Use of research by the Australian health promotion workforce

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Abstract
This paper examines the attitudes and practices of Australian health promotion practitioners toward evidence-based practice (EBP). The study used a survey methodology and questionnaires were sent to 1114 members of the Australian Health Promotion Association. A response rate of 27% (n = 277) was achieved. The data showed that the vast majority of participants' attitudes toward EBP was very welcoming. However, in practice the impact of EBP was limited. Participants identified a range of significant barriers to implementing EBP including organizational culture, policy directives and lack of resources. A range of concerns was also identified regarding the applicability of the medically based EBP model within health promotion, which is based upon a social model of health. The findings highlight the importance of acknowledging the complexity of health promotion interventions and working toward developing an appropriate evidence base.

Introduction
There is growing recognition of the importance of research evidence underpinning the development, implementation and evaluation of public health interventions [1]. The model of evidence-based practice (EBP) has grown out of the evidence-based medicine (EBM) framework and has been promoted and adopted across a range of health professions. While there are clearly many benefits to EBM, there are key differences in the underlying paradigms of medicine and health promotion and the contexts within which each discipline operates [2]. This has contributed to tensions in the application of EBP to the field of health promotion.

Tilford [3] notes that debates around the use of the EBP model within health promotion have focused primarily on the nature of indicators for assessing health promotion interventions (see for example, [2, 4–7]) and the methodologies used in developing evidence (see for example, [8, 9]). Less attention has been given to the important questions of how to disseminate evidence to those who need to use it and how those making decisions about practice draw on and implement evidence [3].

A number of authors have attempted to define guidelines for EBP in the fields of public health [10], population health [11] and health promotion [2, 12–14] and workforce competency documents recognize the use of research as a core expectation [15]. Oliver and Peersman [12] describe an evidence-based health promotion service as one with programs that are ‘right for the situation, fair and acceptable to everyone involved, improve health and ... value for money’ (p. 32). Few dispute the merits of health promotion being provided in

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this way; however, barriers remain to the use of re-
search findings by both policy makers and services
providers [16]. For example, Paluck et al. [17] con-
cluded that research plays only a moderate role in
the activities of Canadian Health Regions and that
public health and health promotion research is used
infrequently. So, while work needs to continue on
defining the boundaries of evidence and ways for
developing it, health promotion practice continues
and there is scope for increasing the use of evidence
in that practice [3].

An important factor in the use of evidence is the
attitude toward EBP held by practitioners. These
attitudes have been examined among a range of
health professionals including general practitioners
(GPs) in Australia [18, 19] and in the United
Kingdom [20] and dentists [21] and primary care
nurses in the United Kingdom [22]. The main find-
ings were that respondents typically welcomed EBP
and agreed that its practice improves patient care.
Qualitative research conducted in the United King-
dom with health promotion specialists (n = 25) also
found general awareness of the importance of EBP
and of the debates surrounding appropriate types of
evidence [23]. Similarly, a survey of 20 UK health
promotion specialist departments found all of them
considered that the drive toward EBP was impact-
ing on their work [24]. However, it must also be
acknowledged that EBP is not without its’ detrac-
tors. Authors have argued that the EBP evidence
hierarchy ‘deligitimises’ certain forms of important
knowledge [25], that many patients who present
in clinical settings would not meet the criteria for
the randomized trials on which ‘gold standard’ evi-
dence is based [26], that there is a lack of evi-
dence for many common clinical decisions [26]
and that the emphasis on EBP is used to exclude
alternative forms of medicine and practice such as
homeopathic medicine [27].

Practitioners require specific skills and knowl-
dge, along with access to resources, in order to
be able to incorporate research findings in to their
practice [14]. Previous research has shown that
GPs generally had a low level of awareness of
extracting journals, review publications and data-
bases, and even if aware of such resources, many
did not use them [18–20]. In their surgeries, GPs
had limited access to bibliographic databases (20%
in the UK sample and 3% in the Australian sample)
and the World Wide Web (17% in the UK sample
and 15% in the Australian sample [18–20]). This
lack of access to and use of resources is mirrored
among other health professions [19, 28, 29].

Other perceived barriers that have been identified
to EBP include lack of time [18, 21], financial con-
straints [21], poor computer facilities [22], poor
patient compliance [22], personal and professional
experiences of GPs [30], the limited relevance of
research to practice and the inability of practitioners
to search for evidence-based information [22].

Previous studies that have specifically focused
on EBP among health promotion practitioners have
found that workers tend to rely on the opinions of
peers, rather than the use of evidence in designing
programs [23, 31–33]. Many health promotion
providers either do not have access to or choose
not to use sources of information that specialize
in reliable evidence of effectiveness (for example,
Cochrane Database of Systematic Reviews [31]).
Dobbins [1] identified the importance of organiza-
tional culture in promoting EBP, finding that the
perceived value that organizations placed upon
the use of evidence, was a key predictor of the
use of research findings in public health decisions.
Orosz [34] has argued that practitioners and
researchers identify different types of research as
important in informing their conclusions [34] and
Jones and Donovan [35] found that health pro-
motion practitioners make limited use of theoretical
frameworks and established theories when planning
programs. Other barriers to EBP among the health
promotion workforce that have been identified
include:

(i) the perception that the information does not
exist [31, 36],
(ii) the time to find relevant research [36],
(iii) the cost of finding relevant research [36],
(iv) availability and accessible language of
academic reports [36] and
(v) limited skills of practitioners in accessing and
appraising evidence [31].
In Australia, specialist health promotion positions have been established for >3 decades, yet there has been limited investigation of the use of, and attitudes to EBP. The only Australian research sourced was the second stage of the Health Advancement Standing Committee that aimed to investigate the dissemination of health promotion research to practitioners [37]. These authors undertook an e-mail survey of the two Health Promotion Special Interest Groups of the Public Health Association of Australia, State-Government-employed Health Promotion Coordinators and Public Health Directors in two states (New South Wales and Queensland). Respondents from the self-selected sample reported accessing and using new information frequently and high levels of access to journals (83%) and books (68%). While these results are encouraging, the small sample size (n = 88), the likelihood of social desirability bias due to the loading of scales [35] and the small proportion of respondents who were actually practitioners (16%), rather than students or academics, limit the usefulness of these results.

Given the lack of previous rigorous research and the growing emphasis on EBP across all spheres of health, it is timely to focus on this issue among the Australian health promotion workforce. The aims of this study were to (i) identify attitudes toward EBP among the Australian health promotion workforce, (ii) understand the barriers experienced by health promotion practitioners in applying an EBP framework, (iii) to determine what variables were important predictors of attitudes and behavior in relation to EBP and (iv) compare the use of evidence among the Australian health promotion practitioners with previous research of other health professionals.

Method

The membership list of the Australian Health Promotion Association (AHPA) was used as the sampling frame, as no complete listing of health promotion workers in Australia is available. Membership of the AHPA is diverse, and includes designated health promotion practitioners, researchers and students, as well as others involved in promoting physical, mental, social, cultural and environmental health, whose primary profession or area of study may be something different, but whose responsibilities include promoting health [38]. AHPA members come from a broad range of sectors including health, education, welfare, environment, transport, law enforcement, town planning, housing and politics. Members are drawn from government departments and agencies, universities, non-government organizations, community-based organizations and groups, private companies and industries and students.

At the time of the current study, the AHPA had 1114 members and journal subscribers [38]. Given the limited response rate of this group during previous research [39], and the fact that follow up of non-responders was not possible due to their anonymity, rather than random sampling from the membership list, the complete list was included. Other strategies designed to encourage participation included use of an incentive (a chance to win a book or win a voucher to the value of A $250) [40], the use of an electronic questionnaire rather than a traditional paper-based survey [41, 42] and inclusion of a statement of endorsement and support for the research project from the President of the AHPA [43].

The self-administered electronic questionnaire was sent to all members with access to e-mail facilities by the Association on behalf of the research team. A reminder e-mail was forwarded by the AHPA after a period of 2 weeks. Electronic questionnaires have been shown to elicit quick, low-cost [44, 45], accurate [45, 46] and more complete [46] data that have reduced social desirability bias [45, 47] and high participant acceptability [46] when compared with traditional pen-and-paper surveys. Data handling procedures are simplified [46] reducing processing costs [45]. These benefits were seen to outweigh the potential limitation that the sampling frame of the electronic survey is limited to those who have access to computers and to those who feel comfortable using them [45, 48].

Items for the questionnaire were sourced from previous research including surveys of GPs’
perceptions of the route to EBM [20] and interviews with human immunodeficiency virus (HIV) prevention managers about sources of information [36]. Validity and reliability of these tools have not been published; however, they have been widely used to establish levels of EBP among a range of health professionals. The instrument for the current study included items examining demographic characteristics (age, gender, years of experience in health promotion, qualifications, geographic location), training related to accessing research findings (availability, attendance and barriers to attending), attitudes to EBP, access to EBP resources and tools and sources of information used for program planning.

Ethical approval was gained from La Trobe University Bendigo Human Research Ethics Committee (Approval No. A026/03). Procedures for informed consent and confidentiality were followed. The AHPA sent out the invitation to participate and the link to the electronic questionnaire on behalf of the research team so that the team did not have contact details for individuals at any time. Potential participants were informed of the procedures to protect privacy, the limitations on the use of data, that participation was voluntary and return of the questionnaire implied consent to participate.

The Excel [49] database that was linked to the electronic questionnaire was imported into the Statistical Package for Social Scientists [50] to allow data analysis. Descriptive statistics were used to calculate the response rate and to describe the demographic characteristics of responders. Chi-squared tests (and Fisher’s exact where appropriate) were used to examine differences in awareness of and use of research findings as a function of years of practice, gender, geographic location and qualifications. Open-ended responses were analyzed thematically.

**Results**

An invitation to participate in the survey, including an electronic link to the survey itself, was sent to 1114 members of the AHPA. Eighty-five e-mail addresses were found to be no longer valid and were removed from the sampling frame. Of the remaining 1029 potential participants, 277 responded, resulting in an overall response rate of 27%. Of respondents, 242 (87%) were female and there was a relatively even distribution of ages with approximately one-third in their 20s, 30s and 40s and 10.5% in their 50s (Table I). Data could not be obtained on non-respondents.

The years of health promotion experience of participants ranged from <1 year (8%) to >6 years (48%) with three quarters (75%) of respondents having at least 3 years experience (Table I). The majority of respondents held a tertiary qualification in a field related to health promotion and over half (57%) held a postgraduate qualification (Table I). Geographic location of participants was measured using the Accessibility/Remoteness Index of Australia (ARIA). This is a measure of the

<table>
<thead>
<tr>
<th>Table I. Demographic characteristics of responders</th>
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<tr>
<td><strong>n</strong></td>
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<tr>
<td>Age group (years) (n = 276)</td>
</tr>
<tr>
<td>20–29</td>
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<tr>
<td>20–39</td>
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<tr>
<td>40–49</td>
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<tr>
<td>50–59</td>
</tr>
<tr>
<td>Years of experience (n = 277)</td>
</tr>
<tr>
<td>&lt;1 year</td>
</tr>
<tr>
<td>1–2 years</td>
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<tr>
<td>3–5 years</td>
</tr>
<tr>
<td>6 years or longer</td>
</tr>
<tr>
<td>Qualifications (n = 274)</td>
</tr>
<tr>
<td>None</td>
</tr>
<tr>
<td>TAFE&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Bachelor degree</td>
</tr>
<tr>
<td>Graduate/postgraduate diploma, Masters/PhD</td>
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<tr>
<td>ARIA classification (n = 231)</td>
</tr>
<tr>
<td>HA</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>MA</td>
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<tr>
<td>R</td>
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<tr>
<td>VR</td>
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<sup>a</sup>In Australia, certificate and diploma qualifications are obtained at a college of Technical and Further Education (TAFE).
accessibility of services and social opportunities, based on road distances to centers of various sizes. The majority of respondents (84%) was from areas defined as ‘highly accessible’ (HA), with 12% classified as ‘moderately accessible’ (MA) or ‘accessible’ (A) and only 3.5% as ‘remote’ (R) or ‘very remote’ (VR; Table I). The ARIA classifications were recoded to separate those classified as HA and group the remaining respondents in a second group. The ARIA data were recoded in this way as the vast majority of participants was from HA areas. Further, while MA, A, R and VR areas are not homogenous they do have substantially less access to goods, services and infrastructure compared with the HA areas [51].

There was no difference in years of experience by gender (Pearson’s chi-squared = 1.028, \( P = 0.794 \)). However, respondents who indicated that they worked in MA, R or VR areas were less likely to have \( \geq 6 \) years of experience, compared with those from HA and A areas (Fisher’s exact = 9.3, \( P = 0.018 \)). There was no statistically significant difference in years of experience using the recoded ARIA values of HA versus all other ARIA categories (Fisher’s exact = 4.142, \( P = 0.238 \)). When using HA versus the remaining ARIA categories, there was a statistically significant difference with more participants from HA ARIA categories holding postgraduate qualifications (Pearson’s chi-squared = 4.903, \( P = 0.039 \)).

Forty percent \((n = 111)\) of respondents had experienced barriers to attending training such as limited time (67%), cost (55%), travel time (22%), inability to backfill position (22%), insufficient notice of training (26%) and management or organizational obstruction (13%). The only barrier that was significantly different dependent upon ARIA rating was the time to travel to training (Pearson’s chi-squared = 14.383, \( P = 0.04 \)).

Thirty-seven percent of practitioners \((n = 104)\) had attended training on both database searching and on critical appraisal of research papers, while 14% had attended database training and 8.5% had been trained in critical appraisal alone. One hundred and sixty-seven respondents (60%) had not been trained in either database searching or critical appraisal. Respondents who held a postgraduate degree were significantly more likely to have attended training related to EBP (Pearson’s chi-squared = 22.037, \( P < 0.05 \)). However, less than half (47%,

<table>
<thead>
<tr>
<th>Table II. Attitudes toward EBP and access to relevant tools ((n = 277))</th>
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<tbody>
<tr>
<td>**Unwelcoming, ( n(%) )</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Your attitude to evidence-based health promotion practice</strong></td>
</tr>
<tr>
<td>11 (4)</td>
</tr>
<tr>
<td><strong>Your colleagues attitudes to evidence-based health promotion practice</strong></td>
</tr>
<tr>
<td>21 (7.5)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>**Strongly disagree or disagree, ( n(%) )</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>EBP improves the health of the community</strong></td>
</tr>
<tr>
<td>7 (1)</td>
</tr>
<tr>
<td><strong>Evidence-based health promotion is of limited value because much of health promotion lacks a scientific base</strong></td>
</tr>
<tr>
<td>181 (65)</td>
</tr>
<tr>
<td><strong>EBP is ideal but the workforce is already overloaded</strong></td>
</tr>
<tr>
<td>119 (43)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>**No, ( n(%) )</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Access to bibliographic databases</strong></td>
</tr>
<tr>
<td>38 (14)</td>
</tr>
<tr>
<td><strong>Access to a librarian</strong></td>
</tr>
<tr>
<td>70 (25)</td>
</tr>
</tbody>
</table>
of the respondents who had received training relevant to EBP indicated that they had actually changed their practice following the training. The majority of respondents (73.5%) was either ‘extremely welcoming’ or ‘welcoming’ when asked to describe their attitude to EBP (Table II). When asked the views of their colleagues toward EBP, they were less likely to indicate a welcoming attitude (57%). Three quarters of the respondents indicated that they felt EBP improved the health of the community and 65% disagreed with the statement that evidence-based health promotion is of limited value since health promotion lacks a scientific base (Table II). One-third (33%) of respondents indicated that EBP is ideal but that the workforce is already overloaded. Respondents were asked to estimate the percentage of their practice that they felt was evidence based. Of 221 respondents to this item, responses ranged from none of their practice to 100% of their practice being evidence based, with a mean of 60% (SD = 25).

Around two-thirds of respondents had access to bibliographic databases (60%, n = 168) and a librarian to assist in searching for research (56%, n = 155; Table II). Respondents who held a postgraduate qualification were significantly more likely to have access to bibliographic databases (Pearson’s chi-squared = 12.080, \( P < 0.05 \)) and to a librarian (Pearson’s chi-squared = 16.929, \( P < 0.05 \)) than respondents who held a bachelor degree or lower.

Respondents were asked to indicate their awareness of and use of a range of EBP resources (Table III). Just under a third (28%) of respondents were aware of the Cochrane library but had not used it, while very few respondents were either aware of, or had used, the other EBP resources (such as Effective Health Care Bulletins and EPPI Centre reviews; Table III). Health promotion journals (45%) and textbooks (46%) were by far the most commonly used resources, followed by the Cochrane database of systematic reviews (20%). The least used resources were Database of Abstracts of Reviews of Effects (DARE) (4%), Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) reviews (3%), HealthPromis (2.5%) and the Effective Health Care Bulletins (2%). There was no difference in awareness of evidence-based resources depending upon qualifications held.

Participants were asked to rate different influences on their program planning. As shown in Table IV, sources of research evidence (such as epidemiological data, intervention study findings and research findings) did not rate any higher than most other influences (such as coworker’s input or requirements of a funding body).

The final component of the questionnaire provided participants with the opportunity to make further comment on issues of EBP. These responses were analyzed qualitatively and provide further insights into the views of practitioners regarding EBP. While most participants were positive in their comments regarding EBP and saw it as central to the advancement of the discipline of health promotion, numerous barriers and concerns regarding working in an evidence-based framework were identified. The most significant barriers reported were the context of health promotion service

<table>
<thead>
<tr>
<th>Table III. Awareness and use of EBP resources (n = 277)</th>
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<tbody>
<tr>
<td>Unaware, ( n (%) )</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Effective Health Care Bulletins</td>
</tr>
<tr>
<td>Cochrane</td>
</tr>
<tr>
<td>DARE</td>
</tr>
<tr>
<td>EPPI centre reviews</td>
</tr>
<tr>
<td>HealthPromis</td>
</tr>
<tr>
<td>Health promotion journals</td>
</tr>
<tr>
<td>Health promotion textbooks</td>
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</tbody>
</table>
delivery and access to necessary resources. Participants noted that there was reluctance by organizations to break with tradition, limited support and understanding of EBP by management and a lack of appreciation of EBP principles beyond the field of health promotion. Further the ‘political realities’ of service delivery were identified as inconsistent with EBP:

Political realities often determine what is put into practice as much as the evidence. All state departments find this the case—often we have to do things which are directly contrary to the best practice.

Lack of resources (including time, skills, training and financial support) was also identified a key issue in limiting the application of EBP. Participants reported that the range and number of tasks health promotion practitioners were required to undertake did not permit the time required to explore the sources of evidence available and incorporate evidence into program planning and delivery. Participants also reported limited access to data and ongoing training, and highlighted that the ideal of EBP was typically unachievable within the workplace:

What is learnt about at University re (sic) evidence-based research becomes almost redundant in the workplace due to the inability to access databases/journals etc. You go from having access to evidence based info and encouraged to use it, to having all that taken away.

Concerns were also raised regarding the nature of EBP and its applicability within the field of health promotion. Participants reported that as the concept had been developed within the biomedical model of disease it had limited use within health promotion, which is based upon the socio-ecological model of health. These differences led participants to raise questions regarding the value of EBP to health promotion:

The very definition of “evidence” needs to be widened so as to prove useful for health promotion. If we are working within a social model of health, then how can traditional scientific and risk-factor evidence be useful?

Participants highlighted that social interventions were inherently more complex compared with medical interventions yet this complexity was not reflected within the current evidence base, which tended to focus on disease prevention rather than health promotion. This created a challenge for practitioners ‘to adapt the “scientific evidence” to the real world!’ A further concern regarding the application of an evidence-based framework to health promotion was the perception that the parameters of ‘evidence’ were too narrow and not consistent with the diverse forms of knowledge that were required in the delivery of effective health promotion interventions in favor of ‘science’. This was seen not only to marginalize certain groups but also to stifle community-based innovation. Participants further highlighted that the capacity

Table IV. Influences on program planning (n = 277)

<table>
<thead>
<tr>
<th>Influence</th>
<th>Not at all important/not very important (%)</th>
<th>Somewhat and very important (%)</th>
<th>Not applicable (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs assessment</td>
<td>3</td>
<td>78</td>
<td>19</td>
</tr>
<tr>
<td>Client request</td>
<td>6</td>
<td>65.6</td>
<td>28</td>
</tr>
<tr>
<td>Staff-identified need</td>
<td>4</td>
<td>56.5</td>
<td>18</td>
</tr>
<tr>
<td>Coworkers’ input</td>
<td>5</td>
<td>79</td>
<td>16</td>
</tr>
<tr>
<td>Supervisors directive</td>
<td>10</td>
<td>70</td>
<td>20</td>
</tr>
<tr>
<td>Study findings</td>
<td>5</td>
<td>75</td>
<td>19</td>
</tr>
<tr>
<td>Epidemiological data</td>
<td>6</td>
<td>77</td>
<td>16</td>
</tr>
<tr>
<td>Research findings</td>
<td>3</td>
<td>78</td>
<td>18</td>
</tr>
<tr>
<td>Government report</td>
<td>5</td>
<td>81</td>
<td>14</td>
</tr>
<tr>
<td>Funding requirement</td>
<td>4</td>
<td>77</td>
<td>18</td>
</tr>
<tr>
<td>Tradition</td>
<td>20</td>
<td>57</td>
<td>22</td>
</tr>
</tbody>
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to generate and define evidence was typically confined to privileged groups. This limited the range of sources of information regarded as evidence, and worked to reinforce the status and power of particular professional organizations:

Evidence in the arena of health should be considered politically in that it has developed and is maintained by historical professional and personal processes of power, not available to all—especially those who do not share in the same level of health status.

**Discussion**

This survey has sought to describe the attitudes and practices of the health promotion workforce in Australia toward EBP. The study found that while the vast majority of participants was welcoming of EBP, it had limited impact on the day-to-day practice of health promotion workers. Participants experienced a range of significant barriers to EBP and there were an array of concerns regarding the applicability of the EBM model within health promotion.

The survey achieved an acceptable response rate when compared with similar studies of the health promotion workforce [39, 52]. The sample was also similar to that of Jones and Donovan [39] on a range of demographic variables including gender, age, tertiary qualifications and length of time working in health promotion.

Comparisons with previous research show a number of similarities among attitudes, practices and issues experienced in relation to the application of EBP. In their study of GPs’ attitudes toward EBP, McColl *et al.* [20] found, on a scale of 0–100 from extremely unwelcoming to extremely welcoming, a mean of 73. This compares with 75% of participants in the current study indicating they were welcoming or extremely welcoming on a Likert scale. However, in both the work of McColl *et al.* [20] and in the present study, significantly fewer participants believed that their colleagues were welcoming of EBP: only 57% of participants in the present study and a mean of 56 for the GPs [20]. Participants in the current study strongly endorsed the value of EBP with 74% agreeing or strongly agreeing that EBP improves the health of the community and 65% reporting that it was useful. This is comparable to the findings of McColl *et al.* [20] who reported that 70% of GPs believed EBP improved patient care, and 65% found it useful to their practice, while Askew *et al.* [19] also found that 70% of Australian GPs reported EBP as useful. These findings are also similar to those from qualitative research conducted in the United Kingdom with health promotion specialists [23] that concluded there was general awareness of and commitment to EBP.

While there were favorable attitudes toward EBP, fewer participants had access to the important resources required to incorporate evidence into their practice with only 60% of participants reporting access to bibliographic databases. This figure is somewhat higher than access to these resources found among GPs, with McColl *et al.* [20] and Askew *et al.* [19] finding 20 and 48%, respectively. It is worth noting, however, that 89% of the GP respondents did have access to the Internet, giving them access to Medline, yet they appeared to be unaware of this. There was variability in the levels of awareness of key sources of information between health promotion practitioners and GPs; 71% of participants in the current study were aware of the Cochrane Database, compared with 40% of GPs [20], 11% of current participants were aware of the Effective Health Care Bulletins compared with 60% of GPs [20] and only 30% of current respondents and 11% of GPs [20] were aware of DARE. The higher awareness of Cochrane by the Australian health promotion workers may reflect marketing of the Cochrane library over the past 7 years and/or the fact that the Cochrane library is available free to all Australians. Australian health promotion students may also be more likely to be exposed to the Cochrane database, compared with other resources, during their undergraduate study.

While there was higher awareness of resources among the health promotion professionals, there was considerably less use of some sources of
information in decision making compared with previous research on GPs. Findings from the current study revealed that only 2% of participants used Effective Health Care Bulletin, compared with 15% of GPs [20], while 20% of the health promotion sample used Cochrane, compared with 4% of GPs [20], and 4% of participants in the current study used DARE in decision making, compared with 1% of GPs [20]. These differences might reflect the type of information available in each data source (for example, prevention evidence versus health promotion and well-being evidence) and also the country of origin of the sources.

The sources of information rated as important for program planning by participants in this study also varied somewhat from previous research. In their study of HIV prevention program managers, Goldstein et al. [36] found the three most important sources of research for program planning were (i) peers and colleagues (53%), (ii) local and state departments of public health (44%) and (iii) research findings (40%). Similar to previous research concluding that EBP was impacting on the work of health promotion specialists [24], in the present study 79% of participants rated research findings as ‘important’ or ‘very important’ for program planning. The same proportion of participants, however, rated all other sources of information as equally important as research findings, with the exception of staff-identified need, tradition and client request, which were reported as less important. These findings suggest that while a high proportion of participants identify that research findings are important for program planning, they are not more influential in program design compared with other sources of information.

There are a number of implications of these findings. Firstly, similar to the findings of previous work, this study found very positive and welcoming attitudes toward EBP. However, there was a limited access and awareness of the resources necessary to implement evidence. Further, in program planning, research evidence was rated as no more important than a range of other considerations such as funding requirements and supervisor’s direction. The open-ended questions also highlighted a range of barriers and concerns regarding the use of EBP and reinforce previous suggestions that the principles and assumptions of EBM cannot simply be transferred to the health promotion environment. Lack of adequate resources also emerged as a substantial barrier; however, a potentially more significant issue was practitioners’ concern that an EBP framework was not practicable within current organizational contexts and may not be appropriate for the complex challenges that are addressed within health promotion.

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The first limitation of this research was the use of the AHPA membership list as the sampling frame. The AHPA is a professional body whose mission is to ‘... provide knowledge, resources and perspectives needed to improve health promotion research and practice’ [38]. So, while the members are likely to be involved in health promotion they may be workers, academics or students. In the current study, it was not possible to distinguish between these different interests in health promotion. There are members of the health promotion workforce in Australia who are not members of the AHPA. It is impossible to assess the impact this may have had on responses although it is worth noting that previous research [53] has shown that professionals participating in organized networks are younger, more likely to be male, and have a higher level of professional training, than those who do not. Thus, while network-based recruitment can increase participation rates, the use of such networks may introduce a sampling bias in that members of the AHPA may be younger or more highly qualified than health promotions professionals who are not members.

A second limitation is the low response rate that was achieved, despite the incorporation of various strategies to promote response. This introduces a possible response bias. It is likely that our results overestimate rather than underestimate the use of research when undertaking program planning in health promotion practice. The differences between
rating of self and others’ use of EBP are consistent with use of this item in previous research [18, 20] but provide further cues to a possible response bias. As identified in previous research [54], people are more likely to respond to a knowledge-based questionnaire if they are better educated, more interested in the subject matter and believe that their responses will make a favorable impression on the researchers. While the formal qualifications of respondents were similar to previous research with this group [39], if there is a response bias it is likely to be associated with the practitioners who were most familiar with EBP returning questionnaires and those least knowledgeable choosing not to participate.

The use of an electronic questionnaire rather than a traditional pen-and-paper survey may have affected who chose to respond. Even though the traditional version was offered to participants if they preferred it, the original invitation was delivered via e-mail so the potential bias introduced to those who have access to and are familiar using computers remains. This is reinforced by the fact that of >1100 invitations to participate, only five requests for hard copy questionnaires were received. Participants may have also been reluctant to request a hard copy of the questionnaire due to issues of confidentiality. Previous research suggests that respondents to computer-based surveys are limited to those who are younger, have access to computers and feel comfortable using them [45, 48]. This may have led to older members of the workforce and/or those with lower computer literacy being underrepresented. It may also have introduced a selection bias in that better-resourced workplaces may have increased computer facilities and therefore their staff had increased ability to participate.

These findings indicate that there are substantial issues that need to be addressed if an evidence-based framework is to be comprehensively adopted among the health promotion workforce in Australia. Firstly, those promoting EBP must acknowledge the complex nature of health promotion work and the constraints imposed upon workers by funding arrangements and policy decisions. Secondly, models of evidence-based health promotion need to be developed that reflect these real-world contexts. Finally, ongoing efforts need to be made to develop an evidence base that is consistent with the nature of work being undertaken within health promotion.

**Conclusion**

EBP can clearly offer opportunities for the enhancement of health promotion and is welcomed by most practitioners. However, findings from this study suggest that tensions do exist between the demands of health promotion practice and current EBP frameworks. Based on this research, greater integration of EBP into health promotion is not merely a matter of changing the practices and attitudes of practitioners but also developing models of EBP that are appropriate for the health promotion environment. Further development of the theoretical underpinning of EBP in health promotion is required. Future approaches aiming to increase the use of EBP within health promotion need to acknowledge the complexity of health promotion interventions, the constraints within which practitioners operate and the limitations of the current evidence base for health promotion activities. Without taking these necessary steps to address the important concerns of practitioners, the current promotion of EBP is likely to prove futile. Rather than engendering a change in practice, it may be more likely to lead to frustration and cynicism among workers who grapple with task of applying an idealistic model in an unidealistic world.

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Conflict of interest statement

None declared.

References

1. Dobbins M. Factors of the innovation, organization, environment, and individual that predict the influence five systematic reviews had on public health decisions. *Int J Technol Assess Health Care* 2001; 17: 467–78.


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