Trauma-informed approaches to substance use interventions with Indigenous Peoples: A scoping review

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Abstract

Introduction. Indigenous Peoples experience disproportionately higher rates of problematic substance use. These problems are situated in a context of individual and intergenerational trauma from colonization, residential schools, and racist and discriminatory practices, policies, and services. Therefore, substance use interventions need to adopt a trauma-informed approach. **Purpose.** We aimed to synthesize and report the current literature exploring the intersection of trauma and substance use interventions for Indigenous Peoples. **Methods.** Fourteen databases were searched using keywords for Indigenous Peoples, trauma, and substance use. Of the 1373 sources identified, 117 met inclusion criteria. **Results:** Literature on trauma and substance use with Indigenous Peoples has increased in the last 5 years (2012-2016, n=29; 2017-2021, n=48), with most literature coming from the United States and Canada and focusing on historical or intergenerational trauma. Few articles focused on intersectional identities such as 2SLGBTQIA+ (n=4), and none focused on veterans. There were limited sources (n=25) that reported specific interventions at the intersection of trauma and substance use. These sources advocate for multi-faceted, trauma-informed, and culturally safe interventions for use with Indigenous Peoples. **Conclusion:** This scoping review illuminates gaps in the literature and highlights a need for research reporting on trauma-informed interventions for substance use with Indigenous Peoples.

Keywords: Substance use interventions, trauma-informed care, historical trauma, Indigenous Peoples, scoping review

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Introduction

Indigenous Peoples have endured numerous (post)colonial ills, including systematic violence, land dispossession, forced residential schooling, criminalization of traditional teachings and languages, and discriminatory policies (Gone et al. 2019). In this context, Indigenous Peoples have heightened health disparities and risks for chronic health conditions, despite remarkable resistance and resilience (Archibald 2006; Gracey and King 2009; Kim 2019; Willk, Maltby, and Cook, 2017). Intergenerational or historical trauma has been linked to the development of problematic substance use (SU) and related problems (e.g., Gameon and Skewes 2021; Gone et al. 2019; Marsh et al. 2015a/b; Wiechelt et al. 2012). Although Indigenous Peoples do not generally consume alcohol and drugs in greater quantities than the general population, they experience higher rates of SU disorders and problems—albeit with enormous variation between communities and individuals (Beals et al. 2006; Gone and Trimble 2012). The disparities with the general population narrow considerably when socioeconomic factors, such as income, are controlled (Brave Heart et al. 2016).

The complexity of trauma and SU-related issues presents challenges for Indigenous Peoples, particularly in relation to accessing adequate, culturally safe treatment (Lavalley et al. 2020; Marsh et al. 2015a; Nutton and Fast 2015). As SU and mental health interventions are typically rooted in non-Indigenous (e.g., European) contexts, they may have limited relevance and effectiveness for many Indigenous individuals (Arundale 2006; Mills 2003; Marsh et al. 2016a/2016b). Such interventions arguably do not adequately address intergenerational and historical trauma experienced by many Indigenous Peoples (Browne et al. 2016; Nutton and Fast 2015; Pearson et al. 2019). These challenges are exacerbated by inequitable power dynamics between Indigenous communities and settler-colonial

governments in the management of healthcare policies (Jongbloed et al. 2016; Marsh et al. 2015a).

Over the past decade, Indigenous communities and service providers have increasingly advocated for "trauma-informed" mental health and SU interventions (Browne et al. 2016; Lavalley et al. 2020). Such approaches may or may not be focused directly on trauma treatment, but a trauma-informed approach includes the integration of trauma considerations throughout assessment, treatment, and recovery support to respond to trauma and prevent re-traumatization (Substance Use and Mental Health Services Administration 2014). In recent years, the need for services for Indigenous Peoples that consider historical and/or intergenerational trauma and their unique experiences have been highlighted (Browne et al. 2016; Lavalley et al. 2020). These calls have been spurred by interventions that are deemed ineffective or inappropriate for this population (Adelson, 2005), making it difficult to address the health inequities that Indigenous Peoples experience.

In this context of rapidly increased attention to trauma-informed approaches for SU interventions, Indigenous-serving organizations frequently struggle to access and incorporate research-based clinical strategies and solutions. Numerous recent reviews have been conducted on trauma-informed interventions (Allen et al. 2020; Gameon and Skewes 2020; Nutton and Fast 2015; Pearson et al. 2019; Wyndow, Walker, and Reibel 2018) and SU interventions (Rowan et al. 2014; Jongbloed et al. 2017; Toombs, Marshall, and Mushquash 2019) for Indigenous Peoples. However, a review firmly situated at the intersection of trauma-informed SU interventions for this population would aid communities, researchers, and clinicians in identifying, developing, incorporating, and refining trauma-informed approaches to SU interventions.

This article is a collaborative effort of the Indigenous Working Group of the Canadian Research Initiative in Substance Misuse (CRISM) Québec-Atlantic node (CRISM is the

Canadian equivalent of the US National Institute on Drug Abuse Clinical Trials Network). This manuscript stems from Indigenous community partners' requests for systematic research on trauma-informed approaches to SU disorders. We conducted a scoping review in order to a) synthesize and report general trends in the trauma-informed SU literature pertaining to Indigenous Peoples, and b) report practical implications and recommendations emerging from intervention studies for trauma-informed SU treatment.

Method

We conducted a scoping review in order to synthesize a broad scope of evidence and examine trends and areas of further inquiry. We utilized the scoping review methods outlined by Arksey and O'Malley (2005) and further revised by Levac, Colguhoun, and O'Brien (2020). This article was conceived collaboratively with Indigenous community partners, consistent with Canadian ethical guidelines pertaining to research with Indigenous Peoples (CIHR, NSERC, and SSHRC, 2018). This review will be shared widely with Indigenous communities and form a basis for continued work in trauma-informed approaches for SU problems.

Eligibility criteria

Eligibility criteria are listed in Table 1. Consistent with other reviews focused on Indigenous mental health services research (Gameon and Skewes 2020; Pomerville, Burrage, and Gone 2016), sources were included if they focused on Indigenous Peoples from the U.S., Canada, Australia, New Zealand, the Pacific Islands, and/or Greenland. Sources needed to focus substantively on SU, either for specific substances (e.g., alcohol, nicotine, illicit drugs, or prescription drug misuse) or generally. In relation to the trauma-informed criterion, terminologies such as oppression, victimization, historical loss, and Residential Schools were determined to also represent this category, given the varied ways that trauma is discussed in the literature. To track trends over time, no date limit was set.

Table 1. Inclusion criteria used to identify trauma-informed approaches for substance use problems with Indigenous Peoples.

Inclusion Criteria	
Title/Abstract Screening	**Full-Text Review**
1. Indigenous Peoples from the United States, Canada, Australia, New Zealand, Greenland, or the Pacific Islands are an identified population in the article	1. Indigenous Peoples from the United States, Canada, Australia, New Zealand, Greenland, and the Pacific Islands are an identified population in the article
2. Substance use has the potential to be a key frame, variable, or theme of the article	2. Substance use is a key frame, variable, or theme of the article
3. Includes a trauma-informed approach OR trauma intervention OR discusses trauma as a key theme of the article	3. Focused on a trauma-informed approach OR trauma intervention OR discusses trauma as a key theme of the article
4. Abstract/title is written in English	4. Full text is written in English
	5. Peer-reviewed article, editorial, commentary, thesis or dissertation, book, book chapter, encyclopedia or reference work

Note: For the title/abstract screening phase, the title and/or abstract had to contain 2 of the first 3 criteria to advance to full-text review.

Information sources

We searched several databases: OVID Medline, PubMed, Academic Search Premier, CINAHL, PsycInfo, PsycArticles, Bibliography of Native North Americans, CAB Abstracts, Public Affairs Index, Social Work Abstracts, EMBASE, ERIC, Web of Science, Scopus, and Proquest Theses & Dissertations Global. To maximize the inclusion of any sources not included in these databases or inadvertently missed, we also hand searched for sources. Starting with two recent clinical trials for comorbid trauma and SU problems among Indigenous Peoples (Marsh et al. 2016a; Pearson et al. 2019), two recent reviews of Indigenous trauma interventions (Gameon and Skewes 2020; Panofsky et al. 2021) and one review of Indigenous SU interventions (Rowan et al. 2014), we searched for sources that

were cited in these sources or which cited these sources (via Google Scholar). Hand-searched sources were added to our screening process if they met all of the inclusion criteria. This process continued in a snowball fashion (i.e., cited and "cited by" sources were searched for any newly retrieved sources, and so on for those sources) until no additional relevant sources were identified.

Search

The search strategy was developed in consultation with researchers with experience in conducting scoping reviews, as well as with a university librarian. Search terms were organized into three domains: 1) Indigenous Peoples from Canada, the U.S., Australia, New Zealand, the Pacific Islands, and/or Greenland; 2) A trauma-informed approach; and 3) SU. Search terms were used in varying ways depending on database requirements; for details, see supplementary Appendix A.

Selection of sources for evidence

All sources were uploaded into Covidence, a review management system, and duplicates were removed. If the source met the inclusion criteria outlined in Table 1, it was moved to full-text screening. At this next level of screening, sources were excluded for any of the following reasons: 1) Wrong publication type (i.e., book review, obituary, corrigendum, conference paper and/or proceeding, speech or presentation, report, or government publication; 2) Wrong population (i.e., Indigenous Peoples from the targeted countries are not an identified population 3) SU is not a key frame, variable, or theme; 4) Does not utilize a trauma-informed approach, or does not focus on a trauma intervention, or does not mention trauma (or related terms) as a key theme; or 5) Does not report clear interventions, strategies, outcomes, or challenges for a trauma-informed approach to SU. At both review stages, conflicts were resolved by a third reviewer.

Data charting process

A data charting form was developed collaboratively by study team members. The form was then piloted by three members, and further refined during a data extraction meeting. To ensure consistency, the team met at the outset, the midpoint, and after the extraction was completed.

Data items

The following data were extracted for each included source: publication date, type of source, author identified keywords, focus and purpose of source, Indigenous populations referenced, important intersections, contextual geographic information, age category, methodology and methods, trauma conceptualization, program and type of facility, type of SU problem being addressed, the interventions and primary intervention outcomes (must have implications for trauma and SU), trauma-informed approach used, clinical challenges encountered, and recommendations. More information on these categories is available in Table 2.

Synthesis and results

The search yielded 1373 sources after deduplication. After the screening of abstracts/titles and full-texts, 117 sources were retained for data extraction (Figure 1) and included for analysis. (For a list of sources included, see Supplementary Appendix B.)

During data extraction, we determined that additional exploration of a sub-set of sources (*n*=25) would be completed. These sources were reports of interventions with implications at the intersection of trauma and SU. The other sources included (*n*=92) did not report data from *intervention;* instead, they reported on general trends (e.g., cross-sectional correlations between SU and trauma symptoms), without substantively addressing intervention implications. The sub-set of 25 intervention sources were categorized by the senior author into one or more of the following categories, based on Wendt and Gone's (2012b) conceptualization of a continuum of culturally-commensurate interventions: a)

mainstream intervention, grounded in Western methods and ways of knowing (e.g., cognitive behavioral therapy), without clear tailoring for Indigenous contexts; b) culturally-adapted intervention, meaning Western interventions that have undergone systematic changes to better suit the population; or c) traditional Indigenous practices or healing traditions (e.g., sweat lodges). Intervention components coded as 'a' tend to be "top down" (e.g., starting with clinical trials and then being packaged and implemented within organizations), whereas intervention components coded as 'c' tend to be "bottom up" (e.g., rooted in longstanding interventions used by Indigenous Peoples).

Results

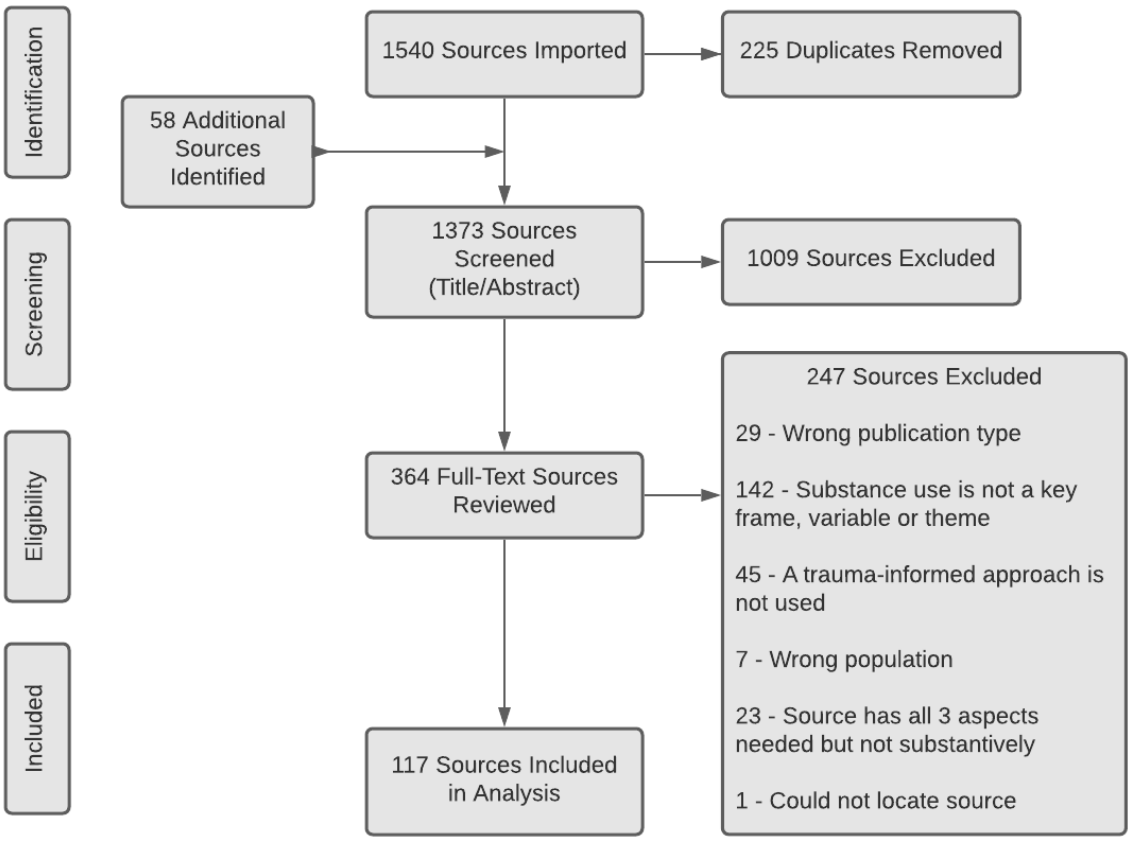

Figure 1. Preferred reporting items for systematic reviews and meta-analyses (PRISMA) flow chart (Moher et al. 2009).

The data extracted in this scoping review are provided in Table 2. Research in this area has grown considerably in recent years, with more sources being published in the last 5 years (2017-2021, *n*=48) than in the previous 10 years before (2007-2011, *n*=14; 2012-2016, *n*=29). Over half of sources were published in the U.S. (*n*=85), with a substantial number of sources from Canada (*n*=32). Few sources focused on intersecting identities (e.g., 2SLGBTQIA+, *n*=4; incarcerated individuals, *n*=3), and no studies focused on veterans. There was a prominent focus on women (*n*=19). Most sources focused on general SU (or two or more substances; *n*=90), and the most studied substance was alcohol (*n*=18). The focus of sources highlighted many complex factors and intersections associated with trauma-informed SU treatment, such as mental health (*n*=19), pregnancy or maternal SU (*n*=7), family cohesion (*n*=3), HIV (*n*=3) and child welfare (*n*=2). Finally, most conceptualized trauma from an historical and/or intergenerational perspective (*n*=75).

Table 2. Summary study characteristics for trauma and substance use with Indigenous Peoples.

	Total *n*=117	**Reviews *n*=14**	**Qualitative *n*=45**	**Quantitative *n*=21**	**Mixed Methods *n*=23**	**Conceptual *n*=14**
Age						
Adult	73	33	33	16	16	3
Youth[a]	28	8	8	6	6	4
General	17	6	6	2	1	3
Not Defined	15	3	3	0	4	5
Indigenous Population						
American Indian / Native American	80	10	27	14	19	10
Aboriginal/Indigenous (Canada)	29	10	10	4	5	0
Alaska Native	28	4	13	0	3	8
Aboriginal/Indigenous (Australia)	9	4	4	1	0	0
First Nations	8	2	3	1	2	0
Torres Strait Islander	4	2	1	1	0	0
Native Hawaiian	3	0	0	1	1	1
Māori	2	2	0	0	0	0
Métis	1	0	1	0	0	0
Country						
United States	85	9	29	15	20	12

Canada	32	9	13	5	5	0
Australia	9	3	4	1	0	1
New Zealand	2	2	0	0	0	0
Geography						
Reservation/Reserve/ Indigenous Community	47	4	22	9	10	2
Urban	42	1	18	11	11	1
Not defined	38	10	10	4	3	11
Demographic Intersection						
Women	19	0	9	3	4	3
2SLGBTQIA+ Individuals	4	0	2	0	2	0
Pregnant Individuals	3	0	3	0	0	0
Incarcerated Individuals	3	1	1	0	1	0
Substance Use						
General (or 2 or more)	90	13	33	17	17	10
Alcohol	18	0	9	2	5	2
Tobacco/Nicotine	6	1	2	2	0	1
Methamphetamine	2	0	1	0	1*	0
Cannabis	2	0	0	0	1*	0
Opioids	1	0	1	0	0	0
Conceptualization of Trauma						
Historical Trauma	54	11	16	14	5	8
Intergenerational Trauma	21	5	6	3	3	4
PTSD	21	0	7	5	4	5
Childhood Trauma	20	1	7	5	5	3
Physical/Sexual Trauma	15	0	9	1	3	2
Traumatic Life Events	9	0	3	0	3	3
Interpersonal Trauma	7	1	3	0	3	0
Cultural/Racial Trauma	5	0	2	0	3	0
Contemporary Trauma	2	2	0	0	0	0
Emotional/ Psychological-Trauma	3	0	1	0	1	1
Focus of Article						
Substance Use	59	6	19	11	12	11
Trauma	56	6	22	8	14	6
Mental Health (general)	19	2	6	7	3	1
Cultural/Community-Based Interventions	13	1	4	2	3	3
Trauma-Informed Interventions	12	1	6	2	0	3
Pregnancy/Maternal SU	7	1	6	0	0	0
Family Cohesion	3	2	0	1	0	0
HIV	3	0	0	0	0	3
Child Welfare	2	0	1	1	0	0
Year						
1997-2001	7	0	3	0	2	2
2002-2006	19	0	9	2	2	6
2007-2011	14	2	6	2	3	1
2012-2016	29	1	9	10	9	0
2017-2021	48	11	18	7	7	5

[a]Youth was defined in various ways by the studies in this review (e.g., ages 13-18, 7-17, and 13-19). If the article referred to the population as youth, it was coded in this category regardless of age.

*Refers to the same article, which focused on both substances (methamphetamine and cannabis).

Note: All categories in the above table with the exception of year, demographic intersection, and substance use are double-counted where appropriate.

Note: 2SLGTBQIA+ = Two-Spirit, Lesbian, Gay, Bisexual, Transgender, Queer, and other gender identities/orientations; PTSD = Post-traumatic stress disorder; SU = Substance use; HIV = Human immunodeficiency virus

Intervention studies

Twenty-five sources reported on interventions with implications for SU and trauma. The purpose, design, context and type of interventions, cultural fit, and implications for trauma and SU were extracted (see Table 3). Of these, most were conceptual or qualitative studies, with 6 sources reporting quantitative intervention outcomes at the intersection of trauma and SU for Indigenous Peoples. Two were randomized control trials (RCTs); both were culturally adapted interventions from research teams at the University of Washington: a care management intervention at a regional trauma center for physically injured American Indian and Alaska Native Peoples (Tsosie et al. 2011), and cognitive processing therapy for PTSD, substance misuse, and HIV sexual risk among American Indian women (Pearson et al. 2019). The former (Tsosie et al. 2011) was a report of a small pilot trial that did not directly target problematic SU or indicate differences for self-reported PTSD or alcohol use. For the latter (Pearson et al. 2019), the intervention showed improvements for both PTSD (large effects) and alcohol use (moderate-to-large effects); however, there was a high attrition rate

and no differences from the wait-list control for alcohol-related consequences or illicit substance use.

A series of recent articles by Marsh and colleagues (2015a, 2016a, 2015b, 2018, 2021) reported outcomes and qualitative themes of a blended approach called Indigenous Healing and Seeking Safety. This approach is an integration of Indigenous healing practices with Seeking Safety, an intervention for addressing co-morbid PTSD and problematic SU. In this non-experimental study in northern Ontario, 12 Indigenous women and 12 Indigenous men participants reported both intergenerational trauma symptoms and problematic SU. They reported reduced severity of trauma symptoms, as well as symptoms associated with historical loss, at the end of the 13-week program. Although no significant changes were noted regarding SU outcomes, Marsh et al. (2016b, 6) emphasize that this lack of change indicates that "participants were not triggered to substantial relapse through the treatment process." All participants reported being satisfied with the treatment, especially the traditional components, and viewed participation in a sweat lodge as resulting in greater spiritual and emotional well-being. This blended intervention shows promise for treatment development in addressing intergenerational trauma and SUDs concurrently, although the treatment was not sufficient for reducing SU problems.

Other key outcomes or implications from the 25 intervention sources are described in Table 3. Some common themes include: a) recommendations for addressing SU and trauma concurrently; b) the vital need for integrating traditional and cultural components into interventions; and c) claims that healing from intergenerational trauma and problematic SU occurs through cultural reclamation, challenging colonizing narratives, and supporting Indigenous identity. Other specific implications include a) the importance of a harm reduction approach to SU (Brown et al. 2018), b) an observation – in the context of family services in the child welfare system - that some clients with traumatic experiences feel

overwhelmed and prefer to receive SU treatment at a more manageable time (Lucero and Bussey 2015), and c) a caution—for providers working with women at risk for fetal alcohol syndrome to avoid re-traumatization by not asking personal questions prior to forming a therapeutic relationship (Pei et al. 2019).

Table 3. Summary Study Characteristics for Articles Reporting on Interventions with Implications for Substance Use and Trauma with Indigenous Peoples

Authors	**Purpose of Article**	**Context of Intervention**	**Type(s) of Intervention**	**Cultural Fit[a]**	**Key Outcomes or Implications for Intersection of Trauma and SU**
Aguilera & Plasencia (2005)	Description of an HIV/AIDS and SU prevention program for urban AI/AN youth	Youth Services Program at the Native American Health Center's Family & Child Guidance Clinic in Oakland, CA (U.S.)	Integration of "traditional healing and cultural wellness education, life-skills training, school-based services and collaborative prevention-focused activities" (p. 301-302)	B, C	Integrated prevention services (inclusive of traditional and cultural components) enable youth to receive support without being labeled as "sick" and in a manner that reduces shame and stigma; traditional practices provide "an outlet for addressing unresolved grief and trauma" (p. 303)
Arundale (2005; 2008)	Description of a conceptual framework for treating trauma in AN women	No specific context given (U.S.)	Healing Constellation framework, which conceptually links factors related to trauma (including intergenerational trauma) and a variety of Western and traditional interventions	B, C	Recommendation for integrated therapy (addressing trauma and SU simultaneously), early intervention, long-term treatment, culturally-appropriate facilities, and support for clients' children
Browne et al. (2018)	Mixed methods study of primary care staff perspectives on the impact of an organizational	Primary care clinic in a northern city where 75% of the patient population is	Equipping Primary Health Care for Equity (EQUIP), "an organizational-level, multicomponent health equity intervention" (p. 2)	A	In the context of intersections among trauma and SU, a harm reduction approach is best suited to promote health equity and draw attention to social determinants of health

	health equity intervention	Indigenous (Canada)			
Duran (2019)	Elaborated conceptualization of trauma-informed intervention for practitioners working with Indigenous clients	Based on author's experiences as a mental health professional working with AI/AN clients (U.S.)	Counselling sessions (individual and group) inspired by Buddhism, Jungian analysis, and liberation psychology, resulting in a unique integration grounded in Indigenous ways of knowing	B, C	Historical trauma leaves a "soul wound" that some seek to fill through SU; for those with alcohol use problems, treatment consists of reconnecting the person to the "spirit of alcohol" and challenging colonized narratives imposed on Indigenous individuals with alcohol use problems (e.g., strong identifications as "alcoholics")
Gone (2009)	Qualitative study of healing discourse concerning historical trauma resulting from Indian Residential School system	Federally accredited First-Nation-controlled SU treatment center on a Northern Algonquian reserve (Canada)	Variety of Western and Indigenous practices, framed in reference to the Indigenous Medicine Wheel	B, C	Healing from historical trauma among SU clients "entailed reclamation of indigenous heritage to remedy the damage of European colonization" (p.760); recommendation to integrate culturally adapted evidence-based treatments with locally-derived therapeutic alternatives
Goodkind et al. (2012)	Mixed methods, community-based participatory research study of the feasibility and preliminary outcomes of a community intervention with AI youth	One Tribal Nation and its SU and mental health counseling agency (U.S.)	"Our Life": a 6-month community intervention, which promotes mental health of AI youth through "addressing root causes of violence, trauma, and substance abuse" (p. 382); intervention components were drawn from multiple sources and "focused on traditional	B, C	Preliminary outcomes show increases in youth "traditional cultural identity, self-esteem, positive coping strategies, quality of life, and social adjustment" (p. 398); however, SU or trauma outcomes are not reported

			cultural teachings, parenting and social-skill building, healing historical trauma, and equine activities" (p. 398)		
Gray (1998)	Description of relationship of problematic SU with physical/emotional trauma in youth; presentation of fictitious case example	Residential 2-month 12-step-based SUD treatment program for AI adolescents (U.S.)	Group-based trauma treatment, focused on cultivating empowerment, traditional Indigenous spirituality, healthy emotional expression, and cultural education	A, C	Necessary to evaluate and address trauma and loss among AI adolescents with problematic SU; culturally appropriate interventions will equip these adolescents to begin the healing process and thrive; need for outcome research on trauma-focused SUD programs
Lucero & Bussey (2015)	Description of practice-informed approaches for addressing problematic SU and trauma exposure for families involved in child welfare	Denver Indian Family Resource Centre (DIFRC), which provides support to urban AI/AN families involved in child welfare (U.S.)	"A trauma-informed and culturally responsive approach, with intensive case management" (p. 108)	B	Family members in the program with problematic SU frequently have "high levels of trauma exposure and unresolved grief" (pp. 101-102); many clients with traumatic experiences are "overwhelmed" and thus prefer to receive SU treatment at a more manageable time; intensive services frequently are needed; multiple barriers to accessing services; important for service providers to be aware of relationship between SU and multiple sources of trauma, including historical and intergenerational trauma
Lyall et al. (2020)	Qualitative study to identify valued features of a trauma-informed smoking cessation	Empowering Strong Families Program, a holistic and multifaceted	Case management, smoking cessation support, and Indigenous-infused arts program	A, B	The trauma-informed approach to smoking cessation helped to facilitate client-centered care and avoided directive and confrontational approaches (which are perceived as unsafe); approach is valuable because it facilitates

	program for pregnant Indigenous women	smoking cessation program for pregnant women in an urban Aboriginal and Torres Strait Islander community in Brisbane (Australia)			relationship-based care and holistic wraparound services that are flexible, individualized, and culturally oriented
Marsh et al. (2015, 2016a, 2016b, 2018, 2020)	Outcome and qualitative studies on a blended approach for 24 Indigenous clients (12 women and 12 men) with a history of intergenerational trauma and SUDs	Two treatment programs in Sudbury, Ontario: Rockhaven Recovery Home for Men; N'Swakamok Native Friendship Centre (Canada)	Indigenous Healing and Seeking Safety (IHSS) Two-Eyed Seeing approach, which blends Indigenous healing practices (including a sweat lodge) with a concurrent PTSD-SUD intervention	A, C	Trauma, historical loss, and associated symptoms reduced (to a statistically significant level) without increasing alcohol and drug use problems, "supporting the conclusion that the participants were not triggered to substantial relapse through the treatment process" (2016b, p. 6). No significant change in substance use. Five women regained custody of children. All clients were satisfied with treatment, especially traditional components. Participants viewed the sweat lodge as resulting in greater spiritual and emotional well-being. Seventeen clients (9 women, 8 men) completed the program. Those with more severe drug problems, but not those with more severe alcohol problems, were less likely to complete program.
Marsh et al. (2021)	Study protocol for a quasi-experimental	Residential addiction harm reduction	Indigenous Healing and Seeking Safety (IHSS) Two-Eyed Seeing	A, C	Study is expected to provide rigorous outcome data on a specific treatment program designed to concurrently address trauma and SUDs

	evaluation of a blended approach for Indigenous clients with a history of intergenerational trauma and SUDs	program in Northern Ontario, run by the Mamawesnen (North Shore Tribal Council) representing 7 First Nations (Canada)	approach, which blends Indigenous healing practices with a concurrent PTSD-SUD intervention		
Menzies et al (2010)	Conceptual description of the role of an Elder working as a full partner in a "mainstream addiction and mental health hospital"	Aboriginal Services at the Centre for Addiction and Mental Health in Toronto, providing mental health and addiction services for First Nations clients (Canada)	Integrated model of service, including traditional teachings from an Elder; service also includes addiction counseling, storytelling, healing circles, and a sweat lodge	A, C	SU treatment is seen to be more successful if intergenerational trauma and issues of Indigenous identity are addressed; the Elder may encourage a "blending" of care, including traditional spiritual guidance and a "mainstream" trauma intervention (p. 92)
Mills (2003)	Description of a treatment program for integrating traditional Indigenous practices into SUD services and provide healing from historical trauma	Yukon-Kuskokwim Health Center in Bethel, AK, servicing Yup'ik and Cup'ik AN communities (U.S.)	Village Sobriety Project, which incorporates traditional Indigenous practices (e.g., hunting, berry picking, tundra walk) into Western-based SUD services	A, C	Healing from historical trauma can occur as traditional healing practices are integrated into SUD services

Morgan & Freeman (2009)	Description of a model of assessment and treatment for SU problems within the context of historical trauma for AN peoples	South Central Foundation, the outpatient wing of the Alaska Native Medical Center in Anchorage, AK (U.S.)	Broad range of services, including "allophathic, integrative, and tribal medicine" (p. 92); a traditional healing department is staffed by two certified traditional healers; a highlighted traditional intervention is "the talking circle"	C	Concrete example of a thorough integration of traditional healing within a health clinic, including for the treatment of problematic SU within the context of historical trauma; anecdotal reports of talking circles engaging clients who were previously unresponsive to previous SUD treatment
Pearson et al. (2019a)	RCT of a culturally-adapted intervention for PTSD, substance misuse, and HIV sexual risk for AI women	Two rural behavioral health clinics in the Pacific Northwest: a tribally-operated clinic on an AI reservation and a non-profit clinic in a town bordering an AI reservation (U.S.)	Short-term, structured, culturally-adapted cognitive processing therapy for PTSD (adapted to remove the trauma narrative, incorporation of Indigenous-specific concepts, beliefs, and activities)	B	Intervention had "large effects on improving PTSD and high risk sexual behavior and moderate to large effects on alcohol use" (p. 701); no differences were found for alcohol-related consequences or illicit SU frequency; high attrition rate, suggesting importance of research on briefer therapy protocols
Pei et al. (2019)	Qualitative study of providers' "perceptions of the impacts and suitability" of "relational, trauma-informed, and community-centered FASD	Rural First Nations communities in six Alberta FASD networks (Canada)	Parent-Child Assistance Program (PCAP), a 3-year home vitiation program for women who are at risk of problematic SU and who are or maybe become pregnant/postpartum	A	Clients have "complex webs of trauma histories, mental health issues, and addictions" (p. 842); trauma-informed and harm reduction approaches are necessary in order to "walk alongside" clients (p. 840); caution for providers to avoid re-traumatization by not asking personal questions prior to forming a therapeutic relationship

	prevention programming" (p. 835)				
Pollock et al. (2017)	Clinical case study of Native American man with dissociative identity disorder (with major depressive disorder, alcohol use disorder, and childhood sexual abuse)	Psychotherapy; specific context not given (U.S.)	Trauma-informed phase-based individual psychotherapy, including support for stabilizing alcohol misuse and other acute symptoms, followed by trauma processing (30 sessions over 14 months)	A	Client experienced significant improvement in symptoms (including markedly lower alcohol use); client no longer met criteria for diagnoses of depression, dissociative identity disorder, or alcohol dependence
Segal (2001)	Description of treatment needs of victimized AN women in SU treatment, and review of how treatment programs can best respond	Women's SU treatment program in Alaska (U.S.)	Residential treatment with individual and group counseling and 3 phases: (1) stabilization (SU education, parenting classes, cultural activities), (2) recovery (relapse prevention, problem resolution); (3) community integration and aftercare	A	Lengths of stay "significantly longer" among victimized women, suggesting that women-only treatment provides social support and shelters clients from abusers; client problems relating to victimization (e.g., chronic stress) should be assessed early and be a treatment focus; impact of violence on clients' children should be addressed
Stewart-Sabin & Chaffin (2003)	Description of a "biculturally competent treatment model" for residential SU treatment for	Our Youth, Our Future: a non-profit residential SU treatment program for AI/AN adolescents in a	Individual and group "cognitive-behavioral and biopsychosocial treatment approaches with an integrated program of culturally relevant practices" (p.	A, C	Program has an "emotional management track" (including coping strategies, stress reduction skills, and expressive therapy approaches) for those who have experienced neglect, physical abuse, or sexual abuse; treatment gains (across programs) disappeared

	AI/AN adolescents	large rural area populated by six Tribes from reservations and border towns (U.S.)	165), inclusive of both abstinence-based (12-step) and harm-reduction approaches		12 months after discharge, which is attributed to inadequate aftercare services
Tsosie et al. (2011)	Pilot RCT to assess feasibility and acceptability of a culturally-adapted care management intervention for physically injured AI/AN trauma survivors	Harborview Medical Center, a trauma center in Seattle, WA, serving 5 states; trial eligibility for AI/AN trauma surgery patients (U.S.)	Culturally-adapted individually tailored case management intervention to address patient concerns, coordinate care, and discuss PTSD symptoms and SU; traditional healing practices recommended as appropriate	B	Although 75% of participants found the program to be helpful, no differences were found for self-reported PTSD, depression symptoms, or alcohol use (however, program did not target those with PTSD or alcohol use disorders)

[a]Cultural fit refers to three intervention levels conceptualized by our team: a) Western interventions (e.g., CBT); b) culturally-adapted interventions (e.g., Pearson et al. 2019a); or c) traditional Indigenous practices (e.g., sweat lodge)

AI=American Indian; AIDS=Acquired immunodeficiency syndrome; AN=Alaska Native; FASD=Fetal alcohol syndrome; HIV=Human immunodeficiency virus; PTSD=Post-traumatic stress disorder; RCT= Randomized control trial; SU=Substance use; SUD=Substance use disorder; 2SLGBTQIA+=Two-Spirit, Lesbian, Gay, Bi-sexual, Transgender, Queer, and other gender identities/orientations

Discussion

This scoping review characterized the landscape of literature focused on trauma-informed SU interventions and strategies for Indigenous Peoples in Canada, the U.S., Australia, New Zealand, Greenland, and the Pacific Islands. Our objectives were to synthesize and report general trends in the literature and to compile practical recommendations. The latter objective was complex, as numerous studies focused on trauma or SU, but not frequently on their intersection. However, this context provides justification for a synthesis of the available literature to determine practical implications, strategies, and ways forward. Ultimately, we hope that this review can help communities, researchers, and clinicians to promote evidence-informed, culturally congruent practices to provide better quality of care, improve treatment outcomes, and reduce health inequities for Indigenous communities.

The need for continued innovation and community-based intervention research at the intersection of trauma and SU for Indigenous Peoples is paramount, as Indigenous Peoples are rarely included in clinical trials (at least in adequate numbers to generate conclusions) (Pomerville, Burrage, and Gone 2016). However, important lessons and treatment implications can still be gleaned from the 25 intervention sources reported in Table 3. Most sources (*n*=17) reported interventions that incorporated traditional Indigenous healing or cultural practices (in varying forms and levels of intensity), with several studies noting how this integration is important or even essential. The most intensive of these was a description of the South Central Foundation, the outpatient wing of the Alaska Native Medicine Center in Anchorage. The clinic employed two certified traditional healers and thoroughly integrated traditional healing within their practice, including for SU treatment (Morgan and Freeman 2009). Trauma-informed interventions may be useful in addressing SU problems even if they are not framed explicitly in terms of SU (see Gameon and Skewes 2020, for a systematic

review on interventions that were implemented with Indigenous Peoples for symptoms stemming from historical, interpersonal, or early childhood trauma).

Historical/intergenerational trauma: A prominent focus

Of the 117 identified sources, the vast majority focused on historical trauma (*n*=54) and intergenerational trauma (*n*=21) rather than individual trauma (e.g., abuse). According to Gone et al. (2019, 21), historical/intergenerational trauma "differs from ordinary lifetime psychological trauma in key ways: it is *colonial* in origin, *collective* in impact, *cumulative* across adverse events, and (especially) *cross-generational* in transmission of risk and vulnerability." Post-traumatic stress disorder and other responses to individual trauma may occur in the context of or alongside historical or intergenerational trauma, but historical/intergenerational trauma are frequently considered to be an "expanded trauma concept" which may be understood in terms of symptoms associated with historical loss and/or as a life stressor (akin to cumulative racial trauma endured by racialized individuals; Hartmann et al., 2019, 7).

A wide variety of cultural interventions were identified for addressing intergenerational and historical experiences of trauma. The limited evidence on these approaches diminishes our ability to identify concrete, evidence-based information to guide the design and implementation of trauma-informed interventions to treat SU with Indigenous Peoples. Notably, the two RCTs discussed in the Results section focused on PTSD at the individual level, rather than framed in terms of responses to historical or intergenerational trauma (Pearson et al. 2019; Tsosie et al. 2011). We recognize and affirm that valuable intervention conclusions can also come from non-experimental research (Wendt and Gone 2012a), especially in the context of Indigenous communities frequently viewing experimentation as unacceptable (e.g., views that it is unfair for only certain community members to receive a desired intervention in the context of scarce resources; see Dickerson et

al. 2020). Nonetheless, the limited number of RCTs and other outcome studies is likely a reflection of the limited research development and resources in this area.

The advancement of clinical research on historical and intergenerational trauma continues to be hindered by conceptual, logistical, and ethical challenges. Nelson and Wilson (2017, 100) warn, for example, about the medicalization of historical trauma, referring to "the process by which the problems of a community or a collective become a medical problem to be treated individually." Thus, while we work towards advancing interventions that are helpful to Indigenous individuals in distress (including those with problematic SU) within a frame of historical trauma, this should not be at the expense of anticolonial approaches for addressing historical trauma at community and political levels (see Hartmann et al. 2019).

Complex factors and intersections

This review also highlights certain complexities and intersections pertaining to SU and trauma among Indigenous Peoples that may have far reaching impacts. Some of these complexities and intersections may influence SU treatment and trauma among this population and are evident in our sources' diverse foci, including mental health supports, community wellness, child welfare, and HIV risk. Although formally assessing the intersections and complex factors that impact trauma-informed SU treatment was not an aim of this review, these diverse foci point to useful areas of future research.

A subset of sources (*n*=19) focused on Indigenous women. Their foci varied greatly, from smoking cessation, pregnancy, PTSD, HIV, violence and victimization, and incarceration. One source highlighted the importance of women-only treatment among victimized women (Segal 2001); others highlighted the importance of supporting the children of women in treatment (Arundale 2005; 2008). No studies focused on Indigenous men, highlighting the potential value of exploring specific needs for Indigenous men.

Other demographic intersections were minimal: four sources focused on 2SLGBTQIA+ participants, three on pregnant women, and three on incarcerated individuals. No studies focused on military veterans, an important area for future research given PTSD and SU disparities among Indigenous veterans (Albright et al. 2020). Minimal attention to demographic intersections is understandable given that this area of research is still emerging, but we recommend increased attention be given to intersectional factors to better address their influence on SU and intervention outcomes (Bauer 2014; Hancock 2007; Green, Evans, and Subramanian 2017).

Limitations

This review has at least two limitations. First, given the variability in methodologies across studies, the quality of research was not evaluated from scientific or Indigenous perspectives. Similarly, the diversity of methods used to assess various types of interventions precluded a comparison of the strengths and limitations of individual interventions, particularly across programs and settings. As an exploratory scoping review, this study should be seen as but a first step in synthesizing this literature.

Second, as with other reviews, the availability of relevant research may be limited. For example, for feasibility reasons, we were unable to include gray literature in our search. Given the nature of community-based research approaches commonly used within Indigenous-led treatment facilities, relevant initiatives may have been disseminated through alternative platforms not searched in this review, and thus excluded. We emphasize the importance of tapping into the wisdom of Indigenous communities and organizations.

Conclusion

The lived experiences and effects of trauma among Indigenous Peoples necessitates a trauma-informed approach to address SU interventions. This scoping review highlights key aspects of such programs with Indigenous Peoples in the U.S., Canada, Australia, New

Zealand, the Pacific Islands, and Greenland. Although a shortage of relevant sources focused directly on trauma-informed approaches to SU interventions, we identified common themes and practical implications for intervention models at the intersection of trauma and SU. Most sources advocated for a multi-pronged, intersectional intervention approach that is culturally-adapted or culturally-grounded for use with Indigenous Peoples. In addition, most sources conceptualized trauma from a historical or intergenerational lens, providing justification for research that considers the effects of colonization on Indigenous Peoples, and how these experiences influence and interact with SU and SU interventions. We hope this study can assist researchers and Indigenous community organizations to better address the intersection of trauma and SU.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author, T. P., upon reasonable request.

Declaration of Interest Statement

No conflicts of interest to declare.

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