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The Dissemination of Alcohol Interventions for Indigenous Australians: A Mixed Studies Review Using Narrative Synthesis

Megan Whitty[1,2] **and Anton Clifford**[3]

[1]*Menzies School of Health Research, Darwin, NT, Australia*

[2]*Charles Darwin University, Darwin, NT, Australia*

[3]*School of Public Health, University of Queensland, Brisbane, QLD, Australia*

[*]**Corresponding author:** Megan Whitty, Menzies School of Health Research, P.O. Box 4066, Alice Springs NT 0871, Australia, Tel: +61(0)410 132 659; E-mail: megan.whitty@menzies.edu.au

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Abstract

Issues: Indigenous Australians experience disproportionately high rates of alcohol related harms. The implementation of best evidence alcohol interventions to reduce these harms is therefore a priority. This review synthesises evidence from the peer reviewed literature on factors influencing implementation.

Approach: A systematic appraisal of journal articles based on alcohol-related harm reduction interventions for Indigenous Australians with scope for dissemination. This involved a systematic database search, categorisation, data extraction, quality appraisal, and preliminary analysis. A thorough textual analysis of identified papers was carried out using narrative synthesis.

Key findings: Thirteen publications met the inclusion criteria. Included studies assessed either: (a) Acceptability/feasibility of alcohol interventions for implementation in Indigenous-specific healthcare settings and/or delivery to Indigenous Australians (n=7); (b) The effectiveness of strategies designed to improve the uptake/delivery of an alcohol intervention (n=4); or (c) The process of implementing an alcohol intervention with Indigenous Australians (n=2).

Implications: Flexibility in study implementation, an emphasis on capacity building and prioritising the reporting of implementation evidence is needed.

Conclusion: Overall, the number of dissemination studies focusing on alcohol interventions for Indigenous peoples is low, and their quality varied. Evidence detailing the circumstances for optimal implementation of such interventions is thin, despite the value of this information to future research. This review presents knowledge gained to date on the alcohol interventions considered appropriate and practicable for Indigenous people. Future efforts should reflect greater researcher reflexivity and implementation transparency, and extend measurement of outcomes to health considerations determined to be meaningful by the affected Indigenous people themselves.

Keywords: Alcohol; Indigenous Australians; Health care

Introduction

Alcohol misuse is a major public health issue in Australia [1]. Alcohol harms represent a persistent and disproportionately high health burden for some sections of the Aboriginal and Torres Strait Islander population [2]. One important strategy for reducing alcohol harms in Indigenous Australian communities is the dissemination of cost-effective alcohol interventions in Indigenous-specific health-care services and programs [3,4]. Dissemination has been broadly defined as the extent of uptake of evidence-based interventions by health-care providers [5].

The need for research evidence on the acceptability, feasibility and long-term effectiveness of strategies for disseminating alcohol interventions in Indigenous-specific health-care services and programs is considerable for at least three key reasons. First, although Indigenous-specific alcohol treatment guidelines [6-9] and resources [10-13] are currently available, their uptake by healthcare providers delivering healthcare to Indigenous Australians is less than optimal [14,15]. Second, a lack of methodologically rigorous alcohol intervention trials in Indigenous settings limits the amount and quality of evidence available to inform the implementation of alcohol interventions in Indigenous communities [15-17]. Third, there is an inevitable delay between intervention research effort and the dissemination of cost-effective strategies [18].

A first step in articulating promising strategies for disseminating cost-effective alcohol interventions in Indigenous Australian communities is to systematically identify and examine those implemented to date. Although there is some evidence from published reviews [19-21] and intervention studies [10] on the effectiveness [11,21] of strategies for improving the uptake of alcohol interventions in Indigenous-specific health care settings and programs, a systematic review is timely for at least three reasons. Firstly, the most recent systematic review examining strategies for disseminating alcohol interventions in Indigenous specific healthcare settings and programs

was published in 2009. This review only identified thirteen alcohol interventions and included those that examined the effectiveness of strategies [15]. The extent to which an alcohol intervention is successfully disseminated in Indigenous healthcare settings and programs is not only influenced by the effectiveness of strategies designed to increase its uptake by healthcare professionals, but also its acceptability and feasibility for routine delivery to Indigenous Australians [22-24], and process of implementation [25-27]. Secondly, in 2010 the (then) Australian Government Department of Health and Ageing funded the National Drug Research Institute (NDRI) to undertake a research program to enhance the management and treatment of alcohol-related problems among Indigenous Australians [24]. A major outcome of this funding was five research projects examining the dissemination of alcohol interventions in Indigenous health care settings across Australia [24]. The results of these research projects are now published [24], offering an opportunity to extend the scope and update the findings of the 2009 review. Finally, McCalman et al. [28] recent overview of the effectiveness of implementation within the Indigenous Australian health literature emphasises the importance of Indigenous leadership, governance and involvement in implementing health interventions to enhance implementation and empower Indigenous communities to lead ongoing implementation efforts [28]. An examination of Indigenous input and involvement in the implementation process was therefore incorporated into this review.

The aims of this review are to: (a) Systematically identify studies related to the dissemination of alcohol interventions and Indigenous Australians; (b) Classify relevant studies according to their focus on the process of disseminating healthcare interventions (i.e. acceptability, feasibility, implementation and evaluation [10,14,29]; (c) Describe the characteristics of studies and assess their methodological quality using standardised criteria; and, (d) Synthesise narrative data extracted from the included studies.

Methods

The methods undertaken in this review were adapted from and conducted in accordance with The Cochrane Collaboration's 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses' (PRISMA) [30] and 'Guidance on the Conduct of Narrative Synthesis in Systematic Reviews' [31].

Search strategy

Studies relating to Indigenous Australians and alcohol were identified from a systematic database search for drug and alcohol publications focused on Indigenous peoples of Australia, New Zealand, Canada and the United States undertaken as a component of a bibliometric review. The initial database search was conducted for the period 1993-2014 (inclusive) using methods detailed in the Cochrane Collaboration Handbook on Systematic Reviews of Health Promotion and Public Health Intervention [32]. The database search strategy is summarised in Figure 1 and reported in detail elsewhere [33]. The abstracts of studies classified as data-based as part of the bibliometric review classification process [33] were examined by the second author (AC) for those relating to Indigenous Australians and alcohol only. Forty-five studies were identified.

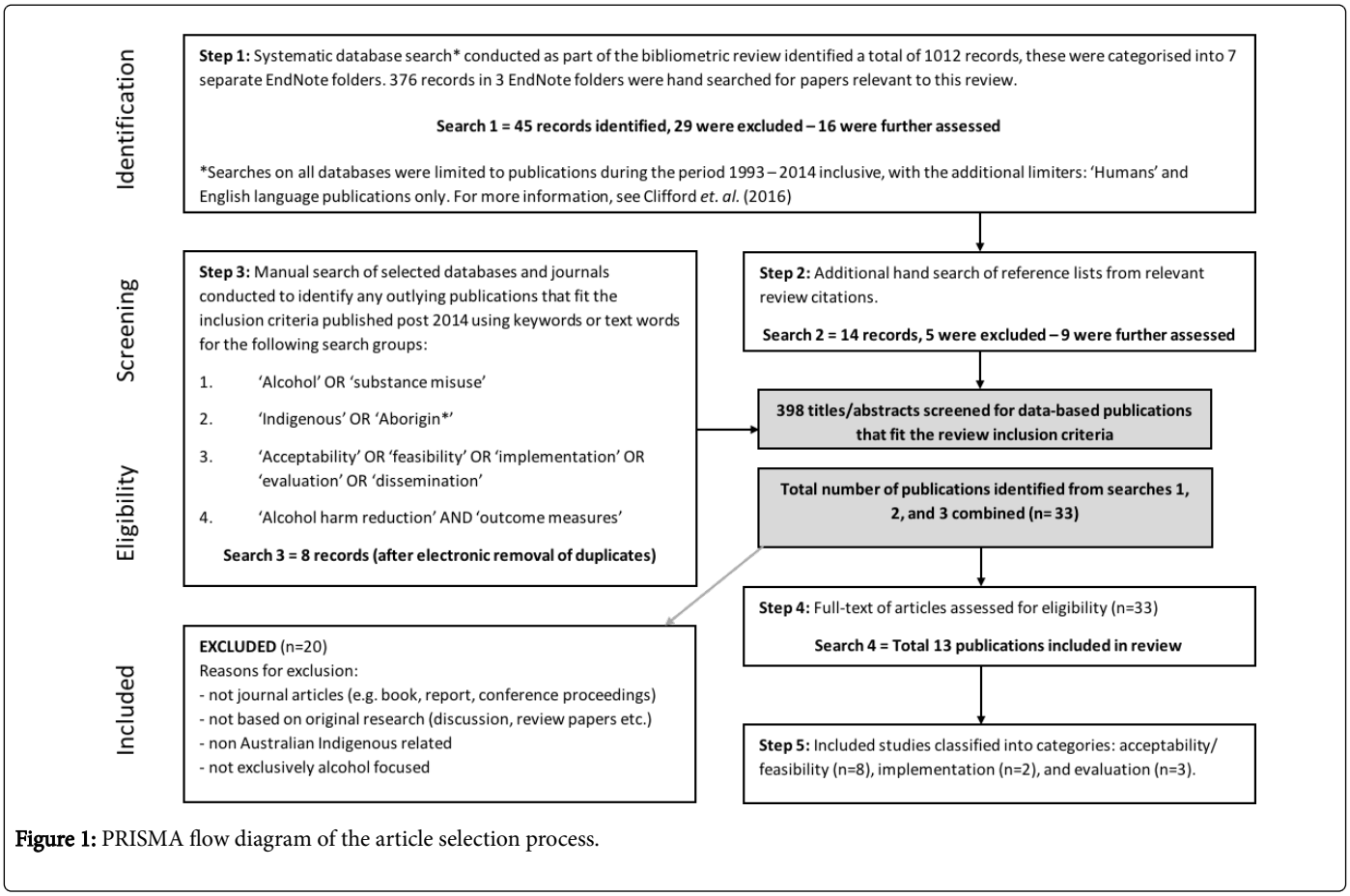

Figure 1: PRISMA flow diagram of the article selection process.

Selection of studies

Studies related to the dissemination of alcohol interventions in Indigenous communities and/or settings were identified from the abstracts of the 45 studies using a five-step process.

Step 1: Titles and abstracts were independently assessed for eligibility and relevance by two authors (MW and AC). Studies were included if they: (i) Were full, peer-reviewed papers published in English between 1994-2015, and based on original data (i.e. not reviews or opinion papers); and (ii) Assessed the acceptability and/or feasibility of alcohol intervention delivery to Australian Indigenous people; or (iii) Reported on the implementation strategy, or (iv) focused on approaches for improving the uptake or delivery of Indigenous specific alcohol interventions in Australia. This included studies that evaluated the impact of training and education on improving the cultural competency of health professionals working with Indigenous people. Step 1 identified sixteen studies.

Step 2: To maximise search coverage, reference lists of reviews of alcohol interventions targeting Indigenous Australians, [19,25,27,34] identified by the initial electronic database search, were hand-searched for studies not identified in step 1. Fourteen additional studies were identified.

Step 3: To identify studies published post 2014 (the end time point of the initial database search) the Journal of Implementation Science, the National Drug Research Institute (NDRI) and Indigenous Health *Infonet* bibliographic databases were selectively searched on 03.07.15 and again on 21.01.2016 respectively, using relevant terms indexed in each database. Eight additional studies were identified [35].

Step 4: The full text of studies (n=33) identified in steps one to three was independently examined by the first (MW) and second authors (AC). As detailed in Figure 1, studies were excluded if they were not journal articles or original research, or Indigenous Australians and alcohol were not their primary focus. Decisions concerning the final inclusion of the studies after retrieval of the full texts of the papers were then validated by the second reviewer (AC). Any disagreements between reviewers were resolved by discussion. Twenty studies were excluded leaving 13 studies for review.

Step 5: The thirteen studies were classified into categories consistent with the dissemination process [5], including acceptability and/or feasibility, implementation, and evaluation.

Review Criteria and Format

Data extraction

The characteristics of studies were described using criteria set out in the Cochrane Collaboration's Handbook [36] including: objectives, intervention, methods, setting and participants. To reflect the aims of this review, further information was also specified, such as -ethics approval, study limitations and level of Indigenous involvement. If the reporting of ethics or Indigenous involvement was absent or unclear, the first author of the respective study was contacted for clarification.

Quality appraisal

The methodological quality of included studies was appraised using the Mixed Methods Appraisal Tool (MMAT)-Version 2011 [37] which is designed for systematic reviews of qualitative, quantitative, and mixed methods studies [37]. MMAT contains 19 methodological quality criteria scored on a nominal scale (Yes/No/Can't tell). Two authors (MW and TN) independently applied MMAT criteria to studies. Agreement was high to perfect for MMAT criterion and overall scores. Consistent with MMAT guidelines, the overall quality rating of a study was calculated by dividing the number of positive responses by the number of applicable criteria for an overall percentage score [38].

Data synthesis and analysis

The heterogeneity in methods and outcomes between studies meant a meta-analyses was not appropriate. Mixed methods systematic reviews are relatively new and consensus is lacking with regards to how such reviews should be carried out [39]. A narrative synthesis was therefore undertaken (MW). Narrative synthesis is an approach used in systematic reviews to bring together key findings, relying primarily on the use of words and text to summarise and explain the findings of the synthesis. It is an appropriate analytic method when the goal is to synthesise information from a diverse range of studies related to a specific topic area [31,40,41]. The narrative synthesis was undertaken using a four-step process. First, information on the implementation and conclusions from individual studies were tabulated; second, thematic summaries based on the categories of dissemination focus ware presented using interpretative synthesis methods; third, relationships between studies were explored through subgroup analysis and triangulation; and fourth, the strength of the evidence presented was assessed via a process of best evidence synthesis and critical reflection. Emphasis was placed on the textual discussion found in the publications that offered explanatory insights into the factors involved in disseminating targeted alcohol interventions.

Results

Characteristics of studies-preliminary synthesis

Focus area: As summarised in Tables 1 and 2, thirteen studies related to the dissemination of alcohol interventions and Indigenous Australians were identified. Seven studies focused on the acceptability/feasibility of alcohol interventions for delivery to Indigenous Australians; three on the effectiveness of strategies for improving an alcohol intervention in Australian Indigenous settings; and three on the process of implementing alcohol interventions for delivery to Indigenous Australians.

Interventions type

Nine studies targeted an aspect of disseminating alcohol brief intervention practices. The types of alcohol intervention targeted by the remaining four studies included family-based interventions [42,43], community outreach [44], case management [45], and residential rehabilitation [46].

Design and methods: Seven studies employed a pre–post study design without a control group. The remaining six papers reported on a cross-sectional study, a controlled pilot study, or the strictly quantitative (n=2) or qualitative (n=2) component of a larger study.

The majority of studies employed mixed methods. Three papers reported quantitative results from related mixed methods studies using clinical audit data and recorded contacts. All studies included a qualitative component. Qualitative data were collected using the following methods; individual (n=6) and group (n=3) semi-structured

interviews; participant observation (n=2); focus groups (n=2); descriptive surveys (n=3); and questionnaires (n=3).

Author/year	Dissemination Focus	Alcohol intervention	Setting, location	Participants type (n=?)	Study type	Methods	Primary measures
Calabria et al. (2013)	Acceptability	CRA/CRAFT	Community; rural, NSW	Indigenous people (n=116)	Quantitative, cross-sectional	Descriptive survey	Acceptability of two cognitive behavioral interventions to Indigenous people.
Nichols (2010)	Acceptability	Residential Rehab	Community; rural, WA	Indigenous people (n=22)	Qualitative	Semi-structured interviews	Indigenous people's perceptions of residential AOD intervention programs.
Conigrave et al. (2012)	Acceptability	Community based education, BI	Community; urban, NSW	Indigenous people (n=58)	Mixed methods, controlled pilot	Questionnaire, participant observation of focus groups	Alcohol awareness and treatment options after community-based group education. Barriers to accessing mainstream treatment.
Clifford et al. (2012)	Acceptability	SBI	Primary care; urban/ rural, NSW	ACCHS health staff, (n=37)	Qualitative	Semi-structured group interviews	Health-care practitioners' perceptions of, and practice in, SBI in ACCHS.
Brady et al. (2002)	Acceptability/ Feasibility	SBI, MI	Primary care; urban, NSW	GP's and AHW (n=14)	Qualitative	Participant observation, interviews	Acceptability of SBI/MI to GPs for use with Indigenous clients; feasibility of SBI/MI in an urban Indigenous primary care setting.
Allan and Campbell (2011)	Acceptability / Feasibility	BI, MI, outreach services	Community; rural, NSW	AOD/ACCHS heath staff, Indigenous people (n=21)	Mixed methods	Interviews, focus groups, clinical audit (n=298)	Participants experiences in soft entry approaches to accessing AOD services and number of recorded contacts.
Clifford and Shakeshaft (2011)	Acceptability/ Feasibility/ Implementation	SBI	Primary care; urban/ rural, NSW	ACCHS health staff, Indigenous clients (n=32)	Mixed methods	Pre- post survey, group interviews	Health-care practitioners' (a) confidence and (b) experiences in providing alcohol SBI, (c) SBI frequency, and (d) acceptability to clients.
Lovett et al. (2014)	Implementation/ Evaluation	SBI, MI and reference to Country	Primary care; ACT	ACCHS health staff (n=34)	Quantitative	Participant observation, pre-test survey	ACCHS staff confidence levels in SBIRT, participant numbers in culturally mediated case management training and seminars.
Whitty et al. (2015)	Implementation	SBIRT	Tertiary care; urban, NT	Health care providers (n=68)	Mixed methods	Semi-structured interviews, post-questionnaire	Levels of health-care practitioners' confidence and knowledge in SBIRT after training, number of workshop participants.
Calabria et al. (2014)	Implementation, Uptake/delivery	CRA/CRAFT	Primary/secondary care; rural, NSW	Health care providers (n=7)	Qualitative (Pre-post)	Participant observation, interviews	Perceptions and experiences of participating health care providers in tailored CRA/CRAFT, and CRA/CRAFT

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Hunter et al. (2004)	Evaluation, Uptake/ delivery	SBI	Primary care; national	Health care providers (n=749)	Mixed methods (Pre- post)	Questionnaire, focus groups	Impact of an implementation strategy on (a) clinical practice, and (b) clinicians' willingness to engage with Indigenous clients re alcohol.
Clifford et al. (2013)	Evaluation, Uptake/ delivery	SBI	Primary care; urban/ rural, NSW	ACCHS health care providers (n-?)	Quantitative	Clinical audit, training/outreach	Proportion of eligible clients (a) screened, (b) screened at-risk, and (c) BI provided.
Whitty et al. (2015)	Evaluation, Uptake/ delivery	SBIRT	Tertiary care; urban, NT	Health care providers (n=17), patient records	Mixed methods (Pre- post)	Interviews, clinical audit	Effect of education on the delivery of SBIRT, and number of SBIRT contacts post training.

Table 1: Characteristics of included studies. *ACCHS-Aboriginal Community Controlled Health Services are primary health-care services planned and managed by local Indigenous Australian communities or organisations (Clifford).

Setting and participants: Studies were conducted in: urban [22,42,47] and rural [43,44] (and both) [10,11,29] geographical regions across Australia, including in New South Wales [10,11,21,22,42-44,47] the Australian Capital Territory [45], Western Australia [48], and the Northern Territory (NT) [13,14]. One study was conducted in various urban, rural and remote locations across Australian states and territories [29]. The majority of studies were conducted in Primary Health Care settings (PHC) [10,11,21,22,43,49], followed by community settings [42,44,47,48] and tertiary care [13,14]. One study was conducted over multiple settings [29].

Study participants were recruited from Indigenous PHC, mainstream PHC and the broader community, and included: health care providers (i.e. clinical and allied health staff, GP's, etc.), Aboriginal Health Workers (AHW), and/or Indigenous people who were not part of the healthcare system. Acceptability studies were primarily interested in the perspectives of health-care practitioners (Indigenous and non-Indigenous) and Indigenous community members. Only one study targeted Indigenous people who had personal or family experience of alcohol intervention programs, in this case, residential rehabilitation [48].

Indigenous involvement: All included studies involved Indigenous people, to some degree, however the level of their reported involvement varied. As summarised in Table 2, five types of Indigenous involvement were identified at various stages of the research process. Two studies stated that they were local Indigenous initiatives. However, an Indigenous person as chief investigator (CI) was not named on any of the research projects and only one study reported employing Indigenous research officers [47]. One study specifically mentioned a capacity building component for ACCHS staff and for an Indigenous PhD scholar as part of the research process [45].

Reference/Year	Ethics	Indigenous involvement	Details
Calabria (2013)	Yes	3. Aboriginal Health Workers 4. Consultation with IRG/ ACCHS 5. Indigenous study participants	Ethics Committee of the Aboriginal Health and Medical Research Council, NSW, the board of the participating ACCHS, and a steering committee, including Aboriginal health workers and researchers who live in the participating communities, oversaw the overarching project of which this study is a part. AHW's involved in recruitment etc.
Nichols (2010)	Not stated	4. Consultation with IRG/ ACCHS 5. Indigenous study participants	Part of a larger study instigated at a local Indigenous level.
Conigrave (2012)	Yes	2. Indigenous Research Officers 4. Consultation with IRG/ ACCHS 5. Indigenous study participants	Study methods were designed in consultation with representative of the Aboriginal Medical Service Co-op Ltd Redfern, and of the Aboriginal Drug and Alcohol Network of NSW. Half the authors are Aboriginal and the project involved Aboriginal facilitators.
Clifford** (2012)	Yes	3. Aboriginal Health Workers 4. Consultation with ACCHS	Sixty-five per cent (24/37) of participants were Indigenous health staff from five ACCHSs
Brady (2002)	Not stated	3. Aboriginal Health Workers	Involved training of AHW in screening patients using the AUDIT tool as part of the study

		5. Indigenous study participants	
Allan** (2011)	Yes	4. Consultation with ACCHS 5. Indigenous study participants	Engagement with Aboriginal controlled health and other services in the community and the provision of non-Aboriginal drug and alcohol counseling within their activities.
Clifford** (2011)	Yes	3. Aboriginal Health Workers 4. Consultation with ACCHS	Two ACCHSs participated, within them: Clinical AHW (n=3) (AHW with a defined clinical role, e.g. patient triage, basic medical care), and Indigenous D&A Worker (n=4).
Lovett (2014)	Yes	3. Aboriginal Health Workers 4. Consultation with IRG/ ACCHS 5. Indigenous Study Participants	Project reference group consisted of Winnunga management, clinicians and allied health staff. Capacity building for Winnunga staff and an Indigenous PhD scholar were integral in maintaining momentum for the project.
Whitty** (2015)	Yes	4. Consultation with IRG	Consultation with the multidisciplinary research team, an expert reference group and an Indigenous reference group.
Calabria** (2014)	Yes	4. Consultation with IRG/ ACCHS 5. Indigenous study participants (Note: all interview participants were non-Aboriginal)	The research team worked in partnership with AHWs, consulted with a steering group, Indigenous health care providers from participating services. An Indigenous researcher/project manager, based at a participating health care service, was involved for part of the project. Indigenous authorship.
Hunter** (2004)	Not stated	4. Consultation with IRG/ ACCHS 5. Indigenous study participants	Estimated that between a quarter and a third of workshop participants were Indigenous.
Clifford** (2013)	Yes	3. Aboriginal Health Workers 4. Consultation with ACCHS	ACCHS health-care practitioners from 4 centres.
Whitty** (2015)	Yes	4. Consultation with IRG	Consultation with an established Indigenous reference group.

Table 2: Ethics approval reported and level of Indigenous involvement in the research. **Author contacted and provided additional details via email.

Consultation with ACCHSs or an Indigenous reference group (IRG) was the most common form of involvement, reported in all but one study (92%) [22]. This indicates that despite the lack of Indigenous participation at an executive level (i.e. in the supervision and conduct of the research project itself), at a minimum, the majority of dissemination studies had input from appropriate Indigenous sources at project establishment, potentially receiving interim feedback from such groups over its lifespan. Six studies reported study methods being designed in direct consultation with representatives from ACCHS or an established Aboriginal Medical Service committee. Six studies involved AHW or Indigenous Liaison Officers as research assistants or participants, and seven (54%) studies either trained or engaged AHW as part of the research process.

Eight studies (62%) recruited Indigenous participants. In many cases, it was difficult to determine how representative the study sample was of the population targeted by the interventions being evaluated. Where convenience sampling was used in qualitative studies, this is not so much of an issue because the purpose of these studies is exploratory. However, for others it can be problematic in that the Indigenous participants did not necessarily reflect the demographic and diagnostic profile of the population targeted by the interventions (e.g. people drinking at harmful levels). No papers reported on the subjective perspectives of Indigenous people with alcohol misuse problems concerning the acceptability of potential interventions. Probably because issues recruiting 'at-risk' Indigenous participants are challenging and can often lead to inadequate sample sizes. Indigenous people with alcohol misuse problems are generally considered to be resistant to services and difficult to engage. Funding and time constraints can mean consultations with Indigenous clients are deemed implausible, despite being central to the subject under study.

Methodological quality and assessment

Table 3 summarizes the methodological quality of studies. Nine out of the 13 studies were methodologically adequate according to MMAT criteria (>75%), indicating the design and research conduct was generally appropriate. There were, however, differences in scores related to specific criterion across studies, including the suitability of quantitative measures used, and the extent to which the impact of methodological limitations on study outcomes were considered.

Common strengths of studies were the use of appropriate methods to collect data and the clear reporting of changes to study methods and/or protocols. Another common strength was consideration of the influence of context on findings. Quantitative studies (n=3) were methodologically stronger than qualitative or mixed method studies, despite the latter having some strong components. Methodological weaknesses in either the qualitative or quantitative component was the primary reason for mixed methods studies being rated methodologically inadequate.

Reference/Year	MMAT score	Notes on study limitations using mixed methods appraisal tool (MMAT) criteria
Quantitative studies		
Calibria et al. (2013)	***	• Convenience sampling: primary outcomes of interest were gathered by self-report. Lack of post training survey.
Clifford et al. (2013)	***	• Potentially inadequate quantitative measures and less than optimal data quality limiting the range of analyses.
Lovett et al. (2014)	***	• Small sample size and unacceptable response rate (only 59% from initial staff survey).
Qualitative studies		
Brady et al. (2002)	**	• Small sample size. Unclear if qualitative analysing was relevant to address the research question presented.
Calibria et al. (2014)	****	• No limitations evident.
Clifford et al. (2012)	****	• No limitations evident.
Nichols (2010)	***	• No critical reflection of how findings relate to researchers' influence (perspective, role, participant interaction)
Mixed methods studies		
Allan and Campbell (2011)	*	• Quantitative data are weak. Limited consideration given to appropriateness of data collection methods. Sampling strategy and measurements not relevant to address research question. Response rate unclear.
Clifford and Shakeshaft (2011)	***	• Small sample sizes and largely based on self-reported data. Limited consideration given to researcher reflexivity.
Conigrave et al. (2012)	*	• Qualitative data methods not well described. No post-session questionnaire carried out on acceptability and limited integration of data sauces.
Hunter et al. (2004)	***	• Limited consideration given to researcher reflexivity. Response rate unclear in write up or results.
Whitty et al. (2015) AJRH	**	• Limited consideration given to researcher reflexivity. Lack of a pre-workshop assessment to allow pre- post comparison, and quantitative data collection possibly inappropriate to test outcome measures.
Whitty et al. (2015) ANZJPH	***	• Inter-rater reliability of audit data, not independently validated.

Table 3: Methodological quality review of papers. Scores vary from * (25%)-one criterion met, to **** (100%)-all criteria met.

Common limitations of studies included a lack of consideration of the influence of researchers on the research process; less than optimal recruitment of study participants; and, poor reporting of recruitment methods and attrition rates. The key methodological limitations of studies with a MMAT score <75% (n=6 studies) included less than optimal sample sizes and response rates, reliance on self-report data, and poor generalizability of study findings. Notably, three of these six studies met <50% of applicable MMAT criteria.

Narrative Synthesis

Relationships between studies by dissemination focus

In terms of knowledge translation, 'dissemination' is an active process involving the use of strategies and networks to encourage the target audience to adopt a new intervention [50]. Well-designed dissemination studies take into account the type of evidence, end-users need(s), and the organisational culture and climate of the setting in which dissemination is taking place [34,51]. The papers included in this review span the breath of dissemination studies being published on this specific topic, however, none managed to incorporate all of the above elements.

Acceptability/feasibility

The seven acceptability/feasibility studies were conducted in rural and/or urban primary care or community based health settings. Four studies examined the acceptability/feasibility of implementing alcohol screening and brief intervention (ASBI) [11,21,22,44], and one each community education [47], residential rehabilitation [48] and an individual and family focused psychosocial intervention [42]. Studies examined the acceptability/feasibility of an alcohol intervention from the perspective/s of Indigenous peoples' [42,47,48] health care staff [11,22] or both Indigenous peoples and healthcare staff [21,44]. The sample size of participant groups ranged from 14 to 116. Three studies employed qualitative methods only, three mixed methods, and one quantitative method only. The methodological quality of acceptability/feasibility studies varied, with those employing mixed methods being the weakest overall.

Consultation with an established Indigenous reference group and/or ACCHS and Indigenous study participants were the most common types of Indigenous involvement in feasibility/acceptability studies.

Implementation studies

Three studies examined the process of implementing an alcohol intervention for delivery to Indigenous Australian, including two implementing ASBI in primary care and one an individual and family focused psychosocial intervention in an ACCHS. Health care staffs were the target of implementation strategies, which included training and/or education to facilitate delivery of a culturally tailored alcohol intervention. Studies examined the process of implementation using qualitative [43], quantitative [45] or mixed methods [13]. The methodological quality of implementation studies was moderate to strong according to MMAT criteria. Better reporting of researcher involvement in the implementation processes and the appropriateness of outcome measures would have improved the overall quality of implementation studies. Key strengths included data sources and analyses relevant for addressing the research questions. Small sample size, low response rates and less than optimal outcome data were the main limitations of implementation studies employing quantitative methods.

All three implementation studies reported consulting with an established Indigenous reference group or ACCHS as part of the research process. Two studies also included Indigenous participants and one targeted Aboriginal Health Workers.

Evaluation/up take, and delivery

Three papers evaluated strategies designed to improve the delivery of best evidence alcohol interventions to Indigenous Australians. Strategies evaluated included a community reinforcement (and family training) approach [43], ASBI [10], and Indigenous specific guidelines for the management of alcohol related problems in primary care [29].

Participants were exclusively health care staff. Quantitative [10] and mixed methods [14,29] were used to explore the process of tailoring ASBI for implementation and health care staff perceptions of ASBI delivery, and assess the impact of strategies on best evidence alcohol delivery. All evaluation studies employed a pre-post-test research design. The methodological quality of evaluation studies was consistently high based on MMAT criteria assessment.

Authors commonly reported the need for flexibility in study implementation, and an almost ongoing negotiation between researcher and care practice processes in order to ensure project goals were achieved within the 'real-world' primary care setting. There is, however, a lack of reporting on the impact of researchers' influence, perspectives, and researcher-participant interactions within the three included evaluation papers. Evaluation studies reported the least amount of Indigenous participation in the research process.

Discussion

This narrative review examined the characteristics and methodological quality of studies related to the dissemination of alcohol interventions and Indigenous Australians. Only 13 peer-reviewed studies across a 21-year search period were identified. The relatively small number of dissemination studies is consistent with that of previous reviews of dissemination research in the Indigenous health field [15,33]. This indicates that, as with dissemination research in the Indigenous health field generally, the development of dissemination research in the Indigenous alcohol field is progressing slowly. It might also suggest that the results of dissemination research are not being consistently published in the peer review literature. There are two likely main negative outcomes associated with the lack of published dissemination research in the alcohol-related Indigenous health field in Australia: limited evidence available to inform policies and programs implemented to improve the delivery of alcohol interventions to Indigenous Australians; and Indigenous Australians' disproportionately low levels of access to evidence-based interventions relative to the alcohol-related burden of harm they experience.

Seven of the 13 dissemination studies focused on the acceptability or feasibility of alcohol interventions from the perspectives of Indigenous Australians and healthcare providers. While only three studies each examined the implementation of alcohol interventions and evaluated the effectiveness of strategies designed to improve their uptake and delivery. Although establishing the likely suitability of alcohol interventions for Indigenous Australians and healthcare providers involved in their delivery is an important step in their dissemination, it is also crucial to examine the process of implementing alcohol interventions for Indigenous Australians in healthcare settings and evaluate the effectiveness of strategies designed to improve their uptake and delivery, in order to determine if they can be reasonably and cost-effectively integrated into health care settings for routine delivery to Indigenous Australians [4].

Encouragingly, three dissemination studies included in this review provide some evidence of researchers progressing from exploring the suitability of alcohol interventions for Indigenous Australians, to examining their implementation and evaluating strategies to improve their uptake and delivery. In the evaluation study conducted by Clifford et al., the selection of strategies for improving the uptake and delivery of ASBI in Indigenous community controlled health care services [10] as informed by qualitative research exploring the acceptability of ASBI to Indigenous patients [21] and barriers to ASBI delivery for healthcare providers [11]. Similarly, in research undertaken by Calabria and colleagues, the implementation of a family-based intervention in a drug and alcohol treatment service for delivery to Indigenous Australians was informed by the findings of a survey examining the acceptability of the intervention and its core components among a sample of Indigenous Australians, [42] and healthcare providers' experiences of tailoring and implementing the intervention for delivery in routine health care [43]. Whitty et al. two related publications examine the process of implementing ASBI in a hospital setting [13] and evaluate strategies for improving its routine delivery by health care providers [14].

Nine out of the thirteen studies targeted the dissemination of alcohol brief intervention in a range of health care settings delivering alcohol treatment to Indigenous Australians. Encouragingly, the finding of these studies suggests that ASBI is acceptable to Indigenous Australians and feasible for routine delivery in a range of healthcare settings. Even more encouraging, the findings of those studies (n=3) targeting improvements in the uptake and delivery of alcohol BI to Indigenous Australians, provide some evidence on the effectiveness of evidence-based strategies for achieving this. Specifically, interactive, supportive and reinforcing dissemination strategies to enhance health-care providers' knowledge and skills in ASBI delivery and integrate ASBI into routine clinical processes and locally available systems offer considerable promise [14,21,29]. Such Indigenous-specific evidence related to the dissemination of alcohol ASBI is important given the high strength of the evidence-base for alcohol ASBI delivered in non-Indigenous clinical settings [52,53], and its relatively low rates of delivery to Indigenous Australians in primary health care [10]. That only four studies targeted more intensive alcohol treatment

interventions offers considerable scope for strengthening future dissemination research in the Indigenous alcohol field by broadening the range of evidence-based alcohol interventions targeted for dissemination.

Almost 70% (9 out of 13) of studies were rated methodologically adequate according to MMAT criteria. Of four studies rated inadequate, there were three acceptability/feasibility and one implementation study/ies. Less than optimal collection of qualitative data and poor reporting of qualitative results was the primary reasons acceptability/feasibility studies were rated methodologically inadequate. Encouragingly, all three evaluation studies were rated methodologically adequate. No evaluation studies however employed randomisation or a control group, a finding consistent with a recent review of drug and alcohol interventions targeting Indigenous Australian peoples [33]. There was limited standardisation evident in the included evaluation approaches, but data sets were triangulated well and qualitative data were often used to strengthen the validity of conclusions. Appropriate consideration was also given to the limitations associated with integrating mixed methods, however the quality of evaluation studies related to the dissemination of alcohol interventions and Indigenous Australians could be improved through the implementation of more methodologically sound study designs, such as for example, the Randomised Controlled Trial (RCT), or rigorous alternatives such as the Multiple Baseline design (MBD).

The process of implementing methodologically rigorous study designs is likely to require substantially greater levels of Indigenous involvement than reported in the three evaluation studies identified in this review [10,14,29]: No study was Indigenous led or involved Indigenous researchers and consultation with an Indigenous reference group was the primary type of Indigenous involvement reported. The process of implementing methodologically rigorous study designs to evaluate the dissemination of alcohol interventions is also likely to require greater involvement from Indigenous researchers and healthcare workers across all stages of the research process, to enable Indigenous and non-Indigenous researchers' methodological skills and expertise to be combined with Indigenous and non-Indigenous health professionals' local knowledge and experience in designing and implementing services and programs [33].

Limitations

Grey literature publications were not included as they have not been subject to peer review. As well-designed studies are likely to be published in peer-reviewed journals, [54] it seems unlikely that rigorous studies would have been under-represented. The exclusion of papers using the term 'substance misuse' instead of 'alcohol' reduced the pool of potential papers in cross over literature and the variability of terms used in the field means it is possible that all suitable articles were not located. The potential for relevant papers being overlooked was moderated by a comprehensive search strategy and high level of agreement between blinded authors classifying the studies. Publications may have been misclassified, although good agreement (*kappa*=0.62) between blinded coders suggests not [33]. Another limitation is that only the first author extracted and synthesised data from studies. As such cross-checking of data extracted independently by at least two people was not possible. Data was however extracted from studies using well established and standardised criteria [55], thereby standardising data extraction across studies. Close collaboration throughout the process also mitigated the limitation of a single reviewer scenario and improved rigour. There may be disagreement over the criteria used to extract data and assess the methodological quality of studies. The criteria have, however, been used in previous research reviews [38,55,56].

Conclusion

This review contributes to the literature by identifying and summarising the knowledge gained to date of what alcohol interventions are considered appropriate and practicable for Indigenous people. From an academic perspective, this review comments on the utility of the MMAT tool and extends the application of narrative synthesis techniques for presenting data extracted from mixed methods systematic reviews.

In sum, interventions targeted for dissemination are: Indigenous informed approaches to residential rehabilitation and case management, community-based alcohol prevention strategies, outreach, and primary intervention programs. Secondary prevention activities such as incorporating routine screening and brief interventions for high-risk alcohol use continue to be a major focus. This review shows that there remains a lack of reporting on processes of implementation in the literature and limited well-designed and executed evaluations of alcohol related interventions for Indigenous Australians exist. For one, Indigenous involvement in research isn't where it should be. While developing systems to facilitate partnership management in multicentre studies is common, preparing for Indigenous leadership turnover is still missing.

The difficulty of conducting 'neat' and rigorous, prescribed research in Indigenous communities, and the complexity of health and social problems relating to alcohol-misuse among Indigenous people, are directly reflected in the limited number of research publications available. It can also be viewed as an indication that Australian government policy continues to fail at instigating developed frameworks that support and encourage the routine use of systematic design, reporting and evaluation of implementation strategies for Indigenous specific alcohol misuse interventions.

A key recommendation to arise from the research literature and national guidelines is the importance of collaborative and supportive strategies to optimally disseminate alcohol interventions in Indigenous settings. Although it is beyond the scope of this review it is relevant to comment on the extent to which researchers in this field are mindful of the need (and policy directive) to include a capacity building component in their research projects, particularly in an attempt to address the difficulties in implementing alcohol interventions for Indigenous people. Indigenous involvement in not only the design and direction of the intervention but also its implementation is an increasing trend and more recent studies exhibit greater levels of Indigenous involvement and specific capacity building considerations. However, the participation of AHW, referred to in the literature as the cornerstone of interventions to improve Aboriginal health [22], remains somewhat understated considering their importance. Authors reported a key factor that may inhibit AHW participation, which also exemplifies their utility to researchers, is their multiple social and professional responsibilities.

Recommendations

It is recommended that barriers to effective implementation, as well as strategies for overcoming such barriers, are identified at the outset, and documented in funding and ethics applications. This will improve and inform culturally adapted alcohol interventions and aid in future

efforts to implement and disseminate them. Robust investigation into the acceptability of culturally targeted interventions for 'high-risk' groups would fill a gap in current knowledge. Given the complexity of implementing alcohol interventions, particularly among Indigenous populations, it is crucial that future research addresses the context and cultural setting in which programs are operating, so that multipart needs can be effectively met [3,8,24,26,27,57].

The mandated reporting of implementation practices would help improve a lack of clear, evidence based recommendations in the field. While systematising implementation practices may not be the correct way to go because of the need to adapt to different Indigenous health service settings [4] it is still necessary to provide meaningful feedback on implementation findings to stakeholders, the wider research community and Indigenous people them. The utility of embedding implementation strategies and Indigenous involvement in the design and execution of programs aimed specifically at reducing alcohol-related harm among Indigenous populations is obvious and overdue.

Conflict of Interest

The authors report no competing interests.

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