge feasibility, consulted with regional nurses' associations and legal firms, and presented their experiences at a conference (Gold, 2003).

Translating ethics into action Working on the frontiers of harm reduction, SCS nurses are faced with challenging ethical questions and situations, such as how much to assist and advise in the injection process, how to support the health of service users who refuse to seek medical care, when to enforce the rules of the SCS around refusing access, teaching new injectors to inject, how to respond to service users who inject into damaged areas or who self-harm while intoxicated, how to encourage service users to participate in SCS activities while respecting autonomy, witnessing pregnant service users injecting, and how to maintain relationships with service users while enforcing SCS rules (Solai et al., 2006). When considering whether to advocate for SCSs, nurses consulted their national nurses' association's code of ethics. This fueled their argument that nursing activities at SCSs are consistent with nursing's ethical obligations (Lightfoot et al., 2009; R. A. Wood, Zettel, & Stewart, 2003). At times, the answers that nurses find to these ethical questions lead them to activism.

Engaging in activism Nurses engage in activism around SCSs in several ways. They may lead or be part of a team leading actions to promote the establishment of SCSs (Lightfoot et al., 2009; R. A. Wood, Zettel, & Stewart, 2003). One group of nurses helped develop a proposal for a pilot SCS, organize a symposium on legal issues, and host a mock SCS (Gold, 2003). Another group showed their support of a planned unsanctioned SCS by standing ready to offer their services should it open (D. Small et al., 2006). Nursing organizations may also play a critical role in promoting SCSs. In Canada, regional and national nurses' associations have come out in support of SCSs multiple times over the past two decades (Association of Registered Nurses of British Columbia, 2016; R. A. Wood, Zettel, & Stewart, 2003).

There are several documented cases in which a nurse broke or circumvented the law to protect service user health. For example, before sanctioned SCS services in Canada, a service user at the Dr. Peter Centre informed a nurse he was going to inject drugs using his own aspirated blood and without cooking the drugs first. The nurse responded by giving him sterile injection supplies and observing his injection. This was the first known observed injection in Canada. It was this action that motivated the Dr. Peter Centre to adopt SCS services (R. A. Wood, Zettel, & Stewart, 2003). At a peer-run, unsanctioned SCS in Canada established before the SCS legal exemption, a volunteer nurse trained other volunteers in CPR, first aid, safer injection education, and conflict resolution. This nurse also observed injections during SCS operating hours, 7 days a week, for 6 months, even during periods of intense police intimidation (Kerr et al., 2004). Nurses may also work around restrictions, such as a Danish nurse who bandaged a service user's wound on the street outside the SCS because such care is prohibited inside (Kappel et al., 2016).

DISCUSSION

To our knowledge, this is the first study to investigate the roles of nurses at multiple SCSs. Our findings suggest that nurses play a critical role at most SCSs, not only in reducing mortality and morbidity but also in building a therapeutic community and engaging in research and activism. However, research on the roles and efficacy of SCS nurses is limited.

Implications for Practice

In October 2019, the path for the first legalized SCS in the United States was cleared when a federal judge ruled that a plan for opening one in Philadelphia did not violate the federal Controlled Substances Act (Allyn, 2019). Numerous other U.S. cities are also considering SCSs (Harm Reduction Coalition, 2018), whereas SCSs are proliferating across Canada (Government of Canada, 2017). As SCSs become more common, nurses will likely play a key role in their development and day-to-day operation. The more that is known about the roles of nurses at SCSs, the more effective SCS nurses can be in carrying out and expanding these roles for the benefit of PWUD.

In addition to teaching the public about harm reduction, addiction, and prejudice, nurses may use their understanding of SCS nursing to advocate for and humanize PWUD. Practicing nurses should be aware of the health outcomes of SCSs and the roles of SCS nurses so they are prepared to advocate for SCSs.

Nurses in other venues may consider adopting some of the key aspects of SCS nursing roles in their own encounters with PWUD. They may find that creating a shame-free environment increases their ability to develop therapeutic relationships with service users or that teaching safer injection techniques reduces wound and infection rates in their practice. The spirit of service user-centered, compassionate, practical care that is so evident in SCS nursing is inherent to all nurses.

Implications for Research

Nursing care in SCSs is largely hidden in the literature. Our review found that researchers often fail to identify staff titles when describing SCS activities and fail to study nursing roles and outcomes as distinct from other SCS functions. This may be a consequence of the collaborative nature of SCSs or an indicator of the relative scarcity of nursing-specific research present in the current literature. Yet, on the basis of the important roles that we identified and the general acknowledgment of nurses as primary health care providers within SCSs (Kennedy et al., 2017), nursing care appears to be a significantly important aspect of the functioning of most SCSs. The lack of more intentional research on nursing roles in SCS literature makes it more difficult to study SCS efficacy and how to optimize it. Because of its unique perspective, nursing research could elucidate aspects of SCSs not otherwise explored in the general health care literature. Furthermore, evidence suggests that SCS nurses experience ethical dilemmas and distress; research is needed to understand how best to support these nurses.

The three analytical themes that we identified can be used as hypotheses for further research into the roles of SCS nurses. Although our findings strongly suggest each of these themes, the breadth, depth, efficacy, and outcomes of SCS nursing roles are largely unknown. By not calling attention to the roles of nurses, SCS research is missing an opportunity to improve care for a highly vulnerable population.

Limitations

The strengths of thematic synthesis include finding commonalities across heterogeneous sources and generating hypotheses for further research (Lucas et al., 2007). Because we used many different source types that were largely qualitative, thematic synthesis was a useful methodology. However, thematic synthesis can obscure the weakness of sources (Lucas et al., 2007), and this was certainly the case in our research; some sources we used were quite robust in terms of quality, whereas others were not peer reviewed. We excluded studies that were methodologically suspect, but when screening articles, we erred on the side of inclusion because the data on SCS nursing during the time of the review were scarce and superficial.

We searched four databases (PubMed, CINAHL, Medline, and Google Scholar). Future research should include more databases as well as articles published after 2017, which is when our review process ended. Our synthesis is also potentially biased by the fact that the initial derivation of the themes was conducted by one author only, although we tried to address this by discussing findings regularly throughout the research process. Future analyses should ideally utilize multiple independent reviewers during all steps of the article review/selection process as well as the thematic synthesis steps. We propose that further research include a formal systematic review, utilize multiple reviewers, and follow accepted guidelines for quality such as the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Liberati et al., 2009).

The relative invisibility of nurses in SCS literature limited the quality of our synthesis. Because our literature search and data analysis methods looked only at explicit mentions of nurses and nursing care, even when the role was within the nursing scope of practice, there may be nursing roles in practice that are not described in the literature as such.

In addition, our synthesis is limited geographically. Two thirds of the articles we reviewed originated in Canada, and we limited our search to articles in English. Because SCS operating policies vary somewhat geographically, our findings cannot be fully generalized. We tried to address this bias by noting geographical differences. Nonetheless, our post hoc survey of the European and Australian literature on SCSs in general suggests strong similarities.

As mentioned, our review does not identify the most recent developments in nursing roles at SCSs. Most of the articles we reviewed were not published in the last 5 years, during which time the opioid epidemic has grown to unprecedented proportions in North America (United Nations Office on Drugs and Crime, 2019). Furthermore, in the last few years, SCSs have proliferated across Canada (Government of Canada, 2017).

CONCLUSION

Nurses appear to be critical in advocating for, establishing, and running SCSs. They are a key part of the safer environment at SCSs, where service users receive lifesaving care in the event of overdose, learn about and engage in safer injection practices, access harm reduction supplies, find respite from the violence of the open drug scene, receive primary nursing care, get referrals to health and social services, and access counseling and psychiatric support. The presence of nurses at SCSs and the relationships they build help vulnerable and traumatized service users feel cared for, valued, and safe and even help service users begin to value and care for themselves. Outside SCSs, nurses may influence public policy and SCS functioning by engaging in research, professional activities, and activism. Nurses and the care they deliver at SCSs are underrepresented in the academic literature, resulting in a dearth of information on current and evidence-based practices. General SCS literature should clarify when nurses are being discussed, versus other SCS staff members. Furthermore, original research on SCS nursing specifically is needed to improve on the already valuable services nurses provide to an underserved and vulnerable population.

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