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Community knowledge of Australia's national preventive health strategy focus areas: a nationally representative survey of 1509 adults

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Abstract

Background While some general patterns and trends of health information seeking and literacy in the Australian population are known, there is a need to understand these behaviours and skills speci□c to the focus areas outlined in the National Preventive Health Strategy (NPHS).

Methods In response, this study employed a cross-sectional online survey of adults in the Australian general population (*n* = 1509) to investigate their knowledge and health information seeking behaviour regarding the NPHS' seven focus areas. It also explored primary care practitioners as a preventive health information source. The survey consisted of 135 core items and 15 adaptive items including the Health Literacy Questionnaire (HLQ). The degree to which accessing information about a preventive health focus area from one of the three categories of health

had decreased odds by of having accessed information about tobacco from a medical doctor (aOR 0.30), while those who answered items about *immunisation* correctly had lower odds of accessing information about immunisation from complementary medicine providers (aOR 0.30). Reporting completely correct responses to *alcohol intake* items was associated with lower odds of accessing information about alcohol from either medical doctors (aOR 0.46) or complementary medicine providers (aOR 0.17).

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Introduction

Preventable illness in Australia costs an estimated $840 million in lost productivity per year [1] and such signi cant burden has partly driven the federal government to develop its inaugural National Preventive Health Strategy (NPHS) in 2021 [2]. e NPHS outlines critical enablers for shifting the health system to address gaps in health information and health literacy in the community, and for integrating prevention into the health system such as via health care providers. It also highlights key principles to be considered when implementing prevention in Australia, such as enabling the workforce and embracing the digital revolution. e strategy further outlines seven focus areas (see Fig. 1) that, while the public health and health promotion community have made signi cant and longstanding e orts at improvement (e.g. tobacco and nicotine use [3–5], healthy eating [6, 7], physical activity [8, 9], cancer screening and prevention [10], immunisation [11], alcohol, cannabis and other drug use [12–15], and mental health [16]), require more coordinated, powerful action to reduce the risk of poor health in Australia.

e desired action in these focus areas involves promoting preventive health behaviours, which are in uenced by the options – perceived or real – available to individuals [17]. ese options are informed by a range of structural determinants including but not limited to economic stability, educational and employment opportunity, societal or systemic equity and access to healthy food, physical activity spaces and health care [18]. An individual's health decisions are limited to options framed by these factors but also driven by their own health knowledge and literacy [19] as well as perceptions of the risk associated with each health behaviour in relation to their own personal health outcomes [20]. Health knowledge, in turn, is further in uenced by an individual's exposure to health information. Yet health promotion experts are challenged to support the public in light of increasing awareness of the importance of social networks in knowledge dissemination [21, 22] coupled with variable accuracy and reliability of the health information disseminated through channels such as social media [23]. While for consumers, accessing information online may meet certain needs for social and emotional support from peers, there are also risks of poor-quality information and lack of authoritative sources which may decrease consumer engagement overall [23]. is challenge is further exacerbated by the current era of 'Dr Google' [24], which is characterised by public distrust of mainstream public health information sources (including government agencies and, to a lesser degree, medical professionals) which drives consumers to look more broadly for public health information before making health decisions [21, 22, 25]. ese risks highlight the critical importance of adequate digital health literacy in the general population [26]. Overall, this landscape means ensuring the public has access to and engages with reliable health information is increasingly complex.

Such complexity in preventive health information is particularly relevant in Australia, where the public have access to health information from diverse sources [27, 28] and dissemination channels, re ected in the increasing popularity of social media, blogs and mass media [29, 30]. Most health information-seeking in Australia occurs in the community, beyond the clinical encounter and the gaze of health providers [31]. In the context of preventive health, an estimated ten million Australians practice self-care behaviours, 20% of whom inform such self-care via healthcare books, specialised health magazines and websites [31]. Interestingly, more than 90% of Australians believe they have a leading role in managing their

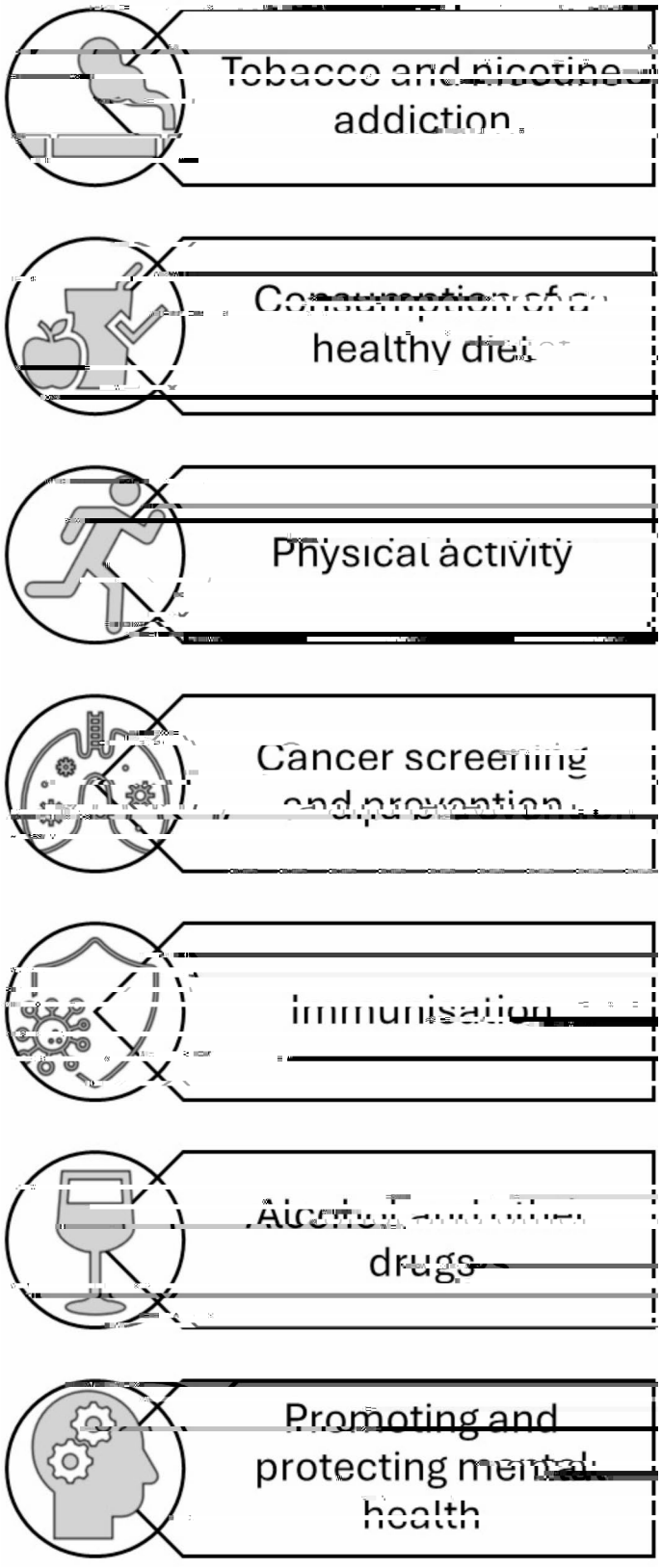

Fig. 1 Preventive health focus areas identified in the National Preventive Health Strategy

a preventive health information source in the Australian community.

Methods

Study design and setting

is study employed a cross-sectional survey design, administered online.

Participants and recruitment

A sample was sought of $n = 1500$ adults (aged 18 years and over) living in Australia, who were representative of the general population regarding age, gender and State of residence. is sample size was considered adequate for inferential analysis based on previous studies investigating health behaviours and health service utilisation in Australia [36].

Participants were recruited via closed invitations to individuals registered on survey participation panels accessed via the Qualtrics research recruitment company. Purposive convenience sampling was used, with survey access closed to participants from each demographic category once the required numbers for that representative strata were reached. Recruitment and data collection were undertaken between 24 August and 17 September 2023. Participation was voluntary and respondents were provided a small incentive equivalent to approximately AUD$3–4, based on survey completion time. e incentive value is determined by Qualtrics and consistent with other opportunities to participate in online research.

Survey instrument

Development and pre-testing

e survey development was directly informed by the constructs and domains of the NPHS, particularly the seven focus areas identi ed in the Strategy as priorities for health promotion action. Once developed on the online survey platform, the survey was tested for face validity and technical functionality by ve individuals known to the research team with diverse gender and education levels, and no prior health training.

Instrument structure

Data handling and statistical analysis

e primary outcome of this analysis was accuracy of preventive health knowledge regarding the seven focus areas outlined in the NPHS. Secondary outcomes were the proportion of respondents who accessed health information relevant to those topics, the types of health information materials accessed, and the sources of that health information. e degree to which accessing health information from di erent categories of health provider (e.g. medical, allied and complementary health) predicted respondent's accuracy of preventive health knowledge was also investigated.

Statistical analysis was undertaken using Stata SE 18 and SPSS. e participation rate was calculated as the number of respondents who completed the survey relative to the total number of individuals who accessed the survey (clicked through to the online information sheet and consent form). Complete surveys were those with responses to core items (demographics, health literacy) and items relevant to the primary outcome (health knowledge, health care providers consulted), allowing missing responses for other variables. However, observations with missing values were excluded from analyses where required for statistical integrity (e.g., analyses using validated instruments with standardised scoring).

To ensure adequate cell sizes for inferential analyses, variables regarding nancial manageability and educational quali cation were collapsed into suitable categories. Regarding the healthcare providers consulted by participants, and those from whom information was sourced, variables were generated to re ect categories of 'medical doctors' (GP or specialist), 'allied health providers' (e.g., physiotherapist, community nurse) and 'CM practitioners' (e.g., massage therapist, yoga teacher).

e items investigating participant preventive health knowledge were recoded from True/False to re ect Correct/Incorrect responses, and two binary variables were generated for each focus area topic to identify participants who responded with only correct responses or only incorrect responses to that topic. In addition, a count variable was generated to produce a cumulative score of correct responses for participants who had responded to all 16 items (excluding observations with

and separation/divorce/widowhood ($n = 186$, 12.7%) less common.

Slightly more than half of participants held private health insurance ($n = 848$, 56.2%) or a Health Care Card ($n = 793$, 52.6%). Most participants had consulted a medical doctor ($n = 1{,}348$, 89.3%) or allied health provider ($n = 1{,}143$, 75.8%) within the previous 12 months, while just over one- fth of participants had consulted a CM practitioner ($n = 323$, 21.4%). Seventy-seven participants (5.1%) had not consulted with any type of health care provider.

Participants typically rated above mid-range for each

outside of health care consultations, rather than receiving information from a health care provider. e topics that health care providers were most frequently reported as the source of information for were *Cancer screening and prevention* (*n* = 220, 56.3%), *Immunisation* (*n* = 283, 55.4%) and *Physical activity and exercise* (*n* = 381, 53.2%). Information was most frequently accessed elsewhere for the topics of *Consumption of a healthy diet* (*n* = 541, 80.6%), *Promoting mental health* (*n* = 490, 80.5%) and *Alcocro-52.6483 85.700798034 Tm (()Tj ET EMC /T6(3M>BDC BT*

Table 3 Participant preventive health knowledge

	Correct answer	Item correct *n* (%)	Topic correct *n* (%)

28.8%) and *Consumption of a healthy diet* (*n* = 186, 27.7%).

Information about health was accessed from any source type by a total of 1,132 (75.1%) of participants. Verbal conversations (*n* = 729, 48.4%) and websites (*n* = 702, 46.6%) comprised the most commonly accessed sources, while the least commonly accessed were magazines/newspapers (*n* = 117, 7.8%), books (*n* = 135, 9%) and podcasts (*n* = 151, 10%). e information source types most frequently reported as being received from healthcare providers were verbal conversations (*n* = 607, 83.3%) and pamphlets/brochures (*n* = 260, 71.6%) while the least frequently reported were social media interactions (*n* = 27, 12.5%) and television/radio (*n* = 36, 13%). e information sources that were accessed most frequently outside of health care consultations were television/radio (*n* = 241, 87%), blogs/online articles (*n* = 188, 85.8%) and online videos (*n* = 203, 84.9%), while those which were more commonly accessed via both health care providers and elsewhere were verbal conversation (*n* = 98, 13.4%) and websites (*n* = 55, 7.8%). Full details about health information-seeking are shown in Table 4.

Associations between preventive health knowledge and receiving information from a healthcare provider

After logistic regression models were adjusted for demographics, health literacy and information sourced from other health care providers, three of the preventive health topics were found to have a negative association between participants' knowledge of that topic and whether they had accessed information on the topic from a healthcare provider. Participants who provided correct responses to both items about *Tobacco and nicotine addiction* had decreased odds by 70% of having accessed information about tobacco from a medical doctor (aOR 0.30, 95% CI 0.13, 0.74). Similarly, participants with correct responses to both items about *Immunisation* were found to have lower odds by 70% of accessing information about

immunisation from complementary medicine providers (aOR 0.30, 95% CI 0.13, 0.74). For the topic of *Alcohol*, reporting completely correct responses was associated with lower odds of accessing information about alcohol from either medical doctors (aOR 0.46, 95% CI 0.27, 0.78) or complementary medicine providers (aOR 0.17, 95% CI 0.04, 0.76). No associations were seen with accessing information from an allied health provider in adjusted models. Full details of unadjusted and adjusted odds ratios are shown in Table 5.

Discussion

is paper reports the rst examination of Australian's preventive health knowledge and literacy with direct reference to the priority areas outlined in the recent NPHS. Our results highlight several signi cant ndings of consequence for the future development of the NPHS and the ongoing examination and understanding of preventive health initiatives and interventions more broadly. Overall, our sample reported strong health literacy and a high level of accuracy in their preventive health knowledge across the bulk of NPHS preventive health priority areas with only the exception of alcohol consumption and tobacco consumption. In broad terms, this is a good preventive health news story suggesting a solid basis with which to make further inroads on preventive health literacy across the Australian population. Certainly, numerous health promotion initiatives have been implemented in Australia at a state and federal level in recent decades to address various areas of preventive health addressed by the strategy (e.g. [3–16]), and our study ndingnom-US

may be e ective [39], Australian research suggests this approach is not e ectively transmitting health information to the public [15] and is not having the desired impacts on key subpopulations such as young adults [14]. In contrast, historical mass media health promotion campaigns targeting alcohol use have been found to be recognised by the target population but may not be improving their knowledge levels as much as desired [40]. Less is known about the e ectiveness of social media campaigns to in uence alcohol consumption [41]. Further research is needed to understand this nuance between community knowledge regarding the extent and severity of alcohol-related harm and to explore relevant messaging and speci c features or issues in which future health prevention strategy and initiatives targeting alcohol use can address this gap.

In contrast to health knowledge about alcohol intake, our study reveals a substantial number of respondents were unaware of *both* the severe impacts of tobacco consumption upon health outcomes and the signi cance of quitting smoking in reducing such health outcomes. While Australian anti-smoking health promotion campaigns have been evaluated in the past these evaluations have primarily focused on changes in smoking use [42] or attitudes [43] rather than health knowledge about smoking. Where the impact of social and mass media campaigns on smoking health literacy has been evaluated, notable di erences have been reported across subpopulations. One study of socio-economically disadvantaged smokers found that such campaigns had limited e ect as the smokers actively avoided exposure to the campaign material where possible, in part due to their belief that the content was not relevant to them [44]. Meanwhile, a campaign targeting Aboriginal and Torres Strait Islander people in South Australia reported achieving their message communication objectives and attributed their success to their focus on culturally appropriate content [45]. In the case of Australian adolescents, strategies targeting smoking have found smoking health literacy may be unrelated to uptake or cessation of smoking behaviour [46

Re ections upon both the ndings from our study relating to tobacco use and those relating to alcohol use need to be cognisant of the commercial determinants of health relating to these behaviours [49, 50]. In the case of smoking, while Australian policy has signi cantly curtailed commercial in uences on traditional tobacco products (e.g. labelling laws, advertising regulations), the controls regarding e-cigarettes is lagging as recently introduced legislation focuses on restricting access to e-cigarettes rather than on curtailing advertising [51]. Meanwhile, recent research has identi ed that retailers and manufacturers of e-cigarettes are employing several key messages – including health 'bene ts' of e-cigarettes - disseminated via promotional material on social media platforms [52]. For alcohol use, the Australian alcohol industry has undertaken its own campaign, 'Drinkwise', under the pretence of harm minimisation. However, research to date suggests it is primarily e ective in achieving an industry-friendly framing of the alcohol use that supports continuation of drinking [53]. Indeed, one key consideration for improving preventive health literacy on these topics moving forward will need to, in part at least, address the challenge of how to mitigate these commercial determinants.

e substantial number of respondents in our study who report accessing sources other than health care professionals for their preventive health information raises issues around reliability and potential risks – particularly given the degree to which companies and other vested interests use social media to disseminate misinformation – and may re ect the lower levels of con dence in critical appraisal of health information reported by participants in our study [51]. While our research did not identify the speci c sources accessed beyond health care professionals, it may well be that external commercial interests play some role in informing participants' preventive health knowledge and there is a need to explore and address the challenges such commercial interests may play in shaping community 6(e n4>>BDC BT 0 Tw 9.8 0 0 9.8 56.692901611 25st)-191ohol usy 25ri3 [

5. Jongenelis MI, Kameron C, Rudaizky D, Slevin T, Pettigrew S. Perceptions of the harm, addictiveness, and smoking cessation e□ectiveness of e-cigarettes among Australian young adults. Addict Behav. 2019;90:217–21.
6. Browne J, Adams K, Atkinson P, Gleeson D, Hayes R. Food and nutrition programs for Aboriginal and Torres Strait Islander australians: an overview of systematic reviews. Aust Health Rev. 2017;42(6):689–97.
7. Yii V, Palermo C, Kleve S. Population-based interventions addressing food insecurity in Australia: a systematic scoping review. Nutr Dietetics. 2020;77(1):6–18.
8. Bellew B, Bauman A, Bull FC, Schoeppe S. The rise and fall of Australian physical activity policy 1996–2006: a national review framed in an international context. Australia New Z Health Policy 2008, 5(1).
9. Hills A, Street S, Harris N. Getting Australia more active: challenges and opportunities for health promotion. Health Promotion J Australia. 2014;25(1):30–4.
10. Aranda S, Currow DC. Cancer screening in Australia: successes, challenges and future directions. Public Health Res Pract. 2019;29(2):e2921909.
11. Abdi I, Murphy B, Seale H. Evaluating the health literacy demand and cultural appropriateness of online immunisation information available to refugee and migrant communities in Australia. Vaccine. 2020;38(41):6410–7.
12. Loxley W, Toumbourou J, Stockwell T, Haines B, Scott K, Godfrey C, Waters E, Patton G, Fordham R, Gray D. The prevention of substance use, risk and harm in Australia: a review of the evidence. 2004.
13. LOXLEY APW, Gray D, Wilkinson C, Chikritzhs T, Midford R, Moore D. Alcohol policy and harm reduction in Australia. Drug Alcohol Rev. 2005;24(6):559–68.
14. Coomber K, Hayley A, Miller PG. Unconvincing and ine□ective: young adult responses to current Australian alcohol product warnings. Australian J Psychol. 2018;70(2):131–8.
15. Coomber K, Martino F, Barbour IR, Mayshak R, Miller PG. Do consumers 'Get the facts'? A survey of alcohol warning label recognition in Australia. BMC Public Health. 2015;15(1):816.
16. O'Donnell R, Savaglio M, Vicary D, Skouteris H. E□ect of community mental health care programs in Australia: a systematic review. Aust J Prim Health. 2021;26(6):443–51.
17. Cheng C, Cheung MW-L, Lo BC. Relationship of health locus of control with speci□c health behaviours and global health appraisal: a meta-analysis and e□ects of moderators. Health Psychol Rev. 2016;10(4):460–77.
18. Brown AF, Ma GX, Miranda J, Eng E, Castille D, Brockie T, Jones P, Airhihenbuwa CO, Farhat T, Zhu L, et al. Structural Interventions to Reduce and Eliminate Health Disparities. Am J Public Health. 2019;109(S1):S72–8.
19. von Christian W, Katherine K, Andrew S, Jane W. Functional health literacy and health-promoting behaviour in a national sample of British adults. J Epidemiol Commun Health. 2007;61(12):1086.
20. Wright AJ. The impact of perceived risk on risk-reducing behaviours. Health Psychol 2010:111.
21. Frawley J, Adams J, Broom A, Steel A, Gallois C, Sibbritt D. Majority of women are in□uenced by nonprofessional information sources when deciding to consult a complementary and alternative medicine practitioner during pregnancy. J Altern Complement Med. 2014;20(7):571–7.
22. Murthy V, Adams J, Broom A, Kirby E, Refshauge KM, Sibbritt D. The in□uence of communication and information sources upon decision-making around complementary and alternative medicine use for back pain among Australian women aged 60–65 years. Health Soc Care Commun. 2017;25(1):114–22.
23. Zhao Y, Zhang J. Consumer health information seeking in social media: a literature review. Health Inform Libr J. 2017;34(4):268–83.
24. Lee K, Hoti K, Hughes JD, Emmerton LM. Consumer use of Dr Google: a survey on health information-seeking behaviors and navigational needs. J Med Internet Res. 2015;17(12):e288.
25. Armstrong PW. CD Naylor 2019 Counteracting health misinformation: a role for medical journals? JAMA 321 19 1863–4.
26. Smith B, Magnani JW. New technologies, new disparities: the intersection of electronic health and digital health literacy. Int J Cardiol. 2019;292:280–2.
27. Barreto JE, Whitehair CL. Social media and web presence for patients and professionals: evolving trends and implications for practice. PM&R. 2017;9(5):S98–105.
28. Tran BX, Dang AK, Thai PK, Le HT, Le XTT, Do TTT, Nguyen TH, Pham HQ, Phan HT, Vu GT. Coverage of health information by di□erent sources in communities: implication for COVID-19 epidemic response. Int J Environ Res Public Health. 2020;17(10):3577.
29. George DR, Rovniak LS, Kraschnewski JL. Dangers and opportunities for social media in medicine. Clin Obstet Gynecol 2013, 56(3).
30. Patel V, Barker W, Siminerio E. Trends in consumer access and use of electronic health information. ONC Data Brief 2015, 30.
31. Mun S, Park J-H, Baek S-M, Lee M, Choi S-M, Lee S. Self-care use patterns in the UK, US, Australia, and Japan: a multinational web-based survey. Integr Med Res. 2016;5(2):151–60.
32. Grunseit A. In: Sydney, editor. AUSPOPS 2016–2021. Australia: The Australian Prevention Partnership Centre; 2021.
33.

of primary care practice and provision: a nationally representative survey of Australian adults. *BMC Primary Care* 2024, In Press.
56. Parchment A, Lawrence W, Perry R, Rahman E, Townsend N, Wainwright E, Wainwright D. Making every contact count and healthy conversation skills as very brief or brief behaviour change interventions: a scoping review. J Public Health. 2023;31(7):1017–34.
57. Hollis JL, Kocanda L, Seward K, Collins C, Tully B, Hunter M, Foureur M, Lawrence W, MacDonald-Wicks L, Schumacher T. The impact of healthy conversation skills training on health professionals' barriers to having behaviour change conversations: a pre-post survey using the theoretical domains Framework. BMC Health Serv Res. 2021;21(1):880.
58. Clarke MA, Moore JL, Steege LM, Koopman RJ, Belden JL, Can□eld SM, Meadows SE, Elliott SG, Kim Mhtn9618(i-/4Eills ui) >>BDC i Tm (- 0 7[(o)5cs St)6.er