

Evaluation of the Mindframe guidelines for media reporting on Alcohol and Other Drugs: Baseline data

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Introduction

In Australia, the use of alcohol, tobacco, and other drugs (AOD) is a single major cause of preventable disease and illness. The Australian burden of disease study reported that in 2015, tobacco use contributed 9.3%, alcohol use contributed 4.5% and illicit drug use contributed 2.7% of the total disease burden. Indeed, tobacco use contributed 41% to respiratory disease and 22% to cancer while alcohol use and illicit drug use contributed 14% and 16% to injuries, respectively (AIHW 2019). In males, AOD use make up the top two leading risk factors contributing to disease burden in those aged 15-24 years, whereas AOD use make up the second and third leading causes of disease burden in females aged 15-24 (the top being child abuse and neglect) (AIHW 2019). In terms of direct impact, the most recent estimates in Australia indicate that approximately 4% experience a diagnosable alcohol use disorder in the past 12 months (with the highest prevalence of 11% among those aged 16-24) and at most 1.5% experience a drug use disorder in the past 12 months (Slade, Johnston et al. 2009, Teesson, Hall et al. 2010).

The negative consequences of AOD use not only influence the health of individuals but also have detrimental impacts on the economy, productivity, and social aspects of the population more broadly. In terms of opioid use, the estimated cost in 2015/16 was \$15.8 billion and attributed to premature mortality, criminal justice system, and other health care costs (Whetton 2020). Whereas alcohol use in Australia has been estimated to cost \$14.4 billion attributed to productivity losses, traffic accidents, and the criminal justice system (Manning 2013). In 2019, approximately 1 in 5 Australians aged 14 years or older had been a victim of alcohol-related violence with females more likely than males to report that the abuser was a current or former spouse/partner (AIHW 2020). In short, every effort is required to reduce the significant burden and harms associated with AOD use including efforts to reduce stigma, increase help-seeking behaviour, facilitate access to quality information, prevention, early intervention, and treatment programs, and promote evidence-based policies at a national level.

The media and reporting on AOD-related issues in Australia

The news media (defined in this instance as predominately print media either online or on paper) play an integral role in facilitating the public discourse, influencing attitudes and opinions, and shaping policy decisions on alcohol and other drugs (Lancaster, Hughes et al. 2011, Cohn, O'Connor et al. 2019). Indeed, news media consumption in Australia is widespread. A survey conducted for the 2016/2017 Digital News Report: Australia, found that most participants were extremely or very interested in the news media with Australians preferring hard news (62%) over soft news such as celebrity, entertainment, or lifestyle. In terms of online news habits, over 79% of respondents to the 2016 survey indicated that they mostly read news in text and the majority accessed news websites between one and five times per day (Watkins, Park et al. 2017). Importantly, Australians generally trust the media as found in the Ipsos Global Advisor: Trust in the Media Survey 2019, although they did find that Australians trust in the media has been waning in comparison to previous surveys (IPSOS 2019). In a more recent study, Flew et al (2020) compared data from a number of Australian studies and found that public service media (such as the ABC and SBS) were considered the most trustworthy, followed by reputable print publications such as The Age and The Australian. Tabloid and pop culture online news were considered less trustworthy (Flew, Dulleck et al. 2020).

It is not surprising then that the news media can have a large and varied impact on the general population about important social and health issues. However, evidence from previous media monitoring studies paint a rather negative picture of the media, with sometimes sensationalist, unbalanced, and inaccurate reporting on issues associated with alcohol and other drugs. Hughes, Lancaster et al. (2011) analysed the content of articles that contained at least one keyword associated with illicit drugs from 11 major Australian newspapers between 2003-2008. They found that the content of media reports on illicit drugs was heavily distorted towards criminal justice and law enforcement topics (representing 70% of the sample) and often the consequences of illicit drug use were portrayed as legal problems (60%). Of note, Hughes, Lancaster et al. (2011) concluded that media framing differed depending on the type of illicit drug reported on, with articles on cocaine use depicted with neutral tones and neutral moral evaluations whereas articles on meth/amphetamine use were portrayed predominately with a negative moral evaluation. A recent media monitoring study on methamphetamine by Rawstorne, O'Connor et al.

(2019) confirmed these findings. Approximately 45% of 1,364 articles published between 2014-2016 framed methamphetamine use as a “crisis” or emergency in the Australian community. The authors concluded that the use of language to describe methamphetamine use in the media as an “epidemic”, with people positioned as criminals, deviants, addicts or dangerous, and a significant focus on the legal consequences, can generate increased fear and panic in the population that could result in a poorly directed reactive government response. As an example of the media’s possible impact, Rawstorne, O’Connor et al. (2019) point towards the increase in the percentage of the general population who indicated that methamphetamine was the drug of most concern (from 16% in 2013 to 40% in 2016) and the increased public concern over the harms of methamphetamine (from 8.7% in 2013 to 19.2% in 2016) in the National Drug Strategy Household Surveys, following the increased media attention between 2014 and 2015 (AIHW 2016).

With respect to media reporting on alcohol in Australia, a study by Azar, White et al. (2014) performed a content analysis of 4,217 alcohol-related newspaper articles published between 2000 and 2011. The authors found that over the 12-year period, newspaper reports of alcohol-related issues have become more disapproving in nature with a focus on restrictions, trauma, prevention, and drink driving. The changing trends may represent the emergence of more organised approaches to alcohol control and a greater focus on alcohol-related harms in the later stages of the decade, yet the authors still found most of the commentary pieces and half of the articles covering health and information, were socially approving of alcohol use, or framed with a positive slant. In a more targeted study focusing on the media reporting on AOD use among people of African ethnicity in Australia, Horyniak, Lim et al. (2016) found that alcohol-related stories were the most common (68%) and often related to violence (47%) and crime (32%). Of note, the authors found that many of the articles identified individuals by their ethnic or refugee status despite no direct relevance to the event reported on, and in contrast with articles reporting on white Anglo-Celtic communities. Furthermore, the focus on legal and moral issues has been argued as placing the blame on individuals and communities rather than addressing the underlying causes of substance use. The apparent and observed framing of alcohol and drug-related issues in the media can therefore significantly contribute to increased marginalisation of communities and people, as well as perpetuating stigma and negative stereotyping of people who use AOD in the broader population (Horyniak, Lim et al. 2016).

The impact of stigma on people who use AOD and their families cannot be understated. Stigma, often defined as an enduring mark of social disgrace, is one of the most cited barriers to help-seeking for substance use disorders and leads people to be devalued and discriminated against in society (Goffman 1963). Substance use disorders typically attract a higher level of stigma than other physical and mental health conditions (Crisp, Gelder et al. 2005, Corrigan, Kuwabara et al. 2009) and dependence on illegal drugs has been classified by the World Health Organisation as the most stigmatised health condition worldwide (Room, Rehm et al. 2001). The reason for this may be that illegal drug use is generally considered an antisocial and dangerous practice, and people who become dependent on illegal drugs are often characterised as responsible for their situation (Room, Rehm et al. 2001, Crisp, Gelder et al. 2005, Lloyd 2012, Yang, Wong et al. 2017). Self-stigma, the internalisation of the negative views of mainstream media or predominant culture, among those with substance use problems has been associated with feelings of self-blame, low self-worth and shame, as well as higher rates of drug use disorders and lower rates of treatment seeking, not only for substance use problems but also for other health conditions which commonly co-occur, such as mental illness, trauma and infections (Regen, Murphy et al. 2002, Luoma, Twohig et al. 2007, Cama, Brener et al. 2016). The level of stigma and discrimination someone might experience due to their drug use can depend on the type of drug used as well as the route of administration. For example, drugs like heroin and cocaine have been shown to attract more stigma than cannabis and alcohol (Raley 2011, Brown 2015). Given that the inaccurate or alarmist reporting of alcohol and other drug use can result in the stigmatisation and discrimination of people who use substances (Lee 2017), it is imperative that the community, researchers, policy makers and the media understand the impact of their reporting, and receive guidance on how to present information without stigma and encourage help-seeking.

***Mindframe* guidelines to improve media reporting**

In response to the opportunity to improve media reporting, *Mindframe* (a program managed by **Everymind**) was established in 1999. *Mindframe* aims to provide leadership and support on applying best practice principles for safe communication and media coverage on key social and health issues, such as suicide, mental health, and AOD. To such end, *Mindframe* has developed several national guidelines to encourage accurate media reporting/portrayals and safe communication as well as

reduce stigma/negative stereotypes and encourage help-seeking behaviour. The first set of guidelines “**Reporting Suicide and Mental Illness**” were released in 2002 and focused on improving the reporting of suicide and mental illness. Although there are several similar guidelines around the world with the same key content (e.g. avoiding sensationalising or glamourising suicide), the *Mindframe* guidelines have stood out internationally because of the involvement of media, journalism educators and the mental health and suicide prevention sectors in their development and the model employed to educate and support the media and future media professionals to adopt the guidelines (Pirkis, Blood et al. 2006).

Evaluation work has shown that awareness of, support for, and uptake of the guidelines among media professionals has been substantial, mostly as a result of the active dissemination strategy by *Mindframe* (Skehan, Greenhalgh et al. 2006). To further evaluate the impact of the guidelines, a media monitoring project was undertaken in 2007 which systematically investigated whether there have been changes in the extent, nature, and quality of reporting of suicide and mental health/illness since the release of the guidelines. Results from this project indicated an increase in the quality of reporting on mental illness and suicide in the Australian media, although there is still room for improvement (Pirkis, Dare et al. 2009). *Mindframe*'s work has resulted in Australia being recognised by the World Health Organisation as one country which has achieved behaviour change for media reporting on suicide (Kay-Lambkin, Hunt et al. 2018).

Following the success of previous guidelines, in 2017 *Mindframe* was commissioned to develop additional specific guidelines for safe and accurate reporting of AOD. Prior to development, an evidence check was undertaken to review media reporting of AOD use worldwide, as well as examine the impact of media portrayal of AOD use on stigma and behaviours and finally to make recommendations for how to shape media reporting to maximise public health benefits (Kay-Lambkin, Hunt et al. 2018). The evidence-check utilised a systematic review protocol examining guidelines, research papers, case studies and editorials between 2007 and 2017 which discussed, or described, how media reported on AOD issues or the impact of reporting on AOD, and evaluated the articles against the Australian National Health and Medical Research Council (NHMRC) Evidence Hierarchy. Kay-Lambkin, Hunt et al. (2018) found that while the scientific evidence for the 30 studies describing how AOD is portrayed in the media was overall rated as good, a trend was observed in the framing of media portrayals as alarmist, with reports focusing on legal/lawsuit issues, and crime/search-and-seizure issues. Regarding the impact of media portrayal, whilst the evidence from 28 articles was of high quality (including two systematic reviews and a randomised control trial) impacts were inconsistent, which may have reflected the different methods used to collect and evaluate data. However, there was evidence that reductions in AOD use occur when media portrayals favour health, psychological, and social risks associated with use, and encourage the public to consider how AOD use fits in with their goals as contributing members of the community (Slater, Kelly et al. 2011, Ayers and Myers 2012, Lancaster, Hughes et al. 2012). This was particularly effective for women and people not already using AOD. There was evidence that media reports of AOD use, particularly when alcohol use was presented as somewhat normative, resulted in increased initiation of alcohol, tobacco and illicit drugs (Anderson, De Bruijn et al. 2009, Nunez-Smith, Wolf et al. 2010).

The evidence check also reviewed four existing AOD media guidelines and found that all guidelines highlighted the need to minimise stereotyping language and images when reporting about AOD use, and generally to shift focus of reporting onto the health, social, and psychological issues associated with AOD use. Throughout the evidence check, it was noted by the authors that Australian studies were commonly identified and included in the analyses, indicating this is an issue of high relevance and applicability to the Australian media and general community. Final recommendations from the evidence check were: 1) updated media guidelines for the reporting and portrayal of AOD use should be developed, 2) an implementation plan be developed to encourage the uptake of the guidelines by Australian media, 3) an evaluation of the effectiveness of the implementation plan and the guidelines be undertaken to determine whether these strategies affect media reporting, and stigma/behaviours around AOD use in the Australian community, and 4) further work be undertaken to develop a strategy to empower consumers of AOD-related media reports to evaluate accuracy and credibility of information presented (Kay-Lambkin, Hunt et al. 2018).

In line with the recommendation, the development of media guidelines for reporting on AOD issues was undertaken similarly to the previous guidelines. Evidence-based principles and methodologies were applied along with assistance from the AOD sector and consumer representatives, *Mindframe* AOD Advisory Group members, and project partners. The “*Mindframe*

Alcohol and Other Drugs, Guidelines for communicating about alcohol and other drugs” were officially launched in March 2019 (Everymind 2019).

Core information included within the guidelines reflect:

- Communicating about someone who uses alcohol and other drugs.
- Helpful ways to communicate about alcohol and other drugs.
- Harmful ways to communicate about alcohol and other drugs.
- Use of language.
- Help-seeking information and services.
- The impact of media reporting.

In addition to the national guidelines, *Mindframe* developed training for reporting on AOD that consists of face-to-face or online training lasting one hour conducted by an expert team on the background to *Mindframe* for AOD, the impact of AOD reporting, an overview of the guidelines and core information, participant self-care information, availability for additional support, and question time. The overarching goal of the training program is to provide stakeholders with education and guidance for the responsible, safe, and sensitive portrayals of AOD and AOD-related issues in mass communications.

The current study

The current study represents the first phase of a broader evaluation of the *Mindframe* guidelines for reporting on AOD, namely this phase will establish a baseline dataset of representative media entries published prior to the development and implementation of the guidelines. The baseline dataset will form the comparison group for a subsequent evaluation of media entries that are published after the implementation of the *Mindframe* guidelines. The current study has three specific aims related to this phase of the evaluation:

1. Describe the content associated with relevant media entries that focus on AOD use or AOD-related issues published in Australian newspapers or news feeds either in print or online between July 2016 and June 2017.
2. Determine whether the media entries adhere to several domains associated with the *Mindframe* guidelines for reporting on AOD.
3. Identify significant content factors associated with different adherence scores to provide recommendations for where reporting can be improved.

Method

The methodological approach used for this media monitoring study is consistent with previous media monitoring studies on suicide and mental health (Pirkis, Francis et al. 2002, Pirkis, Dare et al. 2009). The approach proceeded in several steps, including media searches, initial screening and extraction from an online media database, the development of content and adherence coding schemes, application of the coding schemes in a random sample of media entries, and finally data analysis. Details on the methods used across each stage are provided below.

Media searches and initial screening

To address the aims of the current study, a comprehensive search of print media articles published between July 2016 and June 2017 was conducted using the Australian and New Zealand Newsstream (ProQuest) database. The searches were limited to Australian print media (either published in print or online) given restrictions associated with coding and limited availability

of transcriptions of television and radio news outlets on the ProQuest database. As such, trends in media identified in the current study are treated as a proxy for wider media coverage in Australia given close alignment between print media and television or radio. Moreover, many Australians regularly access print news media as a primary source of day-to-day news. The search strategy proceeded by capturing any article during the studied time frame that included mention of at least one alcohol and/or drug-related term. The terms were developed in conjunction with several experts in the field of alcohol and other drug research as well as prior media monitoring studies focusing on alcohol or other drugs. The list of search terms is provided in the search strategy in Appendix A.

The media sampling frame for the current study consisted of 34 newspapers or wire feeds that cover a full spectrum of national and local metropolitan and regional news outlets. Major newspaper outlets were included from multiple Australian states and territories with substantial readership and reach (see Table 1). The cross-platform digital and print readership of the major newspapers sourced by the current study ranged from 411,000 to 8.26 million Australians. The choice of specific media outlets to include was also informed by preliminary searches and screening of results, with priority given to Australian metropolitan and regional sources that captured the largest number of media entries identified by the search terms. Media sources from New Zealand or other countries were removed from the searches. Moreover, there were many duplicate news stories due to multiple news outlets, particularly the smaller regional newspapers owned by the same publisher, picking up and printing the same or similar story. Thus, the limited selection of media outlets reduced the number of duplicate news articles.

Table 1: Media outlets included in the search strategy, state, location, and approximate readership.

Name	State	Location	Approximate readership*
AAP General News Wire	National	National	-
ABC Premium News	National	National	-
ABC Regional News	National	National	-
Fraser Coast Chronicle	Queensland	Regional	-
Geelong Advertiser	Victoria	Regional	35,000
Herald Sun	Victoria	Metropolitan	4,300,000
Illawarra Mercury	New South Wales	Regional	29,000
Maitland Mercury	New South Wales	Regional	-
Newcastle Herald	New South Wales	Metropolitan	411,000
News Mail Bundaberg	Queensland	Regional	-
Port Macquarie News	New South Wales	Regional	-
Sun Herald	New South Wales	Metropolitan	559,000
Sunday Telegraph	New South Wales	Metropolitan	613,000
Sunshine Coast Daily	Queensland	Regional	-
Sydney Morning Herald	New South Wales	Metropolitan	8,259,000

The Advertiser	South Australia	Metropolitan	<i>317,000</i>
The Age	Victoria	Metropolitan	5,601,000
The Australian	National	National	4,323,000
The Bendigo Advertiser	Victoria	Regional	-
The Border Mail	Victoria	Regional	-
The Cairns Post	Queensland	Regional	<i>36,000</i>
The Canberra Times	ACT	Metropolitan	1,211,000
The Chronicle	Queensland	Regional	-
The Courier	Victoria	Regional	-
The Courier-Mail	Queensland	Metropolitan	2,842,000
The Daily Advertiser	New South Wales	Regional	-
The Daily telegraph	New South Wales	Metropolitan	4,850,000
The Examiner	Tasmania	Regional	<i>34,000</i>
The Gold Coast Bulletin	Queensland	Regional	<i>39,000</i>
The Mercury	Tasmania	Metropolitan	459,000
The Morning Bulletin	Queensland	Regional	-
The Norther Star	New South Wales	Regional	-
The Northern Territory News	Northern Territory	Metropolitan	<i>27,000</i>
Townsville Bulletin	Queensland	Regional	<i>43,000</i>

Notes: * data on cross-platform and newspaper readership obtained from Roy Morgan research (6 months to June 2020) <http://www.roymorgan.com/industries/media/readership/cross-platform-audiences-newspapers>. Numbers in italics represent only newspaper print readership and do not include cross-platform digital readership. ACT=Australian Capital Territory.

After targeting those media sources, preliminary searches identified a large number of articles for the 12-month period (n=36,584). Initial screening of the results indicated that many articles were not appropriate for coding given most mentioned one of the search terms in passing and the primary topic was unrelated to AOD. To improve the relevance of the articles for the purpose of the current study, the media searches were restricted to include one of the search terms in the “abstract” of the article, that is the first few sentences. This resulted in 6,983 media entries returned from the search and a final 5,842 entries remained after removing duplicates. The coding schemes were applied to a selected 50% of the media entries (n=2,921). The media entries were sorted by publication date and every second article was selected for coding. This ensured that the results would represent a full spread of articles published over the 12-month period. The transcripts for the selected entries were extracted from the ProQuest database and uploaded into the purpose-built website for coding, administered by WebSurvey.

Development of the coding scheme

The coding was divided into two sections given the primary aims of the current study: a content coding scheme and an adherence coding scheme. Both coding schemes were developed by the authors specifically for the current project in conjunction with the *Mindframe/Everymind* team and pilot tested independently by the three study coders. The content coding scheme was developed to identify important characteristics of the media entries that could be used for descriptive purposes and follow-up analyses of quality reporting. The full content coding scheme is provided in Appendix B. The initial question sought to identify the relevance of each article, with entries classified as 1) primarily reporting on AOD, 2) the entry discussing another issue but references AOD as an important secondary associated issue, 3) one of the AOD search terms is mentioned incidentally in the context of another issue unrelated to AOD, and finally 4) the entry did not contain one of the AOD search terms (the final category was rarely applied given the requirement of the search strategy). Only articles that had a primary or secondary focus of AOD were fully coded. Additional questions in the content coding scheme included: the type of entry, number of sources, type of source, primary substance reported on, secondary (if any) substance reported on, and the primary topic of the article. Detailed description and examples were provided to the coders for each question.

The adherence coding scheme was developed using a similar methodology to the previous *Mindframe* media monitoring report on Suicide and Mental Health (Pirkis, Francis et al. 2002). The full adherence coding scheme is provided in Appendix C. Each of the domains (or questions) for the adherence coding scheme were mapped specifically onto one or more of the *Mindframe* guidelines for media reporting on AOD (Everymind 2019). The coding scheme comprised eight domains with the first two domains identifying the presence of alarmist, sensationalist or inappropriate language used to describe AOD use (page 16 and 17 of *Mindframe* guidelines). The third domain identified if the media entry portrayed AOD use as a health condition (page 15 of *Mindframe* guidelines) whereas the fourth and fifth domains targeted the use of stigmatising language and description of AOD use as delinquent, violent, or morally weak (page 14 of *Mindframe* guidelines). The sixth domain sought to identify whether expert opinion was sought on the topic of interest (page 15 of *Mindframe* guidelines). The seventh domain identified if the entry glamourised AOD use or related activity (page 16 of *Mindframe* guidelines) and the final domain identified if relevant help-seeking information was included in the entry (page 18 of *Mindframe* guidelines).

Each domain was rated on a four-point response scale depending on whether the article adhered to the *Mindframe* guidelines: yes, no, unsure, not applicable. Coders were instructed to provide a response of “not applicable” if the specific article did not have an opportunity to address the domain. For example, an article that did not focus on people who use AOD was not able to refer to people using inappropriate language or characterise the person by their AOD use, therefore would receive a “not applicable” code. Each domain was then assigned a numeric code depending on whether the domain was framed in the positive or negative, for example, if the entry did not use inappropriate language when describing AOD use then that entry was re-coded with a value of 1, if the entry did use inappropriate language then it was re-coded with a value of 0, if the entry was not applicable to this domain or if the coder was unsure then the entry was re-coded with a missing value. A total score was then calculated by summing the applicable values of each of the responses, dividing by the total number of applicable responses, and multiplying by 100, to generate a score between 0 and 100. The adherence score was therefore a unipolar scale with higher scores indicating greater adherence to the *Mindframe* guidelines (and lower scores indicating lower adherence to the guidelines).

The coding schemes were piloted by the coders in a sample of 50 test articles (not included in the full sample). The three coders for the study were provided with training on the *Mindframe* guidelines by expert trainers from **Everymind** and were provided with comprehensive documentation and examples for coding different articles. The coders were a mix of undergraduate and graduate university students from multiple disciplines (public health, science, communication). In addition, the coders met with the study team to discuss any issues with interpretation of the coding scheme after the pilot testing and to ensure consistency in understanding. The coding team also met on a weekly basis during the study to crosscheck any difficult responses, discuss further issues, and reduce the possibility of coder drift in the operationalisation of the coding schemes. The coders were blind to the results from the other coders. Each coder was randomly assigned roughly a third of the full sample of media entries to complete. During the full coding phase, a random subsample of 10% were double coded by a random selection of two of the coders to examine inter-rater agreement.

Statistical analysis

Descriptive statistics (percentages and frequencies) were used to examine and compare the full sample versus the sample of entries that were subsequently identified as relevant during coding. Articles that were deemed relevant (primary or secondary focus on AOD issue) were examined further in terms of content and adherence. Individual domains from the adherence coding scheme were examined separately in addition to the full adherence score calculated from the total number of responses. To examine the associations between content-related factors on adherence, the data were analysed using linear regression. Both univariable and multivariable models were estimated to determine the independent effects of different content variables on adherence scores. All analyses were conducted using SAS v9.4 and R statistical packages (tidyverse, ggplot2).

Results

Initial extraction of media entries and comparisons based on relevance

The initial extraction of 2,921 media entries from the de-duplicated search results included entries from 33 news publications across 27 metropolitan and regional cities. The media entries were published by a relatively small number of publishers including: News Limited (40%), Fairfax media (35%), AAP (14%), Australian Provincial Newspapers (9%), and the Australian Broadcasting Corporation (2%). As can be seen in Figure 1, the largest percentage of media entries were published by the Australian Associated Press News Wire (15%), followed by Herald Sun (7%), and the Newcastle Herald (6%), whilst the lowest percentage of media entries were published by the Port Macquarie News (1%).

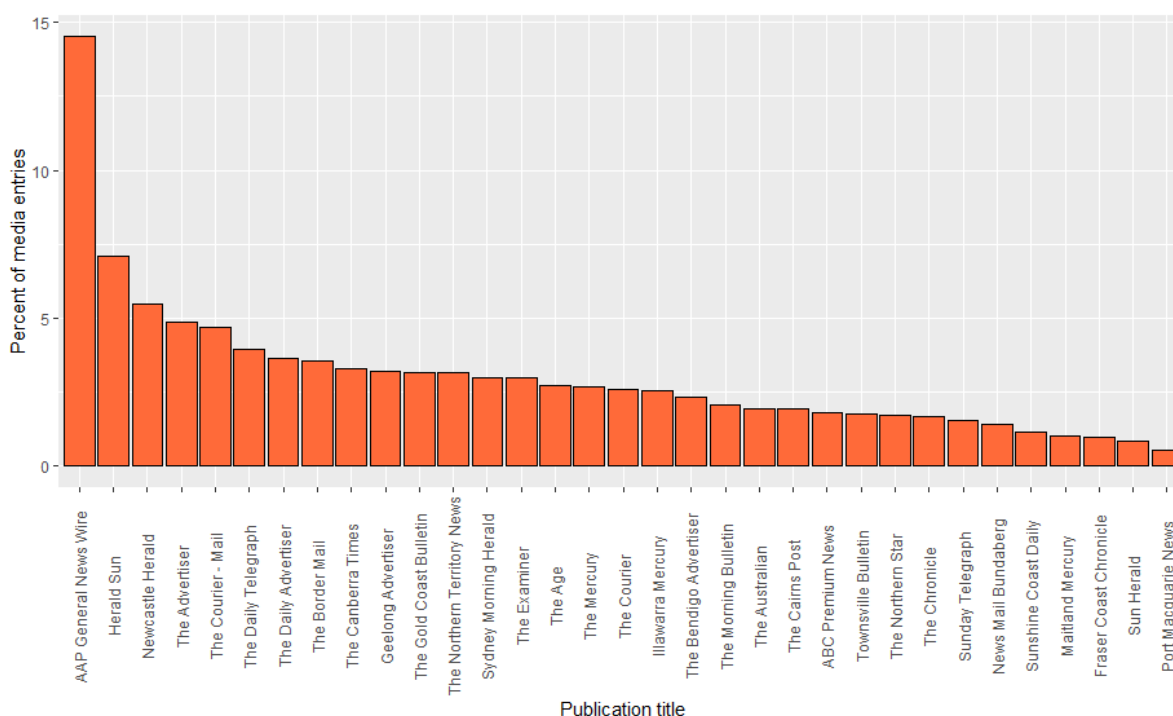


Figure 1: Percentage of media entries by publication title among total extracted sample.

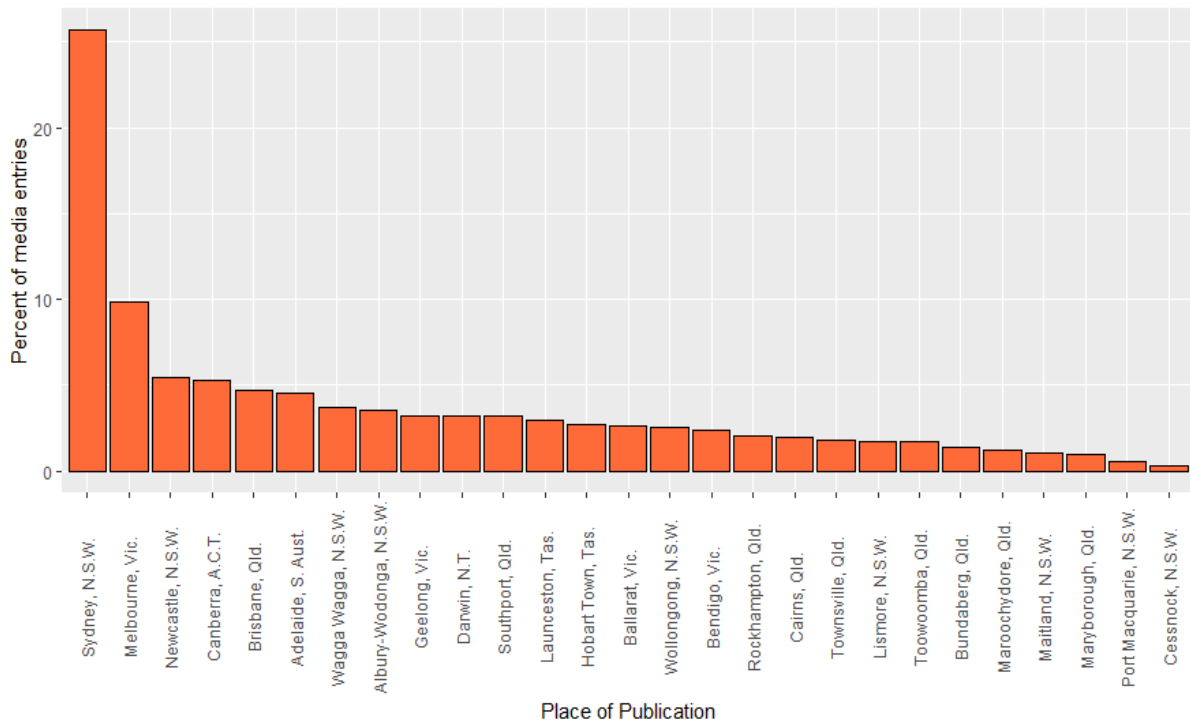


Figure 2: Percentage of media entries by location among total extracted sample.

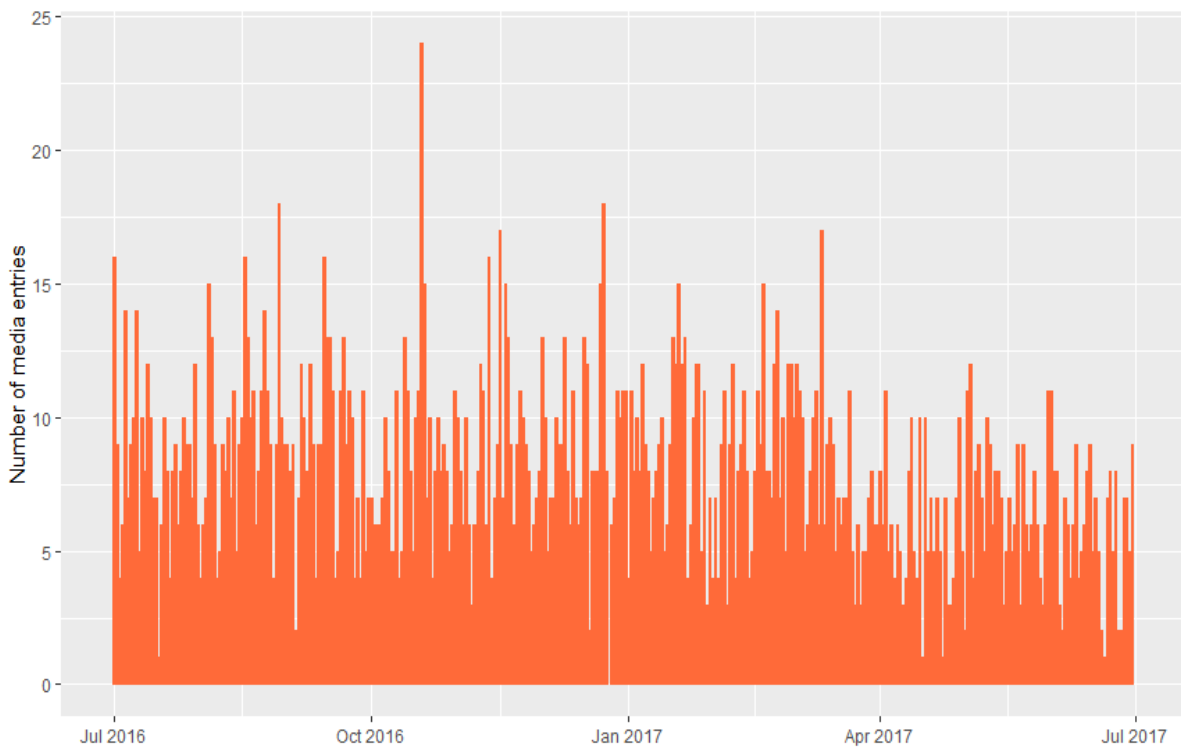


Figure 3: Number of media entries by publication date among total extracted sample.

In terms of geographical spread (Figure 2), the largest percentage of media entries were published in Australia’s largest cities, with Sydney ranked first (26%) followed by Melbourne (10%), Newcastle (6%), Canberra (5%), and Brisbane (5%). The number of media entries were evenly spread across the 12-month period with some evidence of a slight decrease in entries towards the end of the 12-month period and a large spike around October and November of 2016 (see Figure 3). The average word count for all extracted media entries was 395 (SD=326) with a range of 36 - 6245 words.

After coding, approximately 2,007 (68.7%) entries were coded as relevant with 1,708 or 85% of the relevant articles coded as having a primary focus on AOD use or an AOD-related issue and the remaining 299 (15%) coded as having a secondary focus on AOD use. The publication titles of the relevant media entries demonstrated a similar distribution to the total number of extracted entries, the largest percentage of relevant media entries were published by the Australian Associated Press News Wire (17%) followed by Herald Sun (6%) and the Newcastle Herald (5%) whilst the lowest percentage of media entries were published by the Port Macquarie News (1%). Similar patterns were also observed for the location and date of publication of relevant media entries. Relevant articles demonstrated a significantly smaller word count (M=358, SD=274) in comparison to non-relevant articles (M=477, SD=406, t=8.01, p<0.01).

Content characteristics of relevant media entries

Most of the relevant media entries were coded as news (89%) followed by editorials (6%), commentaries (5%), and other (0.3%). In terms of the primary substance reported on, as can be seen in Figure 4, the greatest percentage of articles reported on alcohol (28%), followed by methamphetamine (21%), cannabis (18%), and drugs in general (10%). Additional substances reported on that fell in the “other” category included GHB, Flakka, and prescription medicines.

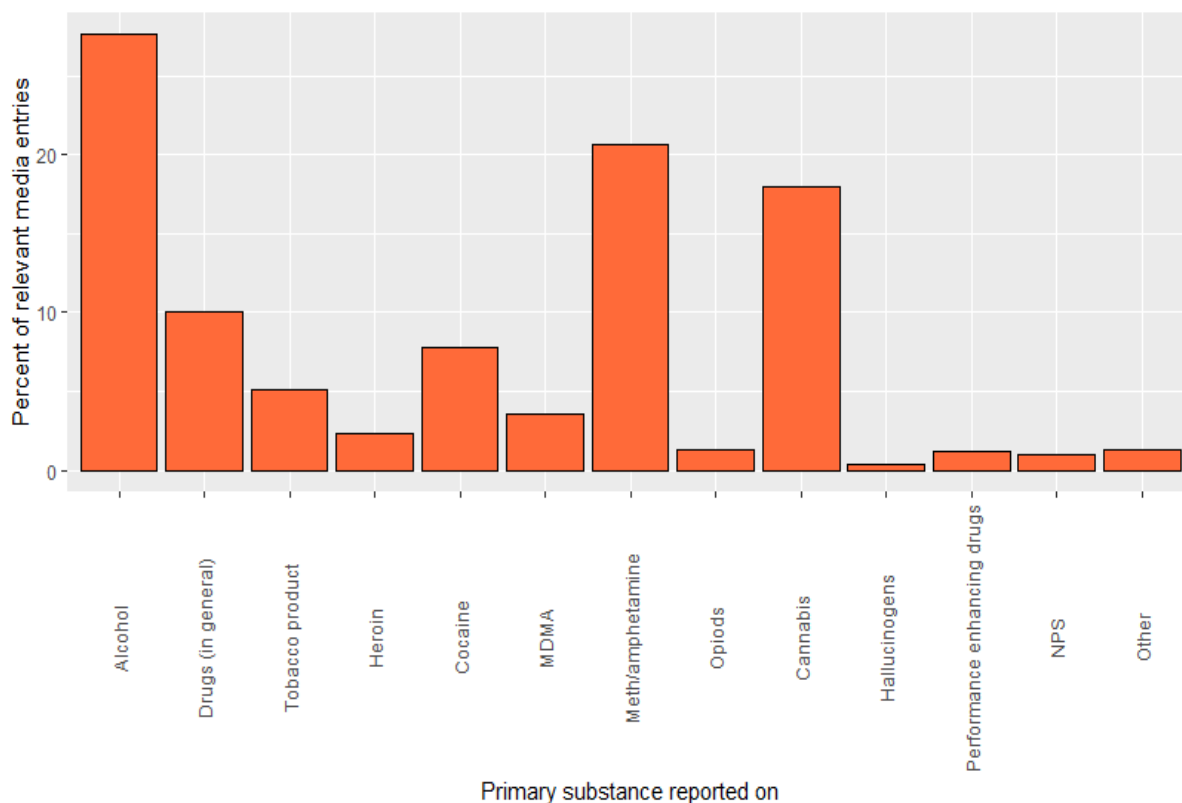


Figure 4: Percentage of relevant media entries by primary substance reported on (N=2007).

Table 2: Frequency and percentage of relevant media entries by different source types (N=2007).

Source type	n	%
Industry representative	110	5
Politician/Government official	308	15
Law enforcement representative	442	22
Legal representative	424	21
Research organisation/academic/expert	202	10
Health organisation representative	223	11
Community organisation representative	89	4
Sports industry representative	85	4
Member of the public	73	4
Person with lived experience	178	9
Friends/family	130	6
Other	61	3

Notes: media entries could have more than one source type

The mean number of sources identified in the relevant articles was 1.7 with a median of 2 sources identified and a range of 0 through to 15 sources. The greatest percentage of articles included sources from law enforcement (22%) or the legal system (21%), followed by politicians/government officials (15%), and health organisational representatives (11%) (see Table 2).

In terms of the primary topic reported on by the relevant articles (see Figure 5), most of the entries were either law enforcement (22%) or criminal justice related (19%), followed by entries on AOD-related policies or programs (13%) and AOD-related harms (12%). The topics with the fewest entries including those related to AOD use by a prominent politician (0.5%) and AOD use by another prominent person or celebrity not captured by the other categories (0.3%). To examine any relationship between the primary topic reported on and the primary substance reported on, the top four substances (alcohol, methamphetamine, cannabis, and drugs in general) were selected and then compared depending on whether the primary topic was crime/law related (law enforcement, legal system, or alcohol drug-related crime) or not.

Across all four substance the percentage of crime/law-related articles was 52%, however this differed significantly depending on which substance was the primary focus (Wald $\chi^2 = 124$, $df=3$, $p<0.001$). The results are displayed visually in Figure 6. Specifically, logistic regression indicates that the odds of a crime/law related topic for entries reporting primarily on methamphetamine were 4.6 (95% CI=3.5, 6.1) times the odds of a crime/law-related topic in entries reporting primarily on alcohol. Similarly, entries that reported on cannabis and drugs in general demonstrated significantly higher odds of a crime/law-related topic in comparison to alcohol related articles (OR=2.5, 95%CI=1.9, 3.3 and OR=1.9, 95%CI=1.4, 2.6, respectively).

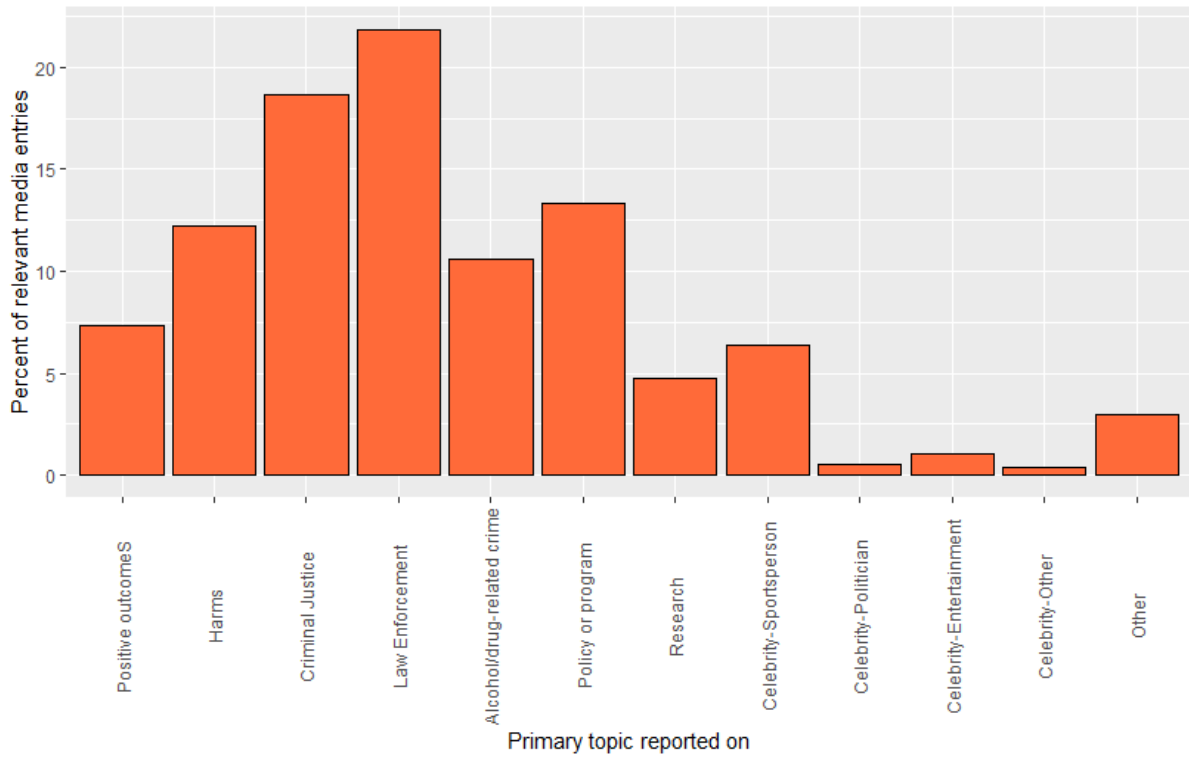


Figure 5: Percentage of relevant media articles by primary topic reported on (N=2007).

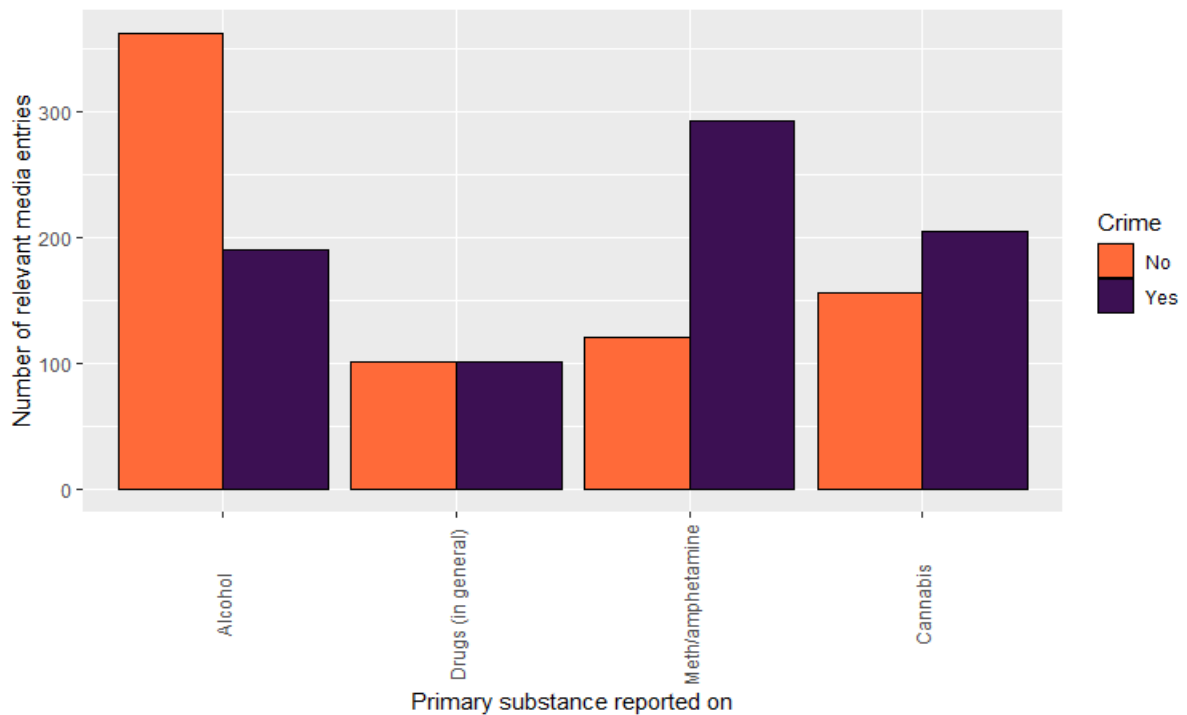


Figure 6: Number of crime/law-related media entries with a primary focus on alcohol, drugs (in general), methamphetamine, and cannabis (n=1531).

Adherence to *Mindframe* AOD guidelines

The frequencies and percentages associated with the adherence coding scheme for the individual domains in the total number of relevant media entries is provided in Table 3. The results demonstrate that 27-30% of entries received a “not applicable/unsure” code on four of the domains. These domains were predominately associated with guidelines that focus on the use of language to describe people who use AOD and describing AOD use as a health condition. Often these entries did not focus on individuals or describe people who use AOD and therefore the entry did not have the opportunity to either adhere or not adhere to these specific guidelines.

To aid interpretation, the original scores on the coding scheme were re-coded so that a code of “1” indicates that the entry adhered to the guidelines and a code of “0” indicates the entry did not adhere, only among entries that were deemed applicable to the domain. The re-coded percentages for each domain are provided graphically in Figure 7. In terms of the first two domains (alarmist/sensationalist language or inappropriate language when describing people who use AOD) most of the applicable entries adhered to the guidelines with 62% and 78% of the entries not containing examples of alarmist/sensationalist or inappropriate language, respectively. In contrast, only 28% of the applicable entries adhered to the guidelines associated with domain 3 (portraying AOD use as a health condition). A small majority of the entries (59%) did not contain examples of language characterising AOD use of delinquent, violent, or morally weak (domain 4) whereas a greater majority (69%) did not contain examples of focusing on AOD use in a stigmatising way (domain 5). An expert opinion was sought and quoted (domain 6) in approximately 66% of the applicable entries and almost all (96%) did not contain examples of glamourising AOD use or related activity (domain 7). Conversely, only 1% of applicable entries contained examples of help-seeking information specifically related to AOD use (domain 8).

Table 3: Frequency and percentages of adherence to each domain in total number of relevant media entries (N=2007).

Domain	Yes		No		Not applicable/ Unsure	
	n	%	n	%	n	%
1. Does the entry use alarmist or sensationalist language?	765	38	1236	62	6	<1
2. Does the entry use inappropriate language when referring to people who use AOD?	305	15	1095	55	607	30
3. Does the entry portray AOD use as a health condition?	414	21	1040	52	553	28
4. Does the entry characterise AOD use as delinquent, violent or morally weak?	600	30	872	43	535	27
5. Does the entry unfairly focus only on AOD use in a stigmatising way?	446	22	1015	51	546	27
6. Has the entry sought expert opinion?	1321	66	670	33	16	1
7. Does the entry glamourise AOD use or related activity?	85	4	1912	95	10	1
8. Does the entry include help-seeking information?	28	1	1928	96	51	3

Notes: given the very low number of unsure responses across the quality domains it was decided to merge this group with 'not applicable'

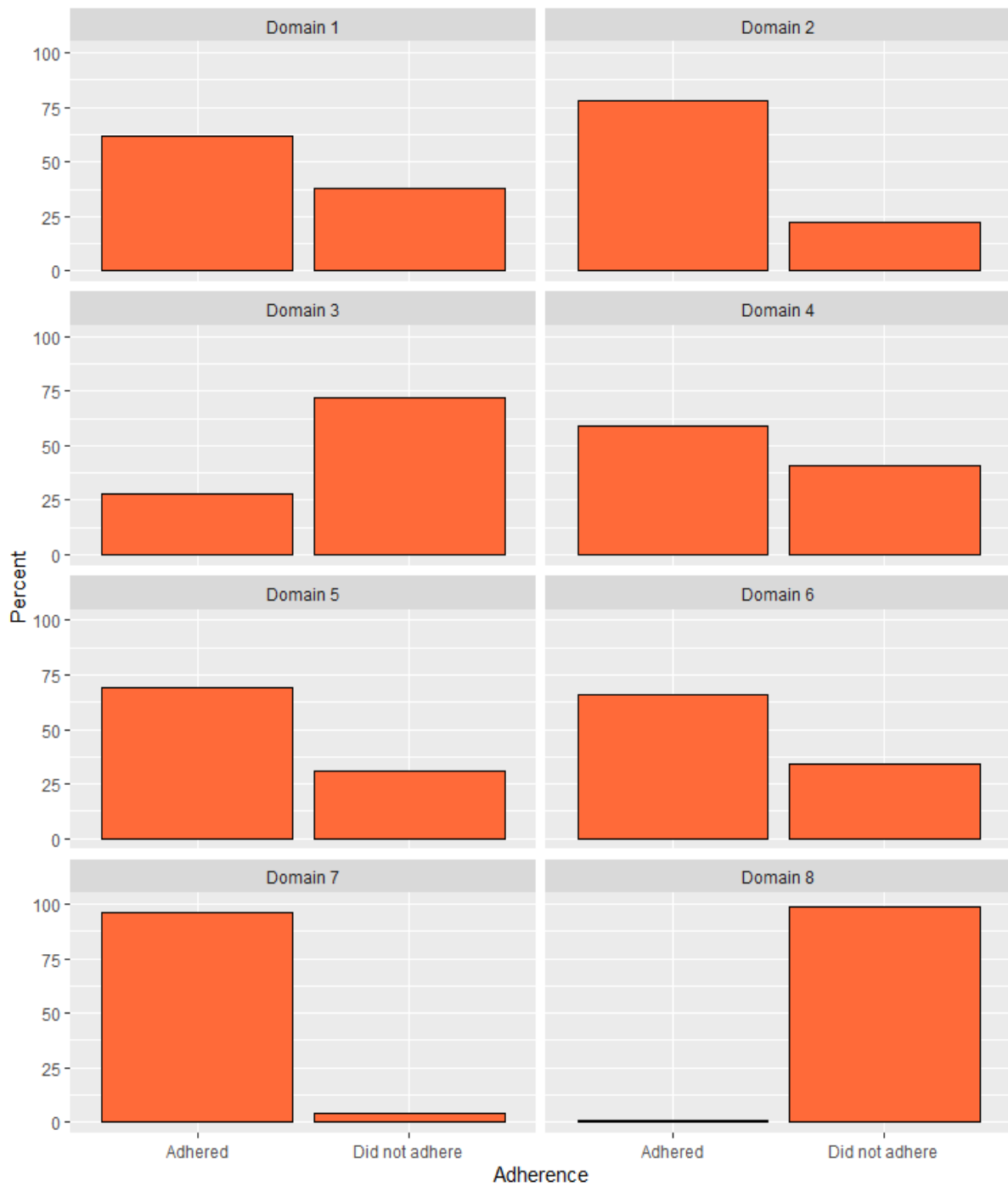


Figure 7: Percent of media entries adherence to *Mindframe* guidelines across the eight domains (n=2007).

The inter-rater agreement of the adherence domains was examined in a random subsample of 10% of the total number of articles with each article double coded by a random selection of two coders. The percent agreement was calculated given the low base-rates for some of the domains that have the potential to bias kappa statistics. The average percent agreement between the two coders across the eight domains was 79%. The percent agreement ranged from a low of 68% associated with “Does the entry portray AOD use as a health condition?” and “Does the entry unfairly focus only on AOD use in a stigmatising way?” to a high of 93% and 99% associated with “Does the entry glamourise AOD use or related activity?” and “Does the entry include help-seeking information?”, respectively. The relatively moderate agreement associated with some of the domains does reflect a degree of subjectivity with whether the entry adhered to the guidelines or not.

A total adherence score was calculated by summing the number of domains adhered to among applicable entries and rescaling to a score between 0 and 100, with higher scores indicating greater adherence. There was evidence of a slight bimodal distribution with one peak at a score of 50 and a second peak at score of approximately 75. The bimodal distribution possibly indicates the presence of two distinct groups of media entries with varying adherence scores. The mean adherence score for the total sample of relevant entries was 57 (as indicated by the blue dotted line on Figure 8) with a standard deviation of 19 and a median score of 60 (inter-quartile range=50, 75). The number of applicable domains for each media entry was significantly associated with the total adherence score ($t=-2.92, p=0.003$). Entries with 4 applicable domains (22% of the sample) demonstrated a slightly lower mean score ($M=55, SD=17$) than entries with 8 applicable domains (66% of the sample; $M=58, SD=20$), albeit the effect size was small ($d=0.16$).

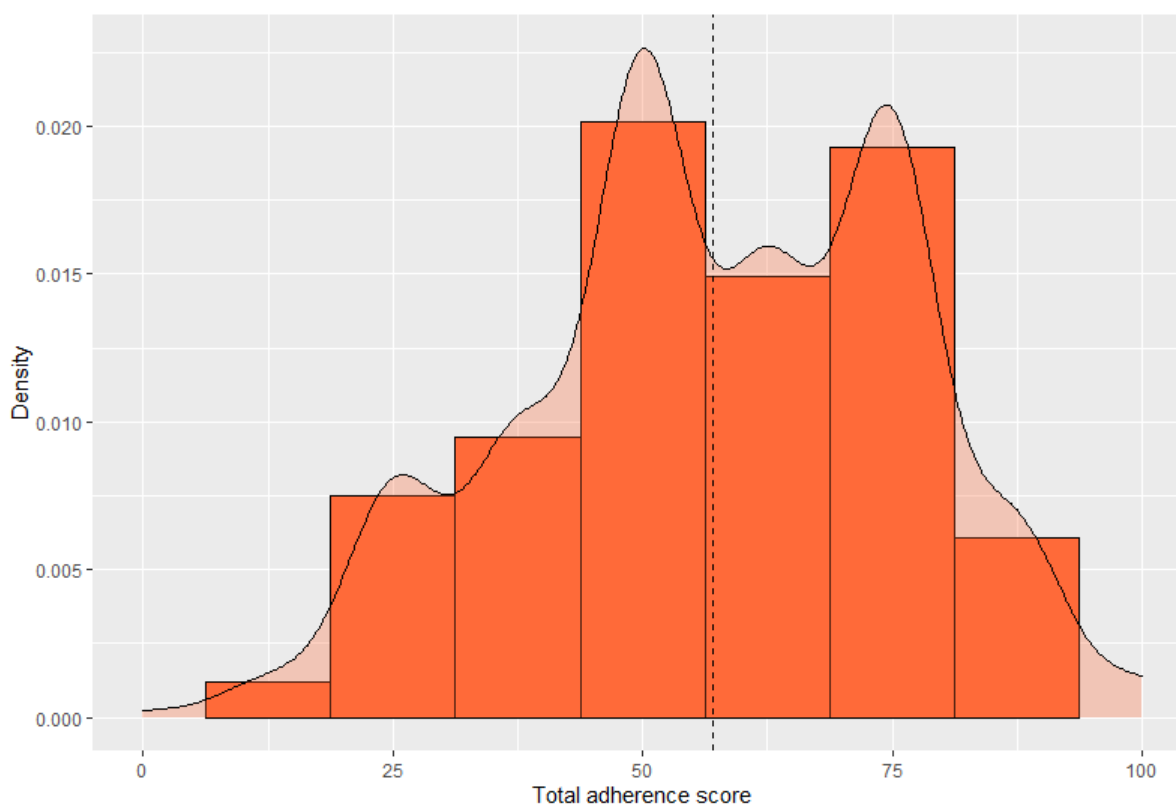


Figure 8: Histogram and density plot of total adherence scores in relevant media entries (N=2007). Blue dotted line indicates overall mean.

Descriptive comparisons of the distribution and means associated with the total adherence scores across key independent variables are provided in Figures 9-12 and Table 4. Descriptively, entries that were categorised as “news” on average exhibited the highest mean scores ($M=58$) relative to other media types. Entries on tobacco products ($M=66$), cannabis ($M=63$), and opioids (illicit/pharmaceutical) ($M=62$) similarly generated the highest mean scores relative to other substances. Entries that

were categorised as “positive outcomes” and “research” exhibited the highest adherence across the primary topics with a mean score of 69 for both. Entries that included two or more sources were scored higher with a mean of 62. Specifically, entries that included sources from health or research organisations exhibited the highest adherence mean score (M=71 and M=70, respectively). Conversely, entries on methamphetamine (M=52), entries on alcohol/drug-related crime (M=49), entries with no external sources (M=44), or entries that sourced information from a member of the public (M=52), on average demonstrated relatively low adherence scores.

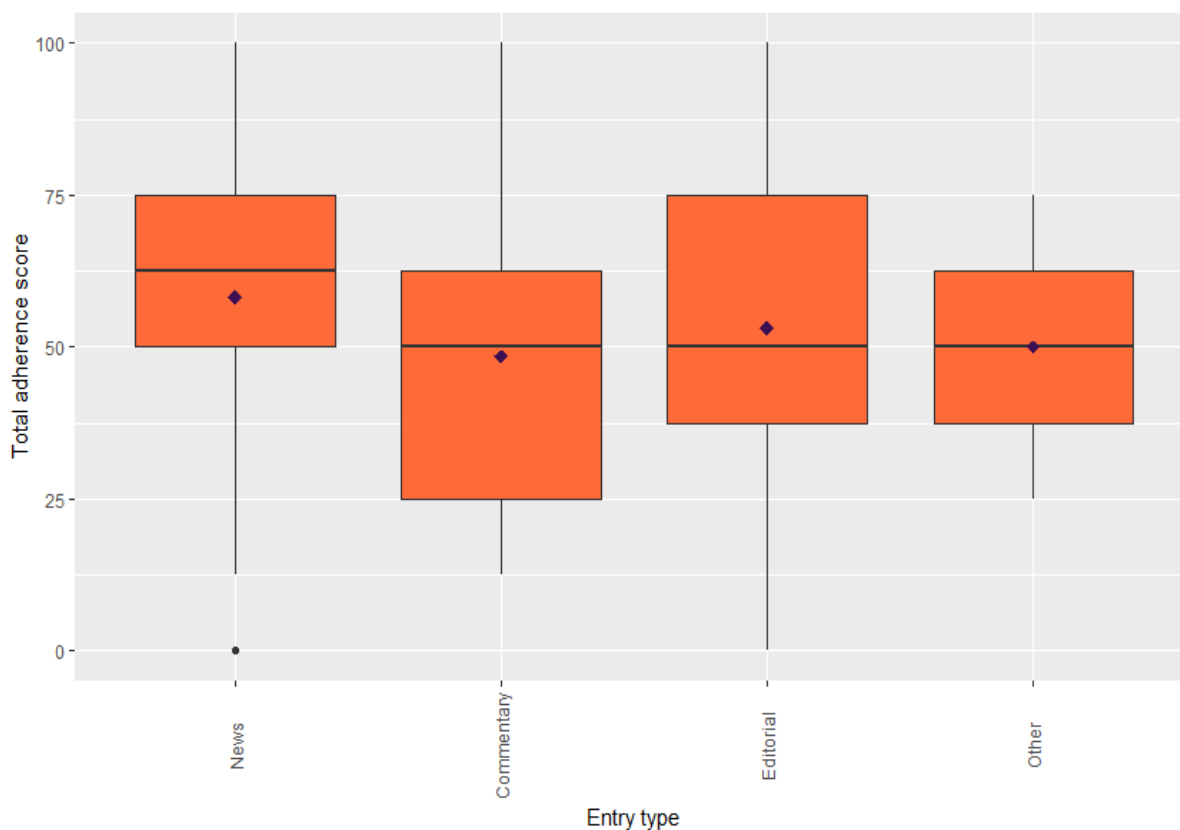


Figure 9: Box plots and mean scores for total adherence by entry type. Red diamond indicates mean score.

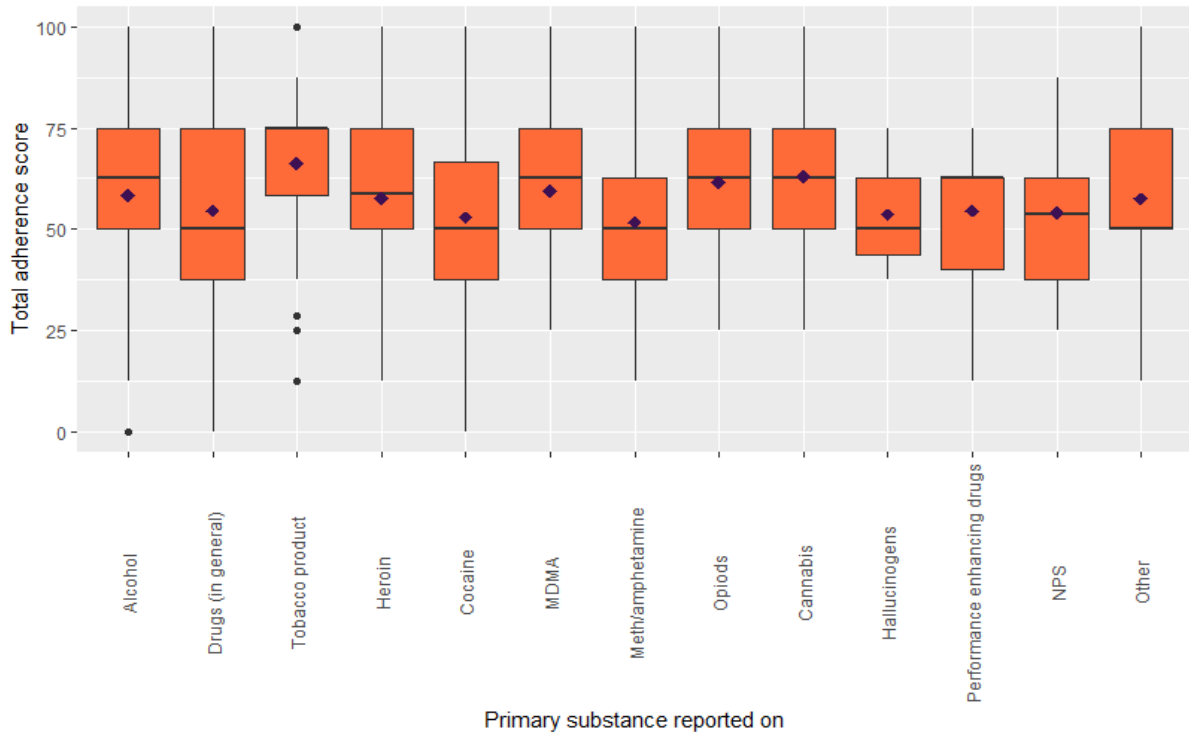


Figure 10: Box plots and mean scores for total adherence by primary substance. Red diamond indicates mean score.

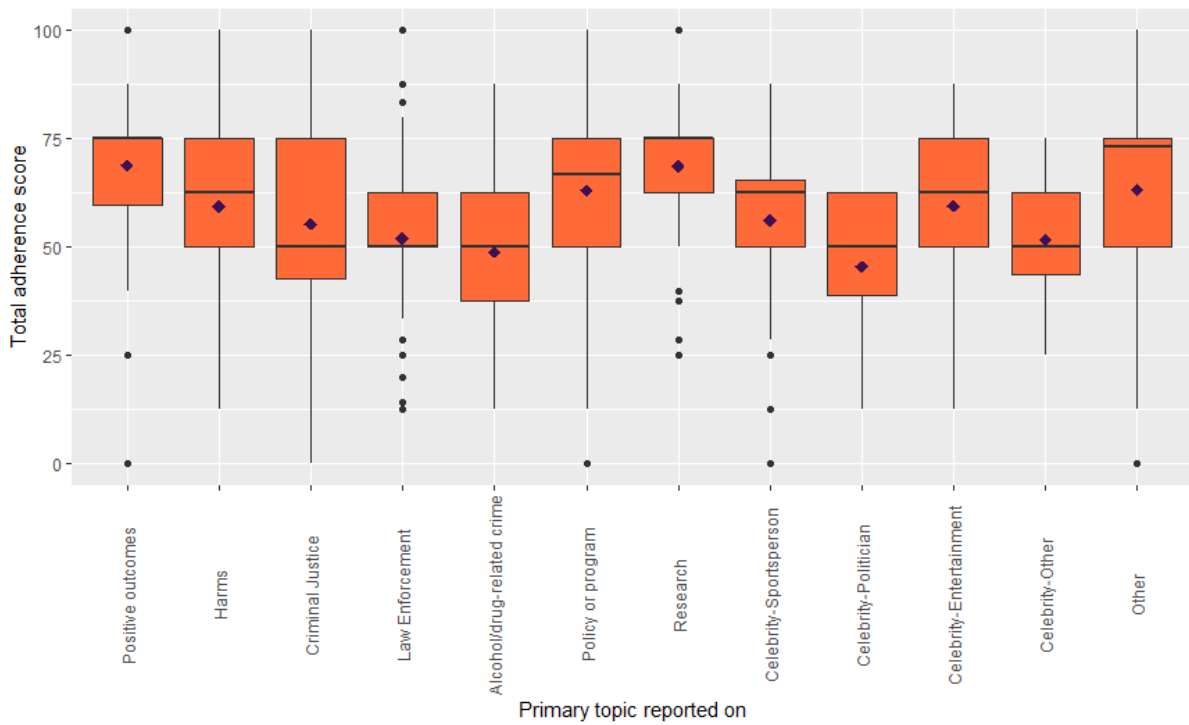


Figure 11: Box plots and mean scores for total adherence by primary topic. Red diamond indicates mean score.

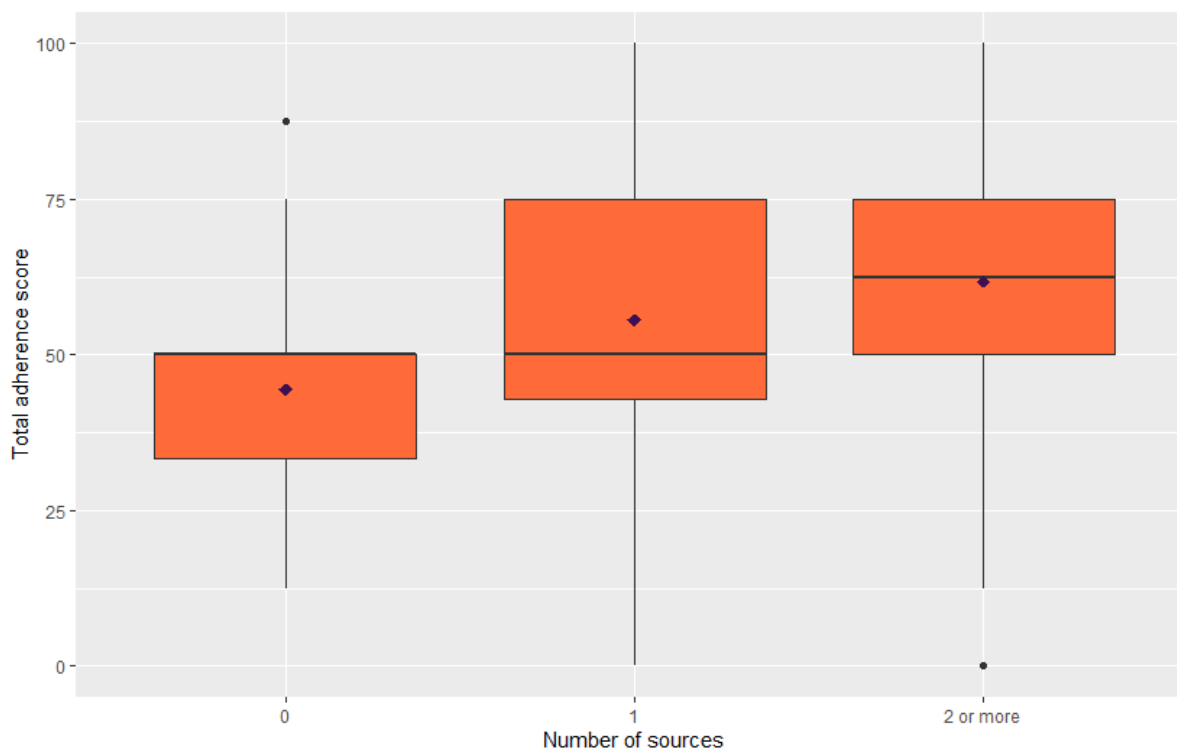


Figure 12: Box plots and mean scores for total adherence by number of sources. Red diamond indicates means score.

Table 4: Mean and standard deviation of adherence scores by type of source included in relevant media entries (N=2007).

Type of source		n	Mean	SD
Industry representative	Absent	1897	57	19
	Present	110	59	19
Politician/Government official	Absent	1699	56	19
	Present	308	64	18
Law enforcement representative	Absent	1565	58	19
	Present	442	57	17
Legal representative	Absent	1583	57	20
	Present	424	58	18
Research organisation/academic/expert	Absent	1805	56	19
	Present	202	70	17
Health organisation representative	Absent	1784	56	19
	Present	223	71	16
Community organisation representative	Absent	1918	57	19

	Present	89	62	18
Sports industry representative	Absent	1922	57	19
	Present	85	59	17
Member of the public	Absent	1934	58	19
	Present	73	52	19
Person with lived experience	Absent	1829	57	19
	Present	178	63	19
Friends/family	Absent	1877	57	19
	Present	130	58	20
Other	Absent	1946	57	19
	Present	61	58	20

Content factors associated with overall adherence

A series of linear regression models were estimated treating adherence scores as continuously distributed to examine the statistical significance of content characteristics associated with greater adherence to the *Mindframe* guidelines. Statistical significance was set at $p < 0.01$ given the large sample size and multiple comparisons. Moreover, some of the independent variables comprised several categories with relatively fewer cell counts and were re-coded to collapse selected categories and offer greater statistical power to detect between group effects. The parameter estimates associated with both univariable and multivariable models are provided in Table 5.

Table 5: Univariable and multivariable regression coefficients for models predicting total adherence scores (n=2007).

Variable	Category	Univariable				Multivariable			
		b	SE	t	p	b	SE	t	p
Entry type	News	7.4	1.3	5.5	<0.01	8.9	1.3	7.1	<0.01
	Commentary/editorials/other	ref	-	-	-	ref	-	-	-
Primary substance	Alcohol	ref	-	-	-	ref	-	-	-
	Drugs (in general)	-3.8	1.5	-2.5	0.01	-3.0	1.4	-2.2	0.03
	Tobacco products	7.7	2.0	3.9	<0.01	5.6	1.8	3.0	<0.01
	Cocaine	-5.6	1.7	-3.3	<0.01	-2.0	1.7	-1.2	0.22
	MDMA	1.1	3.4	0.5	0.65	3.3	2.2	1.6	0.12
	Methamphetamine/amphetamine	-6.8	1.2	-5.5	<0.01	-4.5	1.1	-3.9	<0.01
	Cannabis	4.6	1.3	3.7	<0.01	4.6	1.3	3.6	<0.01
	Other drugs*	-1.2	1.7	-0.7	0.48	-1.4	1.6	-0.9	0.37
Primary topic	Positive outcomes	ref	-	-	-	ref	-	-	-
	Harms	-10.0	1.9	-5.0	<0.01	-5.6	2.0	-2.8	<0.01
	Justice/Law/Crime	-16.3	1.6	-10.1	<0.01	-12.2	1.9	-6.6	<0.01
	Policy or program initiative	-5.8	1.9	-3.1	<0.01	-1.8	1.9	-0.9	0.35

	Research	-0.2	2.4	-0.1	0.94	-1.4	2.5	-0.6	0.57
	Celebrity**	-13.1	2.1	-6.3	<0.01	-7.0	2.5	-2.9	<0.01
	Other	-5.7	2.8	-2.0	0.04	-1.0	2.7	-0.4	0.71
Number of sources	Zero	ref	-	-	-	ref	-	-	-
	One	11.2	1.3	8.3	<0.01	6.9	1.4	5.0	<0.01
	Two or more	17.4	1.3	13.6	<0.01	9.8	1.6	6.0	<0.01
Source type: Industry representative	Absent	ref	-	-	-	ref	-	-	-
	Present	1.9	1.9	1.0	0.31	-3.8	1.8	-2.1	0.04
Source type: Politician/Government official	Absent	ref	-	-	-	ref	-	-	-
	Present	7.2	1.2	6.1	<0.01	-0.2	1.3	-0.1	0.90
Source type: Law enforcement representative	Absent	ref	-	-	-	ref	-	-	-
	Present	-1.1	1.0	-1.0	0.30	2.2	1.1	1.9	0.05
Source type: Legal representative	Absent	ref	-	-	-	ref	-	-	-
	Present	1.3	1.0	1.3	0.21	4.9	1.2	4.1	<0.01
Source type: Research organisation/academic/expert	Absent	ref	-	-	-	ref	-	-	-
	Present	14.1	1.4	10.2	<0.01	6.6	1.6	4.2	<0.01
Source type: Health organisation representative	Absent	ref	-	-	-	ref	-	-	-

	Present	15.4	1.3	11.7	<0.01	8.7	1.4	6.4	<0.01
Source type: Community organisation representative	Absent	ref	-	-	-	ref	-	-	-
	Present	4.6	2.1	2.2	0.03	-1.6	1.9	-0.9	0.39
Source type: Source type: Sports industry representative	Absent	ref	-	-	-	ref	-	-	-
	Present	1.3	2.1	0.6	0.55	1.4	2.4	0.6	0.57
Source type: Member of the public	Absent	ref	-	-	-	ref	-	-	-
	Present	-5.6	2.3	-2.4	0.01	-7.7	2.1	-3.7	<0.01
Source type: Person with lived experience	Absent	ref	-	-	-	ref	-	-	-
	Present	5.9	1.5	4.0	<0.01	5.3	1.4	3.7	<0.01
Source type: Friends/family	Absent	ref	-	-	-	ref	-	-	-
	Present	0.4	1.7	0.2	0.83	-2.0	1.6	-1.2	0.22
Source type: Other	Absent	ref	-	-	-	ref	-	-	-
	Present	1.1	2.5	0.4	0.67	0.8	2.3	0.3	0.74

Notes: b=unstandardised regression coefficient, SE=standard error, t=t-test statistic, p=p-value. Bold indicates p-value < 0.01. Univariable models included separate regression models with single predictor variables entered whereas multivariable model included all variables in a single model (providing independent effects of each variable controlling for all others). * other drugs category included: heroin, opioids (illicit/pharmaceutical), hallucinogens, inhalants, performance enhancing drugs, new psychoactive substances, and other. ** celebrity category included: sportsperson, politician, entertainment, and other prominent person.

Focusing on the multivariable model and confirming the descriptive statistics, media entries that were categorised as “news” demonstrated significantly higher adherence scores in comparison to all other entries ($b=8.9$, $p<0.01$), controlling for all other variables. In terms of primary substance reported on, media entries that addressed tobacco products ($b=5.6$, $p<0.01$) and cannabis ($b=4.6$, $p<0.01$) scored significantly higher in comparison to media entries on alcohol. Conversely, entries that primarily focused on methamphetamine ($b=-4.5$, $p<0.01$) scored significantly lower than entries on alcohol. With respect to primary topic, media entries that addressed justice/law/crime-related issues ($b=-12.2$, $p<0.01$), celebrity AOD use in general ($b=-7.0$, $p<0.01$), or harms associated with AOD use ($b=-5.6$, $p<0.01$) exhibited significantly lower adherence scores relative to entries on positive outcomes, controlling for all other variables. Finally, entries that included at least one ($b=6.9$, $p<0.01$) or two or more ($b=9.8$, $p<0.01$) external sources exhibited significantly higher adherence scores relative to those articles that did not obtain information from an external source, in what appears to be a dose-response fashion. Specifically, entries that included a source from a health organisation ($b=8.7$, $p<0.01$), research organisation ($b=6.6$, $p<0.01$) person with lived experience ($b=5.3$, $p<0.01$), or legal representative ($b=4.9$, $p<0.01$), demonstrated significantly higher adherence scores than entries that did not include sources from those categories. However, entries that included sourced information from a member of the public ($b=-7.7$, $p<0.01$) scored significantly lower than entries that did not source information from a member of the public, controlling for all other variables.

Additional sensitivity analyses were conducted by re-running the models and including coder ID as a covariate to adjust for any systematic differences in adherence scores depending on the coder. These models provided substantively similar results and therefore moderate disagreements in coding did not impact the results of the regression models.

Discussion

The current study aimed to provide an overview of the content associated with newsprint media on the reporting of AOD and AOD-related issues between July 2016 and June 2017. The primary objective was to establish a baseline dataset in terms of the degree that media entries adhere to *Mindframe* guidelines and whether any factors associated with content were related to higher or lower adherence to these guidelines. The results provided in this study provide an indication of how the news media report on AOD-related issues during a time prior to the development and implementation of the *Mindframe* guidelines. Additional follow-up studies will compare media entries sourced from a later time point, after the guidelines were implemented, to examine any significant *change* in adherence over time. The results from the current study generated several interesting findings regarding the content of media entries and how they report on AOD-related issues that will be described further below. This is followed by a summary of the strengths and limitations of the study and an overview of the recommendations and directions for future work.

Summary and interpretation of key findings

Detailed coding of the 2,007 articles identified as relevant for the current study indicated that a majority (67%) were primarily focused on one of three substances: alcohol, cannabis, or methamphetamine. For alcohol and cannabis, the increased representation in the media might reflect the higher prevalence of use associated with these two substances relative to other substances. Indeed, alcohol is the one of the most widely used substances in Australia. Recent findings from the National Drug Strategy Household Survey indicate that 25% of people aged 14 and over will consume more than four standard drinks in one sitting at least monthly (AIHW 2020). Likewise, cannabis is used more frequently in Australia than any other illicit drug and prevalence has increased over recent years with approximately 12% of the population using in the past 12 months (AIHW 2020). However, the high percentage of entries reporting on methamphetamine does not seem to reflect the prevalence of methamphetamine use in the general population. Approximately 1.3% of Australians aged 14 or more used methamphetamine in the past 12 months, and prevalence has decreased in recent years. However, the disproportionate

media attention may instead reflect increases in harms associated with methamphetamine use perhaps due to increase in the use of crystal (as opposed to less potent forms) methamphetamine, which is often a purer form and associated with more serious side effects including increased hospitalisation and treatment episodes.

With respect to primary topic, approximately 52% of the entries focused on issues associated with criminal justice, law enforcement, or alcohol/drug-related crime. These entries included police operations, drug seizures, trafficking, organised crime, customs operations, court reports or criminal justice proceedings, alcohol/drug-related violence, and drink/drug-driving. Interestingly, the proportion of crime/law enforcement related entries versus non-crime/law enforcement related entries differed depending on the primary substance reported on. Entries on methamphetamine were overwhelmingly focused on crime/law enforcement related issues, whereas entries for cannabis demonstrated slightly more balanced reporting with respect to crime and law enforcement and entries that focused on drugs in general demonstrated an even 50/50 split. In contrast, only one third of entries reporting on alcohol had a crime/law enforcement focus.

The above findings confirm those found in previous media monitoring studies on illicit drugs (including methamphetamine) and alcohol. Rawstone, O'Connor et al. (2019) reported that 40% of methamphetamine related news articles focused on criminal justice or drug-related crime, further contributing to framing of methamphetamine use as a crime and legal problem with people who use methamphetamine as deviant and deserving of the legal consequences as opposed to treatment or additional health services. Moreover, these findings replicated those found previously by Hughes, Lancaster et al. (2011). The timing associated with when the media entries were extracted (i.e., 2016/2017) may also explain the increase focus on crime/law enforcement related issues, specifically with methamphetamine. In 2015, the National Ice Taskforce was established and released a report that contained recommendations to increase drug seizures and arrest prominent people in drug trafficking networks. Moreover, in 2016 there was a notable increase in the percentage of the population who indicated that methamphetamine was the drug of most concern (AIHW 2016).

The findings on methamphetamine contrast with those found in the current study on media entries reporting on alcohol. Indeed, Azar, White et al. (2014) found that most newspaper articles across 2000 to 2011 focused on “promotion” with a positive slant and most commentary pieces were socially approving of alcohol use. The differential reporting on alcohol may reflect the widespread use, legal nature, and social norms regarding alcohol use. However, Azar, White et al. (2014) noted that articles on alcohol were trending towards more disapproving in nature and emphasised greater alcohol restrictions potentially influencing and reflecting a change in public focus on alcohol-related harms over time. Thus, these findings may indicate a strong reciprocal and bidirectional relationship between media reporting on substances, public opinion, and policy setting. It would be of significant value for future work to continue mapping the changing trends associated with media reporting on different substances over time in conjunction with trends on public attitudes and opinion.

The study found a high degree of variability in terms of adherence to specific *Mindframe* guidelines as captured by our bespoke coding system. Overall, the relevant media entries did not glamourise AOD use nor did they use inappropriate language when characterising or describing an individual by their AOD use in most of the sample. Yet, there remains a not insignificant proportion of entries that did glamourise AOD or use inappropriate language and effort needs to be taken to reduce this down to zero. To a lesser extent, the media entries did not characterise AOD use in a stigmatising manner and the majority sought an expert opinion to provide information and context to the news story. However, a little more than a third of media entries did not adhere to the guidelines associated with the use of sensationalist or alarmist reporting and characterising people who use AOD as delinquent, violent or morally weak. Most media entries did not portray AOD use as a health issue (likely due to the increased proportion of crime/law enforcement-related entries) and almost none of the entries provided help-seeking information relevant to AOD use. The final point is particularly relevant given the widespread reach and influence that many of these publications have over the general population (see Table 1). Therefore, a significant opportunity exists for initiatives that are directed through the media to encourage help-seeking and reduce stigma associated with AOD use. To date, there has been relatively few studies that have evaluated whether providing help-seeking information on AOD use in the media may be causally related to increased help-seeking behaviour and further research is warranted. Moreover, it is not definitively known whether the media influences and shapes wider attitudes and concerns about AOD or if they are simply reflecting and perpetuating the attitudes and concerns about AOD expressed by the population, perhaps it is a combination of both. In any case, researchers have demonstrated a strong role of public stigma and self-stigma on seeking and

receiving help for substance use disorders (Corrigan, Larson et al. 2009). Thus, any efforts to reduce stigma, particularly via communicating positive stories of people with substance use disorders and demonstrating that help for their health problems is available and possible, may have carry over effects to increase help seeking and reducing burden associated with AOD use at the community level (Livingston, Milne et al. 2012, Cheetham, Sandral et al. 2020).

When evaluating the relevant media entries in terms of overall adherence rates, the current study demonstrated that the sample adhered to approximately 57% of the *Mindframe* guidelines when applicable. Whilst this rate was higher than first expected, the results of the linear regression models examining differences in adherence based on content factors indicate that there remains significant progress to be made in various subsets of the media entries. Particularly, entries on justice/crime/law related topics, entries on celebrity AOD use, entries reporting on methamphetamine as the primary substance, and entries that sourced information from a member of the public tended to score low on the adherence scale relative to the remaining media entries. These findings are concerning given that a sizeable proportion of all the relevant media entries focused on justice and crime as well as methamphetamine (the second highest substance reported on after alcohol). Indeed, these results confirm that entries on justice and crime, celebrity use, as well as those related to methamphetamine continue to be more negatively framed, emphasise legal consequences, focus on punishment, and utilise more sensationalist or alarmist language (Hughes, Lancaster et al. 2011, Azar, White et al. 2014).

The results of the linear regressions also provide some indication of where improvements can be made in terms of greater adherence to the *Mindframe* guidelines. Although, the results presented here are cross-sectional and exploratory in nature and should not be confused with indicating a causal relationship between content factors and adherence scores (e.g., it should not be assumed that *changing* content will result in *changing* future adherence scores until further longitudinal and controlled research is complete). Entries categorised as “news” (as opposed to commentaries or editorials), those focused on tobacco products or cannabis, and those with a greater number of sources, particularly sources who are from health organisations, research organisations, people with lived experience, and legal representatives, tended to score higher on adherence in comparison to the remaining media entries. Of note, the greater adherence scores associated with media entries on cannabis use may reflect changing attitudes (in Australia and globally) on the use of cannabis and risk perceptions, increased efforts to support de-criminalisation/legalisation of cannabis, and the growing acceptability of medicinal cannabis to treat a variety of conditions (Karanges, Suraev et al. 2018, Kaur, Keyes et al. 2020). Additional research is warranted to specifically test the potential causal relationships and hypotheses generated by the current study.

Strengths and limitations

Strengths of the current study include a large and representative sample of media entries that cover publications from multiple states and territories in Australia as well as metropolitan and regional areas. Similarly, the sample included entries stratified by when they were published across the full 12-month period, from July 2016 to June 2017, to ensure that the sample was not biased by the specific time of year. The current study also represents the first study to evaluate a sample of news media entries using the newly developed *Mindframe* guidelines for reporting on AOD-related issues. This was achieved by developing an adherence coding scheme, with the aid of experts in the field and additional pilot testing, that mapped onto each of the relevant guidelines included in the *Mindframe* documentation. The coders were provided extensive training on the *Mindframe* guidelines and weekly coder meetings were scheduled to ensure consistency in coding and address any interpretational issues.

Despite these strengths, the results of the current study should be interpreted with some limitations in mind. First, the agreement between coders was sufficient but not perfect, suggesting that there is some subjectivity associated with the guidelines and how they are applied to the sample of media entries. To determine the impact of less than perfect agreement on the regression results, a variable representing each of the three coders were included as a covariate in sensitivity analysis. These results provided no indication that the regression results differed whilst controlling for coder ID.

Second, the very low adherence rate of help seeking information raised questions about whether the database used to extract transcripts of the news entries were accurately capturing any help-seeking information provided in additional textboxes as part of online articles. To check this issue, a random subsample of 10% was selected and subjected to an online search to track down the actual publication from the publisher’s website. Of this random subsample, the actual publication was found for 101

of the entries and of those only 2 contained help-seeking information. In both instances this help-seeking information was also provided in the media transcripts extracted from the news media database. As such, we are confident that the findings regarding help-seeking information reflect what is presented in the media entries available to the public.

Third, the *Mindframe* guidelines also contain information regarding the appropriate use of images in news entries, however the media database used to source the entries only provided text-based transcripts. To evaluate the appropriate use of images it would have required a systematic search for a copy of the media entry direct from the publisher across the entire sample. This was deemed infeasible for the current study and therefore this domain was not assessed by the adherence scale.

Finally, given the current study was limited to text-based print or online news media rather than radio or television, further work is required to determine whether media reporting on AOD differs substantively depending on modality of presentation.

Recommendations and future directions

As mentioned previously, the current study represents the first stage of a broader evaluation study of the *Mindframe* guidelines for reporting on AOD. The next phase of this work will require the extraction of data from a more recent sample of media entries during a timeframe after the *Mindframe* guidelines have been implemented. As such future work will be able to evaluate whether the adherence scores associated with the *Mindframe* guidelines have changed over time with the hypothesis that adherence scores will significantly increase, particularly scores associated with domains that were relatively low in the current study. At this stage, several additional recommendations can be drawn from the results and may inform how the dissemination of the guidelines might be targeted in the future to more problematic content. These recommendations are listed below:

- Greater focus should be placed on improving adherence to the guidelines specifically for commentaries and editorials (as opposed to general news stories).
- There is substantial room for improvement in terms of consistent implementation of the guidelines across different substances and different topics. Editors might consider being more mindful of the disproportionate number of news stories focusing on crime and justice related topics, particularly about methamphetamine (this is not to say that crime and justice related news stories should not be published, but rather reporting should aim to utilise a more neutral framing and ideally balanced by a similar number of non-crime and justice related articles).
- With respect to the specific *Mindframe* domains, a greater focus should be placed on incorporating evidence-based information and facilitating help-seeking for AOD use given that very few entries contained relevant help seeking information. The incorporation of evidence-based information may also assist in correcting misconceptions about substances (e.g., methamphetamine prevalence) and reduce any associated stigma.
- In relation to the above point, greater attention should be placed on framing and portraying problematic AOD use as a health condition. This includes the need for reporting on positive outcomes associated with AOD use, such as stories on recovery, harm minimisation, and offering hope that treatment and help is available (as opposed to primarily focusing on the legal consequences).
- Increased effort should be taken to ensure quality sources for media entries on AOD given greater adherence scores were associated with a larger absolute number of external sources. Moreover, seeking input of external sources from health organisations, research organisations, people with lived experience, or legal representatives should be emphasised given these sources were independently related to greater adherence.

Conclusions

This was the first study to systematically examine a large sample of news media entries and code those entries according to the *Mindframe* guidelines for reporting on AOD use and AOD-related issues. Like previous media monitoring studies, we found a disproportionate number of media entries focused on crime or justice-related topics potentially further contributing to stigma and emphasising the legal consequences of AOD use. However, the proportion of crime or justice-related entries differed depending on the substance, with alcohol-related articles exhibiting the fewest crime or justice-related entries and methamphetamine-related articles exhibiting the most. Likewise, a majority of the media entries focused on one of three

substances (alcohol, methamphetamine, or cannabis), and there was evidence of a significantly different adherence score depending on the substance reported on, with methamphetamine-related articles generating relatively lower scores and cannabis-related articles generating relatively higher scores. The next phase of the evaluation of the *Mindframe* guidelines will involve comparing the findings of the current study to a more recent sample of media entries and determining whether adherence scores have significantly changed over time. It is hoped that improvements to media reporting on AOD use will ultimately result in decreased stigma, greater help seeking, and reduced burden associated with AOD use and AOD-related disorders among the broader community.

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Appendices

Appendix A: Australian and New Zealand Newsstream Search Strategy

ab(alcohol OR amphetamine* OR barbiturate* OR benzodiazepine* OR booze OR cannabis OR cocaine OR crystal meth* OR dexies OR e-cigarette* OR ecstasy OR "emerging drugs" OR fentanyl OR flakka OR ganja OR ghb OR grog OR hallucinogen* OR hashish OR heroin OR "illegal drugs" OR "illegal substance" OR inhalants OR ketamine OR khat OR lsd OR "magic mushrooms" OR marijuana OR mdma OR mephedrone OR meth OR methadone OR methamphetamine* OR methylone OR naloxone OR naltrexone OR "new psychoactive substance*" OR opiate* OR opioid* OR oxycodone OR oxycontin OR "party drug*" OR "performance enhancing drug*" OR psychostimulant OR shabu OR "street drugs" OR "synthetic cathinones" OR THC OR tobacco OR vaping OR (acid AND drug*) OR ("bath salts" AND drug*) OR cigarette* OR (coke AND drug*) OR (crack AND drug*) OR (dope AND drug*) OR (hash AND drug*) OR (ice AND drug*) OR (kava AND drug*) OR nicotine OR (pot AND drug*) OR (solvents AND drug*) OR (speed AND drug*) OR (steroid* AND drug*) OR (weed AND drug*))

AND

pub.exact("AAP General News Wire" OR "Herald Sun" OR "The Advertiser" OR "The Daily Telegraph" OR "The Courier - Mail" OR "Newcastle Herald" OR "ABC Premium News" OR "Sydney Morning Herald" OR "The Gold Coast Bulletin" OR "The Australian" OR "The Age" OR "The Canberra Times" OR "The Border Mail" OR "The Daily Advertiser" OR "The Northern Territory News" OR "The Examiner" OR "The Cairns Post" OR "The Morning Bulletin" OR "The Courier" OR "The Chronicle" OR "Sunshine Coast Daily" OR "The Mercury" OR "News Mail Bundaberg" OR "Geelong Advertiser" OR "Townsville Bulletin" OR "Illawarra Mercury" OR "The Bendigo Advertiser" OR "Fraser Coast Chronicle" OR "Sunday Telegraph" OR "The Northern Star" OR "Sun Herald" OR "Maitland Mercury" OR "Port Macquarie News" OR "ABC Regional News")

AND

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Appendix B: Content coding schemes, response options, and examples/description of each criterion

Content coding scheme	Response options	Example/description
Relevance of the article (do not continue coding if scored 3 or 4)	1. Alcohol and other drugs were the primary focus	The media entry specifically focuses issues related to alcohol and/or other drugs and their consequences (e.g., reports on drug and alcohol use, alcohol-related violence, drug seizures, primary focus alcohol or drug use by a celebrity).
	2. Alcohol and other drugs were a secondary focus	The media entry discusses another issue but references alcohol and/or other drugs as an important associated issue.
	3. Alcohol and other drugs were mentioned in passing	Alcohol and/or other drugs are mentioned incidentally in the context of another issue that is not focused on alcohol and/or other drugs.
	4. No mention of alcohol and other drugs	The entry contains no mention of alcohol and/or other drugs of focus in the current study, or contains a keyword with an alternative definition (e.g., speed, weed, pot, etc.)
Type of entry	1. News	Entry reports on objective facts and events/incidents associated with alcohol and/or other drugs that are of interest to the broader population
	2. Commentary/Opinion	Entry reflects the authors opinion on issues associated with alcohol and/or other drugs usually an expert, media personality, etc.
	3. Editorial	Entry reflects the opinion or facilitates discussion by editorial staff on issues associated with alcohol and/or other drugs.
	4. Other	Use if entry does not fit in any of the above categories.

Number of sources	N	A source is defined as an external individual or organisation providing information or opinion, a quote, statement, interview, or report.
Type of source (can select more than one)	1. Industry representative	A person speaking on behalf of an industry or commercial business directly involved with alcohol or other drug use. E.g., Alcohol companies, pubs and clubs, event organisers, pharmaceutical companies.
	2. Politician/Government official	Elected government officials at the local, state, or federal level.
	3. Law enforcement representative	Members of the police force, coroner, or customs/boarder officials.
	4. Legal representative	A person or spokesperson representing courts, law, or royal commission e.g., lawyers, judges.
	5. Research organisation/academic/expert	A person or spokesperson for a research institution, university, government funded centre, or an expert in the field.
	6. Health organisation representative	A person or spokesperson from a hospital, doctors, mental health organisation, drug and alcohol workers, treatment services.
	7. Community organisation representative	A person or spokesperson from an organisation that advocates for or against alcohol and/or other drugs.
	8. Sports industry representative	A person or spokesperson who represent a sporting figure, national or local sports teams, or a broader sports organisation (NRL).
	9. Member of the public	A member of the public, resident or local community representative.

	10. Person with lived experience	A person who identifies as a user or alcohol and/or other drugs, previous experience with alcohol and/or other drug problems.
	11. Friends/family	A person who is a family/friend of a user, victim, accused person, dealer, or other person associated with alcohol and/or other drugs.
	12. Other	Any source that is not identified by one of the above categories.
Primary substance reported on	1. Alcohol	Examples include any alcohol product: beer, wine, spirits, etc.
	2. Drugs (in general)	Examples include when entry makes no specific reference to a drug but instead states "drugs" or "illegal drugs" or another general term.
	3. Tobacco products	Examples include any tobacco product: cigarettes, cigars, vaping, chewing tobacco, pipes.
	4. Heroin	Examples include smack, dope, junk.
	5. Cocaine	Examples include cocaine and crack cocaine.
	6. Methylenedioxymethamphetamine	Examples include ecstasy, MDMA, XTC, molly.
	7. Methamphetamine/amphetamine	Examples include ice, speed, crystal, meth, extramedicinal use of stimulants.
	8. Opioids (illicit/pharmaceutical)	Examples include the extramedicinal use of opioids, such as morphine, pethidine, oxycodone, methadone, fentanyl.

	9. Cannabis	Examples include marijuana, pot, weed, skunk, chronic, medical marijuana, THC.
	10. Hallucinogens	Examples include LSD, PCP, mescaline, magic mushrooms, psilocybin.
	11. Inhalants	Examples include common household, industrial and medical products that produce vapours that are inhaled to feel intoxicated.
	12. Performance enhancing drugs	Examples include steroids, androstenedione, human growth hormone.
	13. New psychoactive substance	Examples include synthetic cannabinoids, phenethylamines, synthetic cathinones,
	14. Other	Other substance not identified by one of the above categories.
Secondary substance/s reported on (can select more than one)	1. Alcohol	Examples include any alcohol product: beer, wine, spirits, etc.
	2. Drugs (in general)	Examples include when entry makes no specific reference to a drug but instead states "drugs" or "illegal drugs" or another general term.
	3. Tobacco products	Examples include any tobacco product: cigarettes, cigars, vaping, chewing tobacco, pipes.
	4. Heroin	Examples include smack, dope, junk.
	5. Cocaine	Examples include cocaine and crack cocaine.
	6. Methylenedioxymethamphetamine	Examples include ecstasy, MDMA, XTC, molly.

	7. Methamphetamine/amphetamine	Examples include ice, speed, crystal, meth.
	8. Opioids (illicit/pharmaceutical)	Examples include the extramedicinal use of opioids, such as morphine, pethidine, oxycodone, methadone, fentanyl.
	9. Cannabis	Examples include marijuana, pot, weed, skunk, chronic, medical marijuana, THC.
	10. Hallucinogens	Examples include LSD, PCP, mescaline, magic mushrooms.
	11. Inhalants	Examples include common household, industrial and medical products that produce vapours that are inhaled to feel intoxicated.
	12. Performance enhancing drugs	Examples include steroids, androstenedione, human growth hormone.
	13. New psychoactive substance	Examples include synthetic cannabinoids, phenethylamines, synthetic cathinones.
	14. Other	Other substance not identified by one of the above categories.
Primary Topic	1. Positive outcomes (personal and societal)	Examples include legalisation, medicinal use of drugs, pain relief, opening of a new bar.
	2. Harms (personal and societal)	Examples include long-term health outcomes, death/overdose, mental health, physical health conditions.
	3. Criminal justice	Examples include reports on court or criminal justice proceedings associated with users or those involved with alcohol and/or other drugs use (e.g., dealers).

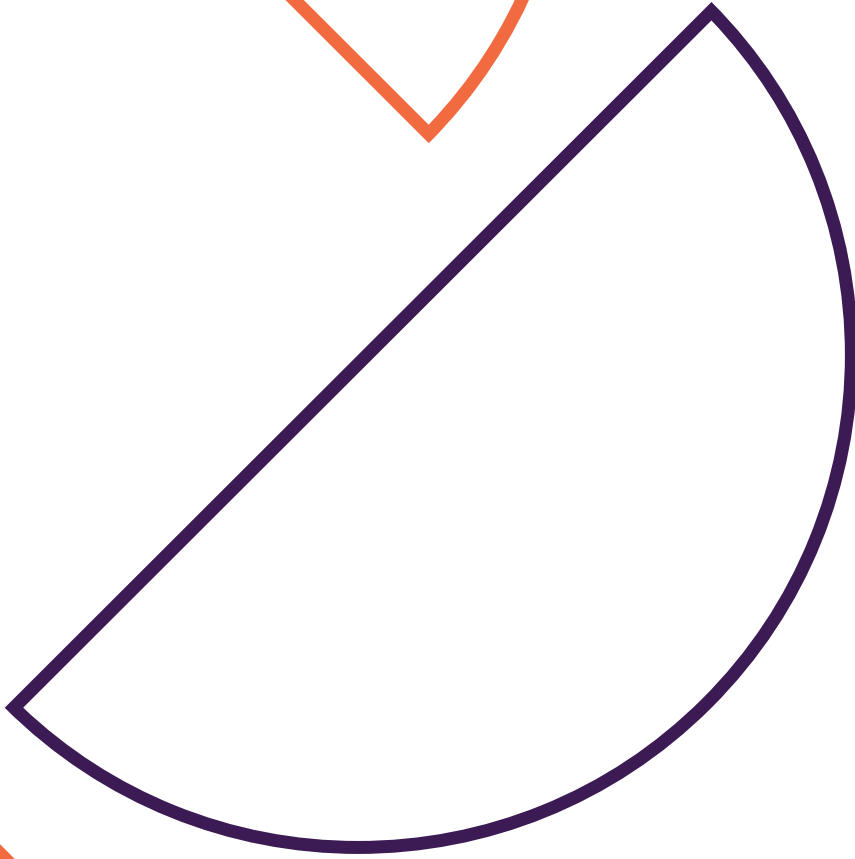
4. Law enforcement	Examples include reports on police operations, drug seizures, trafficking, organised crime, customs operations.
5. Alcohol/drug-related crime	Examples include reports on alcohol and drug related violence, crimes committed under the influence, drink/drug-driving.
6. Policy or program initiative	Examples include commentary on new policies associated with treatment, law enforcement, prevention, and harm reduction as well as reports on new initiatives (treatments, prevention, awareness, etc.)
7. Research	Examples include reports on statistics, trends, surveys, and findings from projects on alcohol and/or other drugs.
8. Celebrity - Sportsperson	Examples include stories on alcohol and/or other drug use by professional and amateur sports people and organisations.
9. Celebrity - Politician	Examples include stories on alcohol and/or other drug use by local, state, and federal politicians.
10. Celebrity - Entertainment	Examples include stories on alcohol and/or other drug use by musicians, bands, actors, models, and other people involved in the entertainment industry.
11. Celebrity - Other prominent person	Examples include other widely known cultural or business figures, such as CEOs of large companies, social media influencers, socialites.
12. Other	Examples include any other topic not included in the above categories.

Appendix C: Adherence coding scheme, response options, scoring key, and examples/description of each domain

Domain	Response options	Scoring key	Example/description
Does the item use alarmist or sensationalist language?	1. Yes	0	For example, exaggerate facts, choose selective statistics associated with AOD use to create hype or alarm including use of words like drug epidemic/ hotspot/drug crisis, focus on celebrity drug use, drug-related crime/violence, drug sieges or include combative language such as “war on drugs” or “combat drugs”.
	2. No	1	
	3. Unsure	-	
	4. Not applicable	-	
Does the item characterise the person by their AOD use and/or inappropriate language when referring to people?	1. Yes	0	For example, addict, junkie, crackhead, druggie, “drug” user/abuser, clean/dirty, "hopeless", or other discouraging term. If the article does not describe or focus on a person who uses AOD then code as N/A.
	2. No	1	
	3. Unsure	-	
	4. Not applicable	-	
Does the item portray AOD use as a health condition?	1. Yes	1	For example, AOD dependence is treatable, suggest there is hope /recovery is possible. If the article does not describe or focus on a person who uses AOD then code as N/A.
	2. No	0	
	3. Unsure	-	
	4. Not applicable	-	

Does the item characterise AOD use as delinquent, violent, or morally weak?	1. Yes	0	For example, does the article describe AOD users or AOD use as overly associated with violence or violent behaviour, overly associated with criminal activity and delinquent behaviour, or portray people who use AOD or AOD use in general as a moral failing either of society or of the individual.
	2. No	1	
	3. Unsure	-	
	4. Not applicable	-	
Does the item unfairly focus only on AOD use in a stigmatising way?	1. Yes	0	For example, no mention of anything positive about the person such as their work, family, or community involvement. The article is written in a negative or stigmatising tone regarding AOD use in general.
	2. No	1	
	3. Unsure	-	
	4. Not applicable	-	
Has the item sought expert opinion?	1. Yes	1	For example, a quote from a researcher, police inspector, judge, lawyer, clinician, or person with lived experience. Expert provides context based on facts and statistics to ensure exaggeration does not occur.
	2. No	0	
	3. Unsure	-	
	4. Not applicable	-	
Does it glamourise AOD use or related activity?	1. Yes	0	For example, pro-alcohol reporting, promotion of drug use to improve life – e.g., cope with stress, lose weight or enhance performance.
	2. No	1	
	3. Unsure	-	
	4. Not applicable	-	

	1. Yes	1	
Does the item include help-seeking information?	2. No	0	For example, relevant AOD helpline and/or specific website with relevant information.
	3. Unsure	-	
	4. Not applicable	-	



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