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How are COVID-19 knowledge and concern associated with practising preventive behaviours in Australian adults?

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Declared as a pandemic on 11 March 2020, the novel Coronavirus (COVID-19) has claimed the lives of more than 3.22 million people and infected more than 154 million worldwide (as of 5 May 2021).1 Countries, including Australia, have implemented different measures to reduce virus transmission and the burden on the healthcare system and to lower associated mortality. Measures and guidelines including travel bans, social distancing, cancellation or limiting of the number of people at events and changes to work practices were implemented to lower transmission rates.2 In Australia, government campaigns such as ‘Stop the Spread and Stay Healthy’ were launched to provide a reliable source of information and guidelines to help reduce the spread of COVID-19.3 However, despite all of these measures, as of 26 November 2020, more than 900 deaths and 27,000 infections have resulted from COVID-19 among Australians.4

For imposed measures and guidelines to be effective, a high level of public adherence is required. Based on the ‘Knowledge, Attitudes, and Practices (KAP)’ approach, knowledge of COVID-19 preventive behaviour and attitudes (such as concerns and perceived risk) may determine the practice of preventable behaviours.5,6 Recent reports suggest that public campaigns to increase Australians’ knowledge of COVID-19 preventive behaviour have been successful.1 However, there is a lack of literature on the links between knowledge of COVID-19 preventive guidelines, concern for the potential risk and impact of the pandemic, and whether these factors are associated with better preventive practices among Australians. It is also unknown if differences in socio-demographics and where Australians source their COVID-19 information (e.g. governmental sources, social media) influence preventive practices. Therefore, this study investigated the association between COVID-19 prevention knowledge and concern and the practice of preventive behaviour, based on different demographic characteristics in Australian adults. These findings will inform future public health strategies and campaigns to help contain this pandemic as well as future pandemics.

Objective: This study investigated the association between COVID-19 prevention knowledge and concern and practising preventive behaviour in Australian adults.

Methods: Using an online survey, knowledge of Australian COVID-19 guidelines, concerns about pandemic impact, the practice of preventive behaviours, and sociodemographic variables (i.e. age, gender, information source) were measured. Bivariate analysis and linear regression models were used.

Results: A total of 1,491 participants (age 50.5 ± 14.9 years, 32.3% males) completed the survey. Higher knowledge and concern scores were associated with a higher practice of preventive behaviour scores (βs:0.47 & 0.08 respectively, p<0.001). Older adults (>65 years) and women had higher knowledge and practice scores compared to their counterparts. Being younger (<45 years) and male were associated with a lower practice score (βs:-0.88 & -2.52, respectively, p<0.001). Referring to public and government sources as primary sources of information was associated with a higher practice score (β:1.21, p<0.001).

Conclusions: Government-run campaigns appear to be effective in promoting preventive practices and achieving a high knowledge of COVID-19 guidelines in Australian adults.

Implications for public health: Public health strategies are required to promote the practice of preventive behaviour for COVID-19 (or future pandemics), especially among men and younger adults using social media, given their wide use of these sources.

Key words: COVID, knowledge, public health, guideline adherence

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and institutional resources (host university staff e-mail). Data collection occurred between 9 and 19 April 2020, when Australia was in the middle of the first COVID-19 wave (with around 6,500 cases and 70 deaths) and experiencing nationwide restrictions. Australian adults (>18 years) were eligible to participate. Ethical approval was obtained from Central Queensland University Human Research Ethics Committee (number: 22332).

Details of the survey and methods are published elsewhere. Knowledge of COVID-19 preventive guidelines was examined using 25 statements (with around 6,500 cases and 70 deaths) was in the middle of the first COVID-19 wave between 9 and 19 April 2020, when Australia was in the middle of the first COVID-19 wave. The practice of COVID-19 preventive guidelines was assessed using 15 questions examining the frequency of practice (e.g. "How often do you practice regular handwashing with soap and water?").

Responses were scored from 'Always (5)' to 'Never (0)'. An inaccurate response against the guideline resulted in 4 points deducted from the overall score, with a final score ranging from 0 to 56. Higher scores represented higher knowledge, concern and practice.

Participants’ knowledge, concern and practice scores were presented as mean (±SD), and their bivariate differences based on demographic characteristics (age, gender, education, marital status, income, chronic disease, and source of information) were explored using an independent t-test and analysis of variance (ANOVA), with Bonferroni post hoc tests. Multivariable linear regression models were used to examine the association between knowledge and concern scores, with model 1 including practice score, and model 2 controlling for socio-demographic variables. Coefficients and 95% confidence intervals were reported. A p-value <0.05 was considered statistically significant. Analyses were performed using SPSS (v25).

Results

Participants’ COVID-19 prevention knowledge, concern and practice scores, including their differences based on sociodemographic characteristics, are shown in Table 1. Overall, 1,491 participants (50.5 ± 14.9 years, 32.3% males) completed the survey. Older adults (>65 years) and women had significantly higher knowledge and practice scores compared to their counterparts (Table 1). Those with bachelor and higher degrees had significantly lower knowledge and concern scores. Participants with higher income (≥$2,000/week) had significantly lower knowledge scores.

Concern scores were higher for those not in a relationship. Participants with a chronic disease recorded higher knowledge scores. Those using social media (such as Facebook, Twitter, etc.) as their main information source had lower knowledge and practice scores, while those relying on government sources had higher practice scores (Table 1).

Practice scores were positively associated with knowledge (β:0.47, 95%CI: 0.37 to 0.58, p<0.001) and concern scores (β:0.08, 95%CI: <0.001).
An unexpected finding was that those with higher education (bachelor’s degree and above) demonstrated slightly lower knowledge of COVID-19 guidelines compared to their counterparts. This contradicts literature reporting better health literacy and practice of healthy behaviours in those with higher education. This may be due to the effectiveness of public health initiatives to drive behaviour change, as opposed to improving health literacy regarding COVID-19 precautionary measures. Further research is required to confirm these findings.

This study has limitations. The use of self-reported measures, although appropriate, may introduce response bias. Despite a relatively large sample size, participants were more likely to be women, have a tertiary education and be in a relationship. We also used an online survey distributed through social media to recruit participants, which limits our participants to those with internet access and who are active users of social media. All of these factors may reduce the generalisability of the findings. Also, the magnitude of some between-group differences was small, and although there was a statistically significant difference, it may not be meaningful in a real-world context.

To our knowledge, this is the first Australian study to examine the association between COVID-19 prevention knowledge, concern and preventive practices. Our findings suggest the need for public health strategies to promote better preventive practices in men, younger adults, and those without chronic conditions. Government-based campaigns to promote COVID-19 prevention strategies appear to be effective at increasing the awareness of, and adherence to, the guidelines, and should be continued across a range of sources. Given the high public reliance on social media and other non-regulated information sources, especially among younger adults, future public health initiatives should also address the reliability and accuracy of information provided via these sources.

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Supporting Information

Additional supporting information may be found in the online version of this article:

Supplementary File 1: COVID-19 Knowledge Concern Practise Survey.