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Internet health promotion: Designing guidelines

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INTERNET HEALTH PROMOTION: DESIGNING GUIDELINES

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ABSTRACT

The aim of this research was to investigate the factors which facilitate the communication of health promotion on the Internet and to produce guidelines for developing web pages for health promotion. Health communication in general is a growing field, however there appears to be limited information in the literature on how the factors of communication on the Internet (such as sender, message, channel, medium, receiver and their subsets), can be incorporated into the design of an Internet health promotion intervention. Draft guidelines were developed from a critical analysis of the literature. These draft guidelines were used in the production and evaluation of Internet web pages on the Australian Indigenous Health*InfoNet* website. The subject of these pages was Indigenous women's health. The pages were evaluated by incorporating an online questionnaire. Health professionals, a subset of the Australian Indigenous Health*InfoNet*'s audience, were specifically targeted for their responses as they have expertise in utilising information to improve health. A descriptive analysis of the responses to the on-line instrument was compiled. Information accumulated during the process of developing the web pages and from the analysis of the questionnaire was used to produce a more rigorous set of guidelines. This research was significant as the guidelines provide a framework for the planning, implementation and evaluation of an Internet health promotion intervention. The guidelines can provide a starting point for future development of web pages for the Australian Indigenous Health*InfoNet* and for others developing similar health promotion web pages. The guidelines will be made available for others to use as a tool for more effectively disseminating health promotion messages on the Internet.

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CHAPTER 1

INTRODUCTION

The Internet offers many opportunities for health promotion. It is an economical and fast method of communicating with a large target audience both locally and globally (Cline & Haynes, 2001). The Internet is also a source of information and provides opportunities for discussion and networking. Presently there appears to be limited information available on how to effectively disseminate health promotion information on the Internet. Health promotion is an interdisciplinary field with most related theories originating from a wide range of health dimensions including, psychology, sociology, management, consumer behaviour and marketing (Nutbeam & Harris, 1998). Communication is a vital component of health promotion. This research highlights the potential of Internet communication for health interventions. The aim of the study was to produce guidelines to direct the development of web pages for health promotion.

1.1 Purpose

The purpose of this descriptive study was to investigate the factors that facilitate effective communication of health promotion on the Internet and to produce guidelines to direct the development of health promotion web pages. The guidelines were designed to streamline the processes of planning, implementation and evaluation of health promotion on the Internet. The research focussed on establishing what was necessary to produce quality web pages that were inclusive and sensitive to issues such as cultural diversity.

1.2 Research Questions

1. What are the factors that facilitate the communication of health promotion on the Internet?
2. How can the factors that facilitate the communication of health promotion on the Internet contribute to draft guidelines for directing the development of health promotion web pages?
3. How effective are the draft guidelines for developing Internet web pages on Indigenous women's health?
4. How can information derived from the literature review and the processes of developing and evaluating the web pages be compiled to form final guidelines?

1.3 The Benefits of the Research

The main benefit of this research was that it addressed an apparent lack of information on guidelines for developing health promotion web pages. An extensive search of the literature (described in Chapter 2) failed to identify any guidelines specifically on developing health promotion information for the Internet. The research brought together a number of complementary fields including: communication; health communication; health communication on the Internet; and health promotion. The review of the literature provided information on the advantages and expressed concerns regarding health communication on the Internet. It was evident that to be able to use the Internet efficiently for health promotion purposes background knowledge of these issues is essential. Information gathered was used to ensure that the guidelines would assist in producing quality web pages for health promotion on the Internet and avoid identified flaws in health communication.

There appears to be limited information available on health communication for culturally diverse groups (Kar, Alcaly & Alex, 2001). This research utilised the Australian Indigenous Health*InfoNet* website in the process of answering the research questions. The topic chosen was Australian Indigenous women's health. This population group was selected as epidemiological evidence demonstrated

disadvantage in health status for Indigenous women. When compared with non-Indigenous women they are more likely to experience ill health and their life expectancy is approximately 20 years less (Australian Bureau of Statistics & Australian Institute of Health and Welfare, 2001).

Other benefits of the research were the outputs, comprising a set of guidelines for health promotion on the Internet and web pages dedicated to Australian Indigenous women's health on the Australian Indigenous Health*InfoNet* website.

1.4 Definition of Terms

Australian Indigenous women

For the purposes of this research an Australian Indigenous woman is defined as being of Aboriginal or Torres Strait Islander origin, who identifies as being an Aboriginal or Torres Strait Islander woman and who is accepted as such by the community with which she associates. This definition is based on the Commonwealth definition for the identification of an Aboriginal or Torres Strait Islander person (Australian Bureau of Statistics & Australian Institute of Health and Welfare, 2001, p.177).

Draft guidelines

The draft guidelines for health promotion on the Internet were developed from an analysis of the literature review.

Final guidelines

The final guidelines for health promotion on the Internet were developed from the draft guidelines, information derived from the process of developing health promotion web pages and from an analysis of responses to an online questionnaire.

The Australian Indigenous Health*InfoNet*

The Australian Indigenous Health*InfoNet* aims to contribute to improving the health of Australia's Indigenous people by making information on Indigenous health readily accessible (Australian Indigenous Health*InfoNet*, 2002b). The Australian Indigenous Health*InfoNet* website contains information on a variety of health topics relevant to Indigenous people. The Australian Indigenous Health*InfoNet* also runs Internet cafes

and training workshops to pass on information about Indigenous health and build people's skills in using the Internet.

User

For the purposes of this study a user is defined as a person who accesses information via the Internet.

CHAPTER 2

REVIEW OF THE LITERATURE

2.1 Introduction

The literature review provided information on factors relevant to health promotion on the Internet. The review focussed on sources related to communication and health communication on the Internet and on models and theories used in health promotion. It involved data base searches on the Australian Public Affairs Information Service (APAIS), Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Medline. Literature gathered included books, reports and journal articles. The main period for the literature review was 1990-2002 although some earlier literature from the 1980s was included. The literature review was organised to describe general concepts of communication, communication on the Internet, health communication on the Internet and identified advantages and concerns of health communication on the Internet. As the central basis of the research was health promotion relevant concepts, models and theories were incorporated. There was a particular focus on the design of health promotion messages including the consideration of culture. The review included a description of the Australian Indigenous Health*InfoNet* as the organisation's website was utilised in this research.

2.2 Communication

An understanding of communication components assists when designing a communication strategy. Mohan, McGregor, Saunders and Archee (1998, p. 5) state

that communication is often defined as the ordered transfer of meaning. However, as Kar, Alcalay and Alex (2001, p. 48) explain, studies have shown that the initial attitude of an individual or group affects how a communication message is received. Human communication, according to Devito (1997, p. 7), "involves one or more persons sending and receiving messages that occur within a context, are distorted by noise have some effect and provide some opportunity for feedback". Noise is anything that distorts or interferes with the message. Producing a message can be referred to as encoding and receiving messages as decoding.

Communication takes place within a context and messages are sent through channels and media (Devito, 1997). Devito (1997, pp. 7-8) identifies at least four dimensions of the context in which communication takes place: physical, cultural, social-psychological, and temporal. Physical context is the tangible or concrete environment in which a communication takes place and which exerts some influence on the content and form of the message. The cultural context refers to the communicator's rules, norms, beliefs and attitudes. Examples of the social-psychological context include status relationships between participants, degree of friendliness or formality and whether the situation is serious or humorous. The temporal context includes the place of a message within a sequence of a communication, in addition to the time of day or the time in history. Messages can be written, oral or nonverbal and can be sent through a variety of communication channels or media. Mohan, Mcgregor, Saunders and Archee (1998, p. 32) explain that the terms channel and medium are closely linked but they can be differentiated as channel refers to the sensory basis for conveying messages (sight, hearing, touch, smell and taste), and medium to the vehicle (for example, newspaper or television). The Internet is a medium for communication and therefore the components of communication described above, are applicable.

2.3 Communication on the Internet

The Internet is a recent communication tool, originating as we know it in 1982, although beginning life 10 years earlier as a small network for supporting military research in the United States (Mohan, McGregor, Saunders & Archee, 1998, p. 121). The Internet is a distribution mechanism and a presentation device with the term 'Internet' describing a complex network of hundreds of millions of computers

in homes, offices and public buildings where messages are sent and received (Dorner, 2000, p. 6). The Internet's audience has grown dramatically and now Internet technology enables information to be made available to multiple users globally the instant it is produced, whether they are an ordinary woman living in a village in a developing country or a high ranking policymaker (Edejer, 2002, p. 798). The Internet's potential for communication is evident from its growing popularity.

Internet services are provided by a unified method of message transfer. This involves the global addressing system known as Internet Protocol (IP) (Dorner, 2000, p. 7). Transmission Control/Internet Protocol (TCP/IP) consists of Transmission Control Protocol (TCP) which handles the delivery of messages and Internet Protocol (IP) the network addressing. The TCP/IP enables computers to communicate with each other over the Internet (Joos, Whitman, Smith & Nelson, 2000). Services available can be placed into three categories:

1. Information retrieval which permits the user to obtain files from other sites and bring them to their computer, (often referred to as file transfer protocol);
2. Information services which permit the user to login to other computers from their computer for obtaining information (often referred to as remote login); and
3. Electronic communications which permit users to communicate via electronic mail, bulletin boards, chat rooms, list services and news groups (Joos, Whitman, Smith & Nelson, 2000, p. 209).

The World Wide Web (Web) is a user friendly Internet service and is the graphical portion that stores electronic files, called web pages, on servers (Joos, Whitman, Smith & Nelson, 2000, p. 209). Users access web pages from servers via a computer. Internet services provide the links between senders and receivers of messages.

Internet messages are sent in digital form. Information is represented as numbers with fixed values as a series of on/off switches, either a 0 or a 1 which are binary digits called bits (Dorner, 2000, p. 8). A series of bits (usually 8), is called a byte and represents a letter, number or symbol. Digital bits are carried through telephone systems and are accessible to computers with modems (the word modem is

derived from MODulator and DEModulator), these are internal or external devices that connect computers to the telephone system (Dorner, 2000, p. 9). An Internet Service Provider (ISP) connects users with modems to the Internet Web network. Messages can be sent on the network in written, verbal or visual form.

Messages on the Web are usually written in HyperText Mark-up Language (HTML), a format that enables global access. Documents coded with HTML contain embedded links that allow connections with any other documents written in HTML (Dorner, 2000, p. 16). Links can be used for hypertext connection to other sites or within websites, and they can also be used to divide pages up into manageable pieces (Capron, 2000, p. 283). Links are made by using anchor tags which are written in HTML and can link text and graphics. Dorner (2000, p. 122) considers links should be considered carefully however, so that readers are not sent off in too many directions.

Mohan, McGregor, Saunders and Archee (1998, p. 127) explain that computer programming experience is not essential for creating HTML and it only takes a few hours of study for most people to become a Web publisher. Software packages can also be used for writing HTML (Capron, 2000). Messages that are written in HTML can be uploaded (published), onto the World Wide Web.

Users of the World Wide Web can select the message they require. A web browser is software that provides access to the Internet and interprets HTML code into readable form (Joos, Whitman, Smith & Nelson, 2000, p. 215). There are over two dozen different Web browsers with Netscape Navigator and Microsoft Internet Explorer, the most popular (Macromedia, 2000, p. 97). The term 'browsing' describes searching through the information available (Dorner, 2000, p. 16). The Uniform Resource Locator (URL) is the address of a web page or file, it assists computers in finding its location on the web server. Search engines are software that can be used to locate information on the Web (Dorner, 2000, p. 40). Users of the Web have individual information requirements and search engines speed up the searching process through the millions of pages available.

The provision of information on a website necessitates consideration of users' requirements and equipment. For websites designed for the public it is advisable to ensure that they are viewable in as many browsers as possible, a page of plain text

will usually display well in any browser (Macromedia, 2000, p. 97). Sites become less likely to be cross-browser compatible the more sophisticated they are in terms of layout, animation, multimedia and interaction and large graphics may take a long time to download (Macromedia, 2000, p. 97). However, the use of graphics can be appropriate and attractive (Capron, 2000, p. 280). According to Dorner (2000, p. 113) web pages need to be planned with a logical structure and designed specifically for the Internet medium.

Like other mass media communications the message content needs to be designed to maximise impact for the audience. Reading from screens has been proved so far to be less efficient than paper (Dorner, 2000, p. 121). Readability studies have shown that there is an optimal reading line length of typically 60-70 characters or 10-12 words. Concise information with easy words, short sentences and short paragraphs is recommended. Dorner (2000, p. 122) suggests that writers use a pyramid structure with the main points at the top of the main page and the use of interior pages for more complex details. Keywords placed in the text assist users in keyword searching. Colours aid readability with white or pale cream backgrounds and sharp contrasts recommended. Some writers create documents in Portable Document Format (PDF) which preserves the original appearance. As PDF files are compressed documents (smaller than the originals), access speed is increased (Dorner, 2000, p. 17). Writers may need further assist users of a website to find the information they require by detailing navigation in a site map.

2.4 Health Communication on the Internet

The Internet is a form of mass media which enables people to not only find the information they require, for example on health topics, but also to tailor information to their needs (du Pre, 2000). Health communication can be described as the way in which people seek, process and share health information (Kreps & Thornton 1992, p. 2). Robinson, Patrick, Eng and Gustafson (1998, p. 1264) define interactive health communication as "the interaction of an individual —consumer, patient, caregiver, or professional—with or through an electronic device or communication technology to access or transmit health information or to receive guidance and support on a health related issue". Interactivity further promotes the

tailoring of messages and facilitates interpersonal interaction (Cline & Haynes, 2002).

The popularity of the Internet highlights the advantages of this form of health communication. The Internet increases access to health information (Edejer, 2002, p. 798). In 2002 there were more than 70,000 websites disseminating health information and in excess of 50 million people seeking health information online (Cline & Haynes 2002, p. 671). Kar, Alcaly and Alex (2001, p. xi) describe effective health communication as more than disseminating health messages using popular media or enhancing people's compliance with medical regimens, it involves initiating and sustaining fundamental changes at individual and societal levels. As Cline and Haynes (2002, p. 671) explain the influence of the Internet on health beliefs and behaviours, health care, medical outcomes and the health care system is complex however, interpersonal and mass communication concepts can assist in the investigation and understanding of this influence.

2.4.1 Advantages of Health Communication on the Internet

The Internet is growing in popularity and has advantages over traditional communication formats in terms of flexibility, speed and reach, increasing the potential for the exchange of health information (Duffy, 2000). Current information can be provided quickly, an advantage when compared to the dissemination of hard copy information, particularly books, which can be a lengthy process. Other advantages are interactivity, information tailoring and anonymity (Cline & Haynes, 2002). Gustafson, Robinson, Ansley, Alder and Flatley Brennan (1999) claim that health communication applications have the potential to increase healthy behaviours. Their emergence has been accelerated along with the growth of the Internet allowing geographical barriers to fall and offering people an opportunity to learn from widely diverse resources. Interactive health communication technologies such as the Internet have the potential to fundamentally change the way consumers and health professionals communicate and increase the control consumers have over their own health (Eng, Gustafson, Henderson, Jimison & Patrick, 1999). As Wise (2000) indicates, the Internet offers an exciting means of reaching and engaging members of the population to promote health. The diversity of the Internet offers innovations in the health field.

For dissemination purposes the Internet is a flexible tool. Communication via technology can be person to person, person to group, or group to group with the potential of covering vast distances at low cost and a high rate of information transfer to a large number of people (Green & Kreuter, 1999). The increasing speed and memory capacities of computers mean that growing libraries of knowledge are becoming more available to the practitioner or consumer. There are new opportunities provided by technology for the delivery of public health programs both asynchronously such as e-mail and synchronously such as chat and discussion rooms, online focus groups and on demand world-wide web-based information sources. Access to current and emerging technologies also allows for new ways of thinking about assessments, intervention design, data gathering and analysis (Green & Kreuter, 1999, p. 472). There can be little doubt that the Internet offers the opportunity for dynamic strategies in health communication.

2.4.2 Concerns about Health Communication on the Internet

Although there are benefits of health communication on the Internet there are aspects of the use of this medium that have attracted criticism. Analysis of expressed concerns has identified a range of quality issues (Eng, Gustafson, Henderson, Jimison & Patrick, 1999; Robinson, Patrick, Eng & Gustafson, 1998; and Cline & Haynes, 2002). According to Cline and Haynes (2002) inappropriate health information and poorly designed applications may result in harmful outcomes. For some Internet websites there are concerns about the accuracy of health information provided and the lack of identification of information sources and funding bodies (Winker, et al., 2002). Cline and Haynes (2002) provide a variety of opinions on these problems including assertions that information provided may not be evidence based, it may be unreliable and is often not peer reviewed. The credibility of the source of the information, the standard of the messages (currency, accuracy, organisation and readability), and the suitability of the message for the receiver have been identified as criteria for rating quality (Cline & Haynes, 2002).

Users of the Internet may experience difficulties in finding suitable health information. There may be navigational challenges due to design problems such as disorganisation, technical language and lack of permanence (Cline & Haynes, 2002). There is a vast and growing array of information available on the Internet that is not

arranged in any order, often this creates problems for users seeking information. Individual sites may be difficult to use due to confusing layering, difficult to follow linkages and lack of searchability. Information is often presented in technical language that the user may not understand. Cline and Haynes (2002) explain that the Internet is fluid rather than permanent and information can be changed at any time. There is a need for users to be aware of these issues when accessing information from the Internet.

For many people lack of access to the Internet is a problem. There is the question of cost as many potential users may not be able to afford the necessary technology (Duffy, 2000). Cline and Haynes (2002) agree that access is inequitable and use of online health information is also constrained by lack of knowledge about how to use a computer and literacy competence in the English language and health terminology. An argument put forward by Cline and Haynes (2002) for universal access to health information is that the majority of health information originated from publicly funded research and should therefore be accessible to all. Improving access to health information may lead to improvements in health status by enhancing the quality of health related decisions and in turn health costs may be reduced. It is clear that here are a variety of concerns that need to be addressed to increase access to health information on the Internet and to improve the quality.

2.4.3 Addressing Concerns about Health Communication on the Internet

Researchers, organisations and website developers are exploring ways of helping people to find high quality information on the Internet. The major strength of mass media channels is their ability to reach a wide audience; however this paradoxically presents the greatest challenge for evaluation, as surveillance of a mass audience is difficult (Wellings & Macdowall, 2001). Cline and Haynes (2002, p. 15) assert that the quality of health information found on the Internet should be subjected to the same standards as traditional sources including source and message characteristics and adaptability to targeted audiences. Lack of peer review or regulation of many sources of online health information expose the user to poor quality information. For particular concerns that have been raised regarding health information on the Internet there have been instruments developed (for example to

rate acknowledgment of sources of content), but they are still evolving and may already be outdated (Gagliardi & Jadad, 2002).

Criteria for evaluating health information are being identified and defined to address concerns. Categories frequently reported are: quality and accuracy of content; design and aesthetics of the site; disclosure of authors, sponsors or developers; authority of source; currency of information (includes frequency of update, freshness, maintenance of site); ease of use; accessibility; and availability (Kim, Eng, Deering & Maxfield, 1999). Some medical and health information bodies have produced guidelines in an effort to improve the quality of Internet health websites (Winker et al. 2000). A self-governing body promoting a code of conduct for online health information and ethical standards is the Health On the Net Foundation (HON) (Cline and Haynes, 2002). Websites that comply with the HON code can display the HON logo. Internet users can benefit from these steps to improve the quality of health information.

2.5 Health Promotion Communication

Health promotion is multifaceted, engaging medical, behavioural, social and political sciences. Communication of health promotion requires an understanding of health and the behaviours and supports needed for people to make healthy choices. The Ottawa Charter for Health Promotion (World Health Organisation, 1986) outlines the dimensions of health and ways in which people can gain health improvements and states that:

> Health promotion is the process of enabling people to increase control over, and to improve their health. To reach a state of complete physical, mental and social well being an individual or group must be able to identify and realise aspirations, to satisfy needs and to change or cope with the environment. (p. 1)

2.5.1 Health Promotion Models and Theories

A variety of models and theories are used in health promotion planning, implementation and evaluation and are also applicable to Internet communication strategies. Internet applications are varied and can include information retrieval,

program components (for example an interactive site for suicide prevention), policy development and networking (Wise, 2000).

Green and Kreuter (1999) assert that health promotion combines educational and environmental supports conducive to healthy living. They developed the PRECEDE/PROCEED model (Figure 2.1) specifically for health promotion applications (Green & Kreuter, 1999, p. 470). The model can be adapted for use in technological applications such as the Internet for the delivery of public health programs. Green and Kreuter (1999, p. 487) explain that for computer applications to be truly effective they must be based on a planning process that assesses the problem and its determinants and includes the affected population in various stages of development. The PRECEDE/PROCEED model depicts a variety of considerations for health promotion interventions including determinants of health and stages of action.

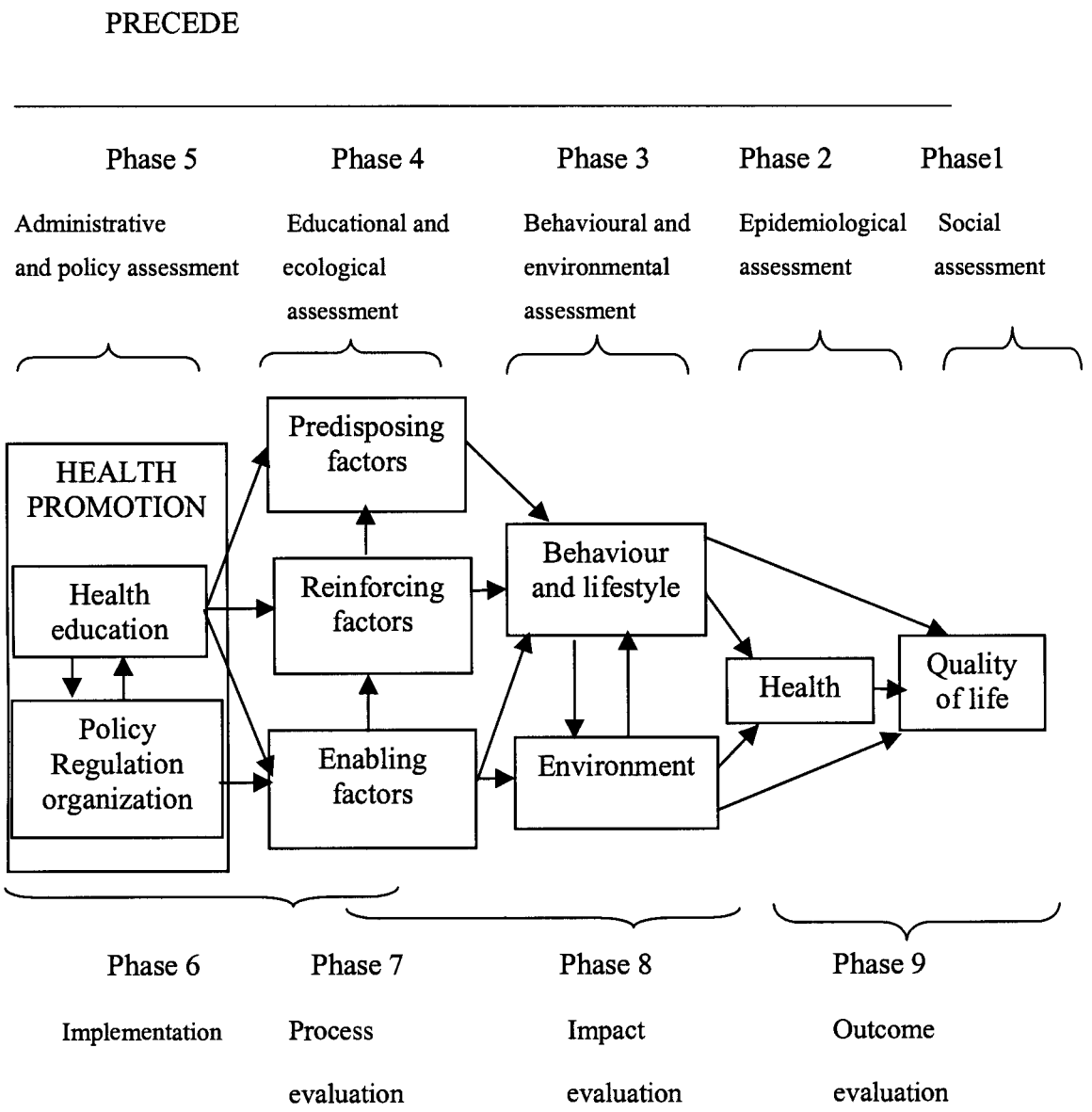

Figure 2.1: The PRECEDE-PROCEED model for health promotion planning and evaluation

Source: Green and Kreuter (1999, p. 35)

Health communication models have served as blueprints for health promotion campaigns (Kar, Alcalay & Alex, 2001, p. 50). The Health Belief Model (Rosenstock, 1990) was developed from observations on how health messages were received and acted upon. This model was designed to explain health behaviour and health behaviour change and focuses on individual characteristics. It was based on the concept that motivation and readiness to take action can depend on an individual's perception of his or her susceptibility to diseases and their potential severity. This model can be used to explain how individuals will take preventative action to ward off, screen for or control ill health conditions if they regard themselves as susceptible to a condition and if they believe it to have serious consequences. Components of the Health Belief Model are:

- perceived susceptibility - a subjective perception of the risk of contracting a health condition or acceptance of a diagnosis of an illness or personal estimates of resusceptibility and susceptibility to illness in general;
- perceived severity - perceptions of the seriousness of contracting an illness or leaving it untreated;
- perceived benefits – the perceived advantages of taking health action;
- perceived barriers - the potential negative aspects of a particular health action or perceived barriers which may act as impediments to undertaking the recommended behaviour;
- other variables - variables that affect the individual's perceptions and thus affect behaviour; and
- self-efficacy - a person's estimate that a behaviour will lead to required health outcomes and that they are capable of that behaviour (Rosenstock, 1990, p. 42-45).

When designing health messages these concepts are important considerations for anticipating how the receivers of health messages may process the content and how they may be motivated to respond.

The Internet is a relatively new channel for health communication and to some degree depends on people spreading the word about its usefulness. If the recipient of a health message chooses they may either pass on the message to someone else or pass on the information about how to retrieve the message. Of relevance to this is the Diffusion of Innovations Theory (Rogers, 1995) which is concerned with the process of accepting of new concepts. Diffusion is the communication process by which an innovation is channelled among members of a social system. An innovation is a concept or object that is perceived as new by an individual or other unit of adoption. The theory evolved through the examination of processes by which innovations are communicated and adopted (or not). This concept is a useful consideration for health promotion communication on the Internet as it is a method of increasing the audience for health promotion messages.

2.5.2 Health Promotion Messages

The influences on health behaviour are complex and knowledge alone is often insufficient for motivating action as it is dependent on a wide range of internal and external factors including values, attitudes and beliefs (Egger, Spark & Lawson, 1995). An individual's values or disposition affect a wide range of thought and behaviour patterns. Although a person's knowledge about what influences health is important it may not always motivate them to modify unhealthy behaviours. It is therefore important to consider when sending health messages on the Internet the aims of the communication and the potential barriers to the message. Initial considerations for Internet communication are the purpose and the target audience (Joos, Whitman, Smith & Nelson, 2000).

According to Downie, Fyfe and Tannahill (1991) health promotion messages must be useful and relevant to the recipient, and the recipient's beliefs, attitudes and behaviours will affect the way in which they are received. How a message is received is dependent upon a variety of factors. Downie, Fyfe and Tannahill (1991, p. 29) assert that influences on a person's beliefs include the credibility of the imparter of a message, the quality and appropriateness of communication, the perceived relevance of a piece of information and the extent to which a given belief fits in with existing beliefs. It may be important to change a recipient's attitude to enhance the response to the message and facilitate the desired healthy behaviour.

Persuasive messages often include logical and emotional appeals (du Pre, 2000, p. 299). Logical messages demonstrate a clear link between a behaviour and a result and an emotional appeal may suggest that people should feel a certain way regarding their health or their behaviours, for example, guilty if they are endangering others. Downie, Fyfe and Tannahill (1991) identify that there may be: situational or background factors to the communication such as distraction which may prevent the message from reaching the target; reinforcement of a communication which may increase the chance of persuading a recipient and the use of fear which may enhance the persuasive affect. These are important considerations when designing health messages.

2.5.3 Health Promotion Communication and Culture

It is important to consider cultural influences when communicating health messages. Kar, Alcaly and Alex (2001) assert that although there is a growing amount of literature on health communication it is limited with respect to communication and health promotion issues for a variety of cultural groups or disadvantaged communities. All ethnic groups have culturally conditioned beliefs, values, knowledge, attitudes, practices and ethnic communication patterns that affect health related behaviour. Australian Indigenous people for example, perceive their culture as an integral part of health. The National Aboriginal Health Strategy Working Party states that "health is not just the physical wellbeing of an individual, but the social, emotional, and cultural wellbeing of the whole community. This is the whole-of life view and it also includes the cyclical concept of life-death-life" (National Aboriginal Health Strategy Working Party, 1989, p. x). As du Pre (2000) explains diverse beliefs about health and illness affect health communication, and misunderstandings can occur when people have different ideas about the nature of diseases, how to react in healthcare situations and how illness reflects on people in the community. Kar, Alcaly and Alex (2000, p. 40) assert that communication flows should go both ways between cultures to enhance risk prevention and health care.

2.6 The Australian Indigenous Health*InfoNet*

The Australian Indigenous Health*InfoNet* is an example of an Internet website. The mission of the Australian Indigenous Health*InfoNet* organisation,

which runs the website, is to contribute to improving the health of Australia's Indigenous people by making relevant, high quality information easily accessible (Australian Indigenous Health*InfoNet*, 2002b). One of the strategies for the achievement of this mission is the dissemination of research on a variety of Indigenous health issues. The Australian Indigenous Health*InfoNet* shares knowledge and information with a variety of potential users (including policy makers, health service providers, academics, researchers, students and the general community), mainly via an Internet site (Australian Indigenous Health*InfoNet*, 2002a).

2.7 Summary

The literature review provided the background for this research. Health communication factors and health promotion theories and models are the main focal points for health promotion communication on the Internet. Currently the quality of health messages is of particular concern and there is a need to ensure improvements. It is evident that senders of messages on the Internet need to consider the purpose of the communication and be aware of the receiver's needs. The senders' and the receivers' attitudes, beliefs and values may affect the impact of the message. Messages need to be designed in terms of content, technology and quality. For health promotion interventions it is important to consider the context in which messages are sent and received. It appears presently that there is a lack of information for guiding health promotion interventions on the Internet particularly, in respect to cultural diversity.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This descriptive study aimed to facilitate the design of guidelines for producing Internet web pages on health promotion. The research questions were answered by determining and analysing the factors of communication, health communication and health promotion that were relevant to health promotion on the Internet. This chapter describes the processes involved including the ethical considerations for the research, the development of the draft guidelines and their refinement to produce a final set of guidelines.

The draft guidelines were produced from an analysis of the literature review. They incorporated a range of the expressed benefits of health communication on the Internet and addressed the identified concerns by listing them as principles to be observed. The information was organised into a step by step framework for producing health promotion web pages.

The draft guidelines were used in the design, production and evaluation of a selection of web pages on the Australian Indigenous Health*InfoNet* website. The focus of the web pages was an Indigenous health issue as it was intended that the final guidelines would be comprehensive and sensitive to cultural diversity. The literature review had revealed that consideration of cultural diversity in health communication was often limited. The topic chosen was Indigenous women's health. An online questionnaire was developed to evaluate the web pages and was included on the main page of the Indigenous women's health section. The target

group for the questionnaire was health professionals (a subset of the Australian Indigenous Health*InfoNet*'s audience), who were chosen because they utilise information for improving health.

The final section of the methodology describes the development of the final set of guidelines by refinement of the draft guidelines. Information was accumulated to develop the final guidelines during the process of developing the web pages for the Australian Indigenous Health*InfoNet* website and from the analysis of the responses to the online questionnaire. The draft guidelines provided a base and as additional information was identified it was added to the relevant sections. The process for developing the guidelines is shown in Figure 3.1.

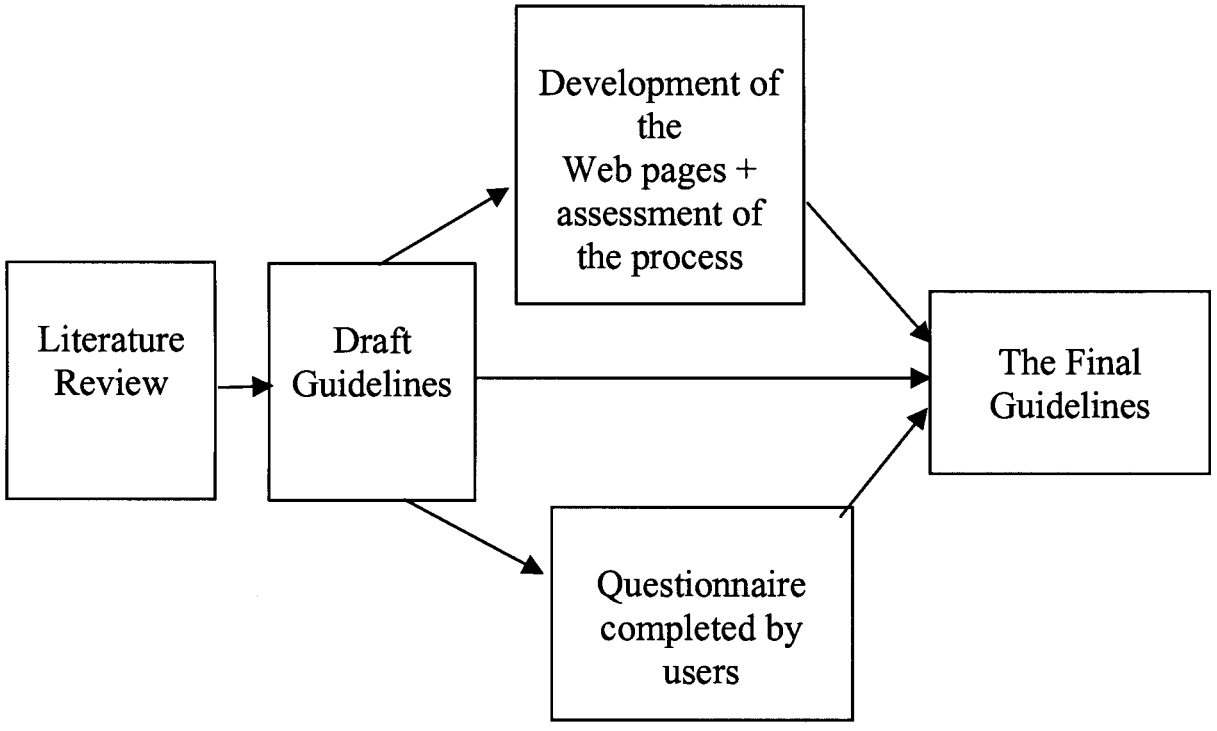

Figure 3.1: A plan of the research process

3.2 Ethical Considerations

The National Health and Medical Research Council has provided guidance on ethical issues of research. It recommends that research questions are designed to contribute to knowledge, there is commitment to the pursuit and protection of truth, a commitment to reliance on research methods appropriate to the discipline and honesty (The National Health and Medical Research Council, 1999). Steps were followed to ensure that this research complied with these criteria and with Edith Cowan University Ethical Guidelines (Committee for the Conduct of Ethical Research, 2002). Indigenous research requires particular consideration. Priorities for this research were respect for Indigenous values and beliefs and consideration of the risks and benefits of the research as outlined in the *Guidelines on Ethical Matters in Aboriginal and Torres Strait Islander Health Research* (The National Health and Medical Research Council, 1991). Ethical clearance for this research was obtained from the Edith Cowan University Human Research Ethics Committee.

3.3 The Draft Guidelines

Draft guidelines were developed from themes identified in the literature and were compiled in note form. Themes centred on a selection of factors of communication including: the sender; the channel; the medium; the message; the context and the receiver. Attention was given to the concerns expressed in the literature regarding the quality of health communication on the Internet and as a result particular principles were detailed. Health promotion information based on models and theories, and the sending and receiving of health messages was included. The themes were described within a framework relating to stages of producing health promotion web pages. The stages were listed as a step by step process documenting the most relevant features in the chronological order in which web pages would be produced. The draft guidelines were used in the production of web pages on Indigenous women's health for the Australian Indigenous Health*InfoNet* website.

3.4 The Australian Indigenous Health*InfoNet*

The Australian Indigenous Health*Infonet* website was utilised in the research for the health promotion intervention. A request to the manager of the Australian

Indigenous Health*InfoNet* to establish Indigenous women's health pages was granted. It was agreed that users of the Australian Indigenous Health*InfoNet* site would benefit from health promotion information on Indigenous women's health issues (B.Gee, personal communication, August 16, 2002).

3.5 Creating the Web Pages on Indigenous Women's Health

The web pages on Indigenous women's health were created specifically for the Australian Indigenous Health*InfoNet* website. The content of the pages is shown in Appendices B, C and D. Epidemiological evidence has demonstrated the disadvantage in health status for Indigenous women compared with women in the non-Indigenous population (Australian Bureau of Statistics and Australian Institute of Health and Welfare, 2001). Indigenous women's health is a vast and complex field including aspects such as determinants of health, reproductive health, nutrition, ageing and family violence. For the purposes of this study the subject matter needed to be narrowed. Through discussions between the researcher and the manager of the Australian Indigenous Health*InfoNet* it was decided that content would include a main page with a general overview of Indigenous women's health and subsections on cervical cancer and breastfeeding.

Material was developed from sources in the Australian Indigenous Health*InfoNet* library. The library contains over 7,000 items that have been selected for their relevance to Indigenous health. They include journal articles; government and other reports; books; book chapters and theses. The content developed for the web pages included descriptions of: the nominated health issues for Indigenous women; strategies that had been implemented; sources of further information and support organisations. The aim was to produce information that was holistic and sensitive to Indigenous women's concerns, culture and range of reading levels. The writing style was designed to be relevant to the Internet medium and details were provided in a concise format. Additional information relating to Indigenous women's health was identified within the Australian Indigenous Health*InfoNet* website and on other websites so that internal and external links could be provided. It was not planned to complete these sections during the limited time available for this research. The intention was rather to provide a substantial base for further content to be added in the future. It was also anticipated that the results of the

research would be taken into account for the further development of the web pages. Professor Neil Thomson, Director of the Australian Indigenous Health*InfoNet*, edited the content for the web pages. The cervical section was also checked by Sandy Angus who is an Indigenous woman, an employee of Queensland Health, specialising in women's health and who, at the time of the research, was a member of the Australian Indigenous Health*InfoNet* team.

A plan of the web pages, including the internal and external links, was designed. Content was written as a word document initially and then converted to HTML. The computer package Macromedia Dreamweaver, a HTML editor for visually designing and managing websites and web pages, was used to compile the web pages. Following recommendations for the Dreamweaver software a mock page was developed showing the design lay out, site navigation, technical components (such as anchor tags), themes and colours. The pages were previewed to demonstrate how they would look online. There were design and colour limitations for the pages as they needed to be consistent with others on the website and with hard copy material produced by the Australian Indigenous Health*InfoNet*. The pages were designed for the frames format used in the Australian Indigenous Health*InfoNet* website. Frames assist users in navigation and divide a web page window into independently scrollable units called panes. The collection of frames is displayed in a single page called a frameset. Also to aid navigation the website includes a site map and the position of the women's health pages was included on the map.

3.6 Evaluation of the Web Pages

The web pages were evaluated using an online questionnaire as the instrument.

3.6.1 The Questionnaire

The draft guidelines were used for designing an online questionnaire that was included on the main page of the women's health section (see Appendix A). The questionnaire was based on quality issues identified in the literature review. It was evident that the main concerns about health information on the Internet were accuracy, currency and design. The questionnaire included questions to determine demographic characteristics of the respondents. Qualitative questions were included

to determine respondents' views on the quality of the web pages and to provide an opportunity for suggestions on improving the pages. A disclosure statement was included with the questionnaire for potential respondents to read before answering the questionnaire. Consent was not required as the questionnaire was anonymous.

The technical requirements for the questionnaire and database were designed using the PHP/mySQL database system (Krishanka Gunasekera, personal communication, n.d.). The database was set up by Krishanka Gunasekera, the multimedia coordinator of the Australian Indigenous Health*InfoNet,* to receive and store responses to the questionnaire. It was designed so that respondents could answer the questionnaire by clicking on buttons and pull down lists and typing comments into the boxes provided. The responses were submitted electronically by clicking on a 'submit' button. The elements entered were processed and the information was stored in a secure password protected database.

3.6.2 The Pilot

The questionnaire was piloted by two managers of Women's Healthworks, a women's health centre in Joondalup, Western Australia. They were asked to view the content of the web pages and complete the questionnaire. The target group for the questionnaire was health professionals so it was felt that this selection of respondents for the pilot was appropriate. Following their responses adjustments were made to the web pages. As suggested the text on the women's health pages was divided into smaller sections to make it easier to select. Also in response to feedback, a selection of optional responses using a Likert scale were provided in place of comment boxes for some of the questions.

3.6.3 Publishing

When the final women's health pages were uploaded onto the Internet checks were done to ensure functionality of the technical aspects of the web pages and the questionnaire. Answers to the questionnaire were submitted online as a test to check that responses would be automatically received into the database. The questionnaire (Appendix A) was made available online from 21 November 2002 - 31 January 2003 inclusive at the URL address http://www.healthinfonet.ecu.edu.au/. No new content was added to the women's health pages during this time.

3.6.4 Target for the Questionnaire

The target group for the questionnaire was health professionals, including doctors, nurses, healthworkers and health promotion officers. Health professionals are a subset of the Australian Indigenous Health*InfoNet*'s audience. They were chosen as they have expertise in utilising information to improve health. Those with an interest in Indigenous women's health were specifically targeted.

3.6.5 Recruitment of Participants

Initially it was anticipated that participants would only be invited online via the website to respond to the questionnaire. An advertisement for the questionnaire was inserted in the scrolling text on the home page of the Australian Indigenous Health*InfoNet* site to draw the attention of possible respondents. Ethics clearance for the research was granted for the period 20 November 2002 to 31 January 2003. Past statistics for this period of the year were viewed and they demonstrated that the Australian Indigenous Health*InfoNet* site was less likely to be accessed during this time of the year than at any other time. Due to the tight time frame of the research an alternative strategy was necessary. It was decided that potential respondents, who were health professionals known to the staff of the Australian Indigenous Health*InfoNet,* would be contacted by phone, e-mail and listserves. The potential participants were told about the research and encouraged to participate. To assist them in finding the Indigenous women's health information directions to the relevant health section were outlined and a direct link was provided from an advertisement on the scrolling text on the home page. Potential respondents were also informed about the need to read the disclosure statement before choosing whether to participate.

3.6.6 Monitoring of the Responses

The database was checked at least four times per week to monitor the responses to the questionnaire. This was to ensure that responses were being accumulated and that any problems could be addressed, such as technical difficulties.

3.7 Maintenance

The Internet web pages needed to be maintained. They were checked each month to ensure that there were no problems, such as broken links. This was

considered sufficient as functioning of the website in general was observed every working day.

3.8 The Final Guidelines

The draft guidelines were refined to produce a more rigorous set of guidelines. During the process of developing the web pages further content was added to the draft guidelines when it was apparent that they needed to be more comprehensive. By following the outline of other pages on the Australian Indigenous Health*InfoNet* website, key points were identified on content and design which were incorporated into the final guidelines. Observations of various aspects of the website were also noted for inclusion when relevant. Points raised from the analysis of responses to the online questionnaire were also incorporated in the guidelines. Further literature sources were used to provide information for details in the guidelines when necessary. The final set of guidelines was developed by compiling all the information gathered into a format suitable for dissemination.

3.9 Summary

The methodology comprised two developmental stages. The first stage was the production of the draft guidelines from the compilation of the information from the literature review. The second stage centred on the refinement of the draft guidelines. The draft guidelines were used in the production of web pages on Indigenous women's health for the Australian Indigenous Health*InfoNet* and for designing a questionnaire to evaluate the content. Additional information identified in this process was used in the production of the final set of guidelines.

CHAPTER 4

THE DEVELOPMENT OF THE GUIDELINES

The findings of this descriptive study were derived from the processes of developing the draft and final guidelines. This chapter records the findings from the development of the draft guidelines, the responses to the questionnaire and the process of refining the draft guidelines. The final set of guidelines is included at the end of the chapter.

4.1 The Development of the Draft Guidelines

The draft guidelines were developed from the literature review and compiled in note form, as described in the methodology. They outlined a step by step process for producing health promotion web pages. There were various themes that were identified in the literature review and these were included in the draft guidelines. The first considerations to be detailed were the purposes and benefits of disseminating health promotion on the Internet. Next to be added was content regarding the detailing of the health issue, the objectives of the intervention and the target audience. The draft guidelines incorporated communication factors that were relevant to the production of health promotion web pages. Included were advisory notes on designing the content of health promotion messages for the Internet and the technical requirements. The concerns identified in the literature review about the quality of health communication on the Internet, were compiled into principles and incorporated into the draft guidelines. The principles included: the need for using reputable sources of information to ensure accuracy; attribution to the sources of information; ensuring the currency of information; ensuring the privacy of the users

of the website; maximising accessibility for the users of the website and providing a means of contacting the sender of the health message.

4.2 The Development of the Final Guidelines

The final set of guidelines was developed from the practical application of the draft guidelines. The draft guidelines were used for the process of producing web pages on Indigenous women's health for the Australian Indigenous Health*InfoNet* web site and for designing the questionnaire, as described in the methodology. The analysis of responses to the questionnaire also provided additional details. Information accumulated during the production of the Indigenous women's health web pages was divided into the following areas: planning and production of content; technical requirements; quality procedures; accessibility for users; and maintenance. Content on tailoring health messages and accommodating cultural awareness was developed during the process of producing the web pages on Indigenous women's health and from the analysis of responses to the questionnaire.

There were a number of technical considerations added to the final guidelines. The fluid nature of Internet information was highlighted including points on the fast speed in which messages could be updated and any mistakes could be corrected. Also included were the use of a software package, the planning and creation of internal and external links and the navigation of web pages and websites. Procedures were added to the draft guidelines such as the quality control methods, peer review and consultancy as used by the Australian Indigenous Health*InfoNet*. Also identified was the need to observe copyright requirements. Opportunity for user's feedback is provided on the Australian Indigenous Health*InfoNet* website and this aspect was also included. Methods of increasing the accessibility of the Internet for the target audience were listed such as, the use of Internet cafes and workshop training. Maintenance aspects were detailed in the guidelines for example, the need to check for broken links and ensuring information was up to date.

4.3 Responses to the Questionnaire

There were 15 responses to the online questionnaire. It was expected that more responses would be received. The response rate had implications for how

meaningful the results were for this aspect of the research. It was considered however, that the analysis of the responses did provide an insight into the ways in which the respondents viewed the web pages and was therefore useful.

4.3.1 Demographic Characteristics of the Sample

The questionnaire included questions on demography and characteristics of the sample are recorded in Table 4.1. Most of the respondents were in the 40-49 year age bracket (n=8). They were predominantly health professionals. Four respondents were of Aboriginal or Torres Strait Islander origin and eleven were not. Respondents reported five different states as being their place of residence with eight from Western Australia.

Table 4.1: Characteristics of the respondents (n=15) to the questionnaire

Variable	Respondents (n)
Age	
Under 20 years	0
20-29 years	2
30-39 years	3
40-49 years	8
50-59 years	2
over 60 years	0
Occupation	
Doctor	1
Health worker	2
Administration	1
Project officer	2
Health promotions officer	3
Nurse	1
Outreach worker	1
Refuge worker	1
Research officer	2
Home duties	1
Aboriginal or Torres Strait Islander origin	
Yes	4
No	11
Place of residence	
New South Wales	2
Northern Territory	1
Queensland	3
Victoria	1
Western Australia	8

4.3.2 Responses to Questions Regarding the Quality of the Pages

Further questions were designed to evaluate the quality of the information provided in the Indigenous women's health pages. The themes are described below.

Accessibility

Accessibility to health messages was an issue identified in the literature review as being of concern in health communication. Although it was described in broad terms in the literature, for this research the question regarding accessibility needed to be focussed. Respondents were therefore asked to indicate how easy it was to find the information on Indigenous women's health on the Australian Indigenous Health*InfoNet* website. There was a range of responses to this question regarding the accessibility of the web pages. Of the fifteen respondents who answered this question four strongly agreed, eight agreed and two disagreed that the information on Indigenous women's health was easy to find. One respondent did not answer the question.

Accuracy

Accuracy was an issue identified in the literature review as being of concern in health communication. In response to the statement 'the information on Indigenous women's health is accurate' six of the fifteen respondents neither agreed or disagreed, seven agreed and one strongly agreed. One respondent did not answer the question.

Design

The questionnaire asked for comments on the design of the web pages on Indigenous women's health. Most respondents found that the design was appropriate and comments included appreciation of the way it was easy to follow, the large print, the colours and the layout. There were two recommendations for more artwork on the pages, with one stating "some graphics and/or pictures would be nice though, to liven up the large expanse of text". A suggestion for improvement to the questionnaire was to use a pick list to show all the options and use a separate window so that could it be opened at the same time as the women's health page. One

comment was critical of having to scroll down the text. Two respondents stated that navigation could be improved.

Currency

Most of the respondents thought the information was current although two suggested that more recent information should be included and one recommended regular updates, particularly for statistics. Other comments included a suggestion that there should be more collaboration with states and other programs that address health issues. One comment, although agreeing that the information seemed to be up to date, was critical of the sources and asked if any of the writers were of Aboriginal and/or Torres Strait Islander origin. Some comments indicated a difficulty in measuring currency such as in statements of "it seems to be", one respondent commented "I have no way of judging this", and another stated "wouldn't know".

Appropriateness for Indigenous Women's Health

Comments on the suitability of the information to Indigenous women's health were mainly positive. They showed an appreciation of: "the usefulness to an Aboriginal health worker"; "the simple approach" and "the provision of statistics for health professionals". One comment explained that the pages were quite appropriate as Indigenous women's health issues are vastly different to those of the general population. Another comment stated that some information seemed narrow in scope but acknowledged that the page was under construction. One respondent wrote that although the content was very suitable, "I am neither Indigenous nor in direct contact with Indigenous women my opinion may not be that worthwhile". Suggestions for improvement included more information on Aboriginal women's health issues, and possible strategies to overcome or resolve them. A respondent who identified as Indigenous stated "we need more info period! The mainstream is not addressing our health issues. I like the holistic approach". A further suggestion was for more links to other organisations or web pages.

Suggestions for Women's Health Topics

There were a variety of suggestions for other topics. One respondent also called for women's voices, particularly their personal stories. Another respondent also showed interest in sharing experiences stating:

> Firstly, at last a site dedicated to our needs with INFO. Would be great to hear from those who've gone thru health challenges to share their experience. Often when we are sick, we go it alone.

Another suggestion for a suitable topic was research:

> Research papers written by Aboriginal and/or Torres Strait Islander people. This will confirm that Aboriginal and Torres Strait Islander women are capable of doing our own research on our own people - confirming and validating information on all the mainstream women's health issues and additional health issues that affect Aboriginal women.

One respondent recommended more information on violence and mental health relating to domestic violence. A suggestion for the inclusion of cardiovascular disease also included the comment "We never talk about it. Why?" as an expression of need to discuss the topic. A further suggestion was for information on nutrition and nutrition related disease such as cardiovascular disease and diabetes. There was also a request for information on upcoming conferences or groups.

Two respondents took a more critical approach. One suggested that the women's health section needed re-working and that it seemed to be a bit of 'a hotch potch' and another suggested there were probably a lot more topics and the page did not give an impression of providing a comprehensive list of resources or information.

Other Comments

The final question gave the opportunity for further comments. Those respondents that answered made encouraging remarks. One commented "Please continue to update and build upon the information regarding health issues pertaining to Indigenous women - it is invaluable to women working with Indigenous women in health and other environments". Another respondent commented that "getting feedback in this way is a very good idea and thanks for the opportunity to be involved".

4.4 Incorporating Responses to the Questionnaire into the Final Guidelines

The final guidelines reflected key points raised by the respondents. Analysis of the responses to the questionnaire reinforced the need for observing principles for

health promotion interventions on the Internet. The variation in responses to the question on accessibility accentuated the need for providing advice to ensure that users are able to find the information they require. Five of the fifteen respondents had neither agreed nor disagreed that the content was accurate. This led to the inclusion in the guidelines of suggestions for informing users on how they can determine the accuracy of the information they have accessed. Additions to the guidelines (in response to feedback), included advice on design features such as fonts, colours, graphics and navigational features. Currency, as with accuracy, appeared to be an issue as some respondents indicated difficulty in assessing currency. Additions to the draft guidelines included the need to recommend to users methods of measuring currency, providing assurances of currency and a recommendation to include the latest update details on the web pages. The responses to cultural issues highlighted the need for target audience input into the content for health promotion messages. Additions to the guidelines from this theme included suggestions on how to address the needs of a target group and the recommendation of using personal stories. Information added to the guidelines highlighted the need for cross cultural health promotion information and the need for evaluation from the target group.

4.5 The Final Guidelines

The final guidelines for dissemination purposes would consist of: the literature review (as detailed in Chapter 2) for use as a support reference; the guidelines detailed below; and a template (Appendix E). Depending on the type of Internet health promotion message intended some or all of the guidelines below may be useful. The guidelines may be used in the design of a web page or a website. They have been developed for those who have knowledge of how to write web pages and also for the novice.

GUIDELINES FOR HEALTH PROMOTION ON THE INTERNET

Introduction

These guidelines have been developed to streamline the process of producing content for health promotion on the Internet. The Internet offers an economical

method of disseminating health information quickly and effectively to a rapidly expanding audience through a variety of methods including via websites, electronic mail, bulletin boards, chat rooms, listserves and news groups. These guidelines focus on health promotion on the World Wide Web (Web). There are many sources of health information on the Internet that can be utilised in health promotion interventions. The provision of health promotion information on the Internet can be a strategy for persuading a target audience and mobilising action towards healthy behaviours. The Internet is an efficient tool for linking and networking among individuals, groups and organisations and can be used as a medium for discussion. People often seek support on the Internet for dealing with health issues. They can communicate with health professionals or other people with experiences of similar health issues. Advertising is another useful application of the Internet for health promotion.

The literature review provides main points that are useful for designing the communication of health promotion on the Internet. Communication is often defined as the ordered transfer of meaning (Mohan, McGregor, Saunders and Archee 1998, p. 5). In a health promotion intervention on the Internet, for transferring the intended 'meaning' it is worth considering each component of the communication. Factors include the: sender; message; channel; medium; context and receiver as described by Devito (1997). To ensure that health message 'meanings' are transferred to the receiver, as intended by the sender, it is initially worth identifying characteristics of the target group which may influence how messages are interpreted. As Kar, Alcalay and Alex (2001, p. 48) and Downie, Fyfe and Tannahill (1991) explain values, attitudes and beliefs of the target audience can affect how messages are received. It is worthwhile examining the determinants of the health issues being addressed (Green & Kreuter, 1999) as they may need to be acknowledged in the design of health promotion messages. Determining the cultural make up of the target group is useful as cultural influences are often overlooked in health communication (Kar, Alcaly and Alex, 2001) and can impact on the acceptability of the health message. Input from the target group to the content of web pages, for example, personal stories can reinforce health promotion messages. A variety of methods can be employed for evaluating health messages on the Internet (Green & Kreuter, 1999).

It is not intended that the guidelines cover the technical complexities of providing information on the Web, they are rather a step by step guide for designing appropriate content. There are however, a number of technical aspects that need to be taken into account when designing content for the Internet (Dorner, 2000). Messages on the Internet are sent in digital form, they can be written in HyperText Markup Language (HTML) directly or in a word document and then converted to HTML. There are software packages available to assist in the production of webpages. Navigation of web pages and websites need to be planned. Internal and external links can be created to provide hypertext connections. Web pages need to be maintained to ensure that they are functioning correctly and that there aren't any broken links.

Content for web pages should be designed specifically for the Internet, studies have shown that writing style should be concise and main points easily identified (Dorner, 2000). Communication on the Internet medium can be in written, graphical or sound form. The content can be dynamic and regularly changed and this also means that mistakes can be quickly corrected. The content for web pages should use language suitable for the target audience. Keywords need to be inserted in the text to assist users in locating information. The tone of the content needs to be decided such as formal, friendly or humorous. Other decisions include choosing colours and artwork that are suitable for the Internet medium and which are compatible with other materials used in the health promotion intervention. The quality of health information on the Internet has been identified as being of concern (Eng, Gustafson, Henderson, Jimison & Patrick, 1999; Robinson, Patrick, Eng & Gustafson, 1998; and Cline & Haynes, 2002). Included in these guidelines are principles to enable users to avoid commonly identified concerns about this method of communication.

The main points of these guidelines are:

1. Health promotion strategies on the Internet need to be designed in relation to the content of the message, the quality of the information provided and technical components.
2. Knowledge of the target group for the intervention is essential and input from members of the target group into the health promotion message is advisable.

3. Content on web pages needs to be specifically designed for the Internet. Keywords are essential to aid searching with suitable use of links to assist navigation.
4. Accessibility of the target group to the Internet needs to be assessed and if necessary and where possible, maximised by Internet training or increasing access to computers.
5. Material on the Internet needs to be regularly maintained to ensure currency and functioning.

The Framework

To assist in following the guidelines a template is provided (Appendix E) for planning a health promotion intervention on the Internet. The headings relate to the step by step framework described below. Information can be cut and pasted from the template when required at any stage of the project. It can also be converted into HTML for providing information on the Internet, when it is required.

Title of the project

What is the title of the project? The title should include keywords for search engines to identify and preferably be short in length and appealing to the target audience.

Description of the project

Provide a general overview of the project.

Description of the health issue

There are many health topics and the first stage for a health promotion intervention is to detail the particular health issue. Briefly describe the health concern, the extent of the problem and list features such as the prevalence and patterns, risk factors and methods to overcome them. Describe possible interventions. Consider how the provision of information on the Internet can assist in the health issue. Describe services available for the health issue. Identify keywords for the online health promotion message.

Objectives

What is the aim of the project? Describe the objectives of the health promotion intervention.

Expected outcomes

Describe the expected outcomes of the health promotion intervention.

Expected outputs

Describe the expected outputs of the health promotion intervention.

Funding body

Provide brief details of the funding body.

Budget

Detail the budget for the health promotion intervention on the Internet. The budget will affect aspects such as the amount of paid work time to be devoted to the project including the technical and maintenance requirements.

Timeline

Detail the time line for the Internet health promotion intervention.

Plan

Outline the plan for the health promotion intervention on the Internet.

Target group

When designing health promotion messages on the Internet it is useful to describe the target audience for the intervention. Outline demographic characteristics of the target audience as this has implications for the design of the content. Identify barriers that may affect the transfer of the health promotion messages between the sender and the receiver. Describe the reading ability of the target group as messages will need to be written according to reading level.

Principles

There have been various concerns expressed for health communication on the Internet. These have been included in the guidelines as suggestions for principles to be observed and are listed in the checklist below:

- **Ethics**

Describe any ethical considerations or procedures for the intervention. For some population groups, for example Indigenous people, there may be a need to follow culturally specific ethical procedures depending on the type of intervention.

- **Accuracy**

Users should be able to trust that the information provided is accurate. A meaning of the term accuracy is "the extent to which information is reliable and free from errors" (Alexander & Tate, 1999, p. 11). Describe how the accuracy of the content will be ensured. This should include the disclosure of sources of information and the provision of references for the content of the web pages where applicable. Other possible methods are peer review and consultancy where opinions are sought on the content from people with knowledge of the relevant issues. It may be suitable to provide a guide for users to inform them on how to ensure that information is accurate.

- **Copyright**

Describe how the content on the web pages will comply with legal requirements for copyright. If the material developed for the intervention will be protected by copyright provide a statement for inclusion on the website.

- **Authorship**

Provide details of the authors of the information provided on the website. Include the disclosure of any commercial interest in the intervention, for example, by pharmaceutical companies. Note that the authority of the material can be defined as "the extent to which content has been created by a person or organisation that is recognised as having definitive knowledge of a given subject matter" (Alexander & Tate, 1999, p. 11).

- **Currency**

Health information needs to be current. Currency can be defined as "the extent to which material can be identified as up to date" (Alexander & Tate, 1999, p.13). Describe how this will be ensured. A suggestion is to also provide a guide for users on how currency is ensured. Ensure that the latest date when information has been

added is included on the web page. To avoid confusion the date should be in the international format (dd mm yy) for example, 12 April 2003.

- **Confidentiality and privacy**

Provide details of how users' personal information will be protected. Provide details of how legal obligations and moral considerations will be observed for protecting the privacy of users of the web pages. Provide a statement to be included on the web site.

- **Accessibility**

Describe how accessible Internet information is for the target group including their ability to access computers and their level of skills and knowledge for using the Internet. Describe any methods that will be used to increase accessibility if necessary.

- **Cultural awareness**

Describe any special consideration for the target group such as cultural beliefs, attitudes or values that could affect the way in which the health promotion message could be interpreted.

Contact details

Provide contact details, to be posted on the website, such as name, postal address, telephone number, facsimile number and e-mail address for the developers and sponsors of the information on the website.

Content

Give a brief description of the content and design of the web pages including written, visual and sound content. Include details of peer review or the use of consultants in checking content is appropriate. The content can be created in a word document and converted to HTML or created in HTML. Describe the tone of the health promotion message for example, persuasive, logical, formal or humorous. Consider the page length; if it is too long users may find it takes a long time to load and it is frustrating to navigate (Bradley, 2000, p. 42). If there is a logo for the project it can be incorporated in a web page as it can give a level of authority to the website (Bradley, 2000, p. 22). If a link is to be provided, such as a PDF file, the file size should be

noted on the web page and a warning given if it is large because of the time it will take to download.

Design

Include information of the colours to be used for the page background and the content. There is a standard range of colours for the Internet that can be used to ensure compatibility. Colours need careful selection as they can impact on screen readability and need to be suitable for the target group. Describe the style to be used for the content. Include information of any graphics or sound messages to be included. Design content that will not take lengthy loading time. Ensure that the pages provided are easy to print out.

Software package

Include details of any software packages to be used for the project. There are a number of software packages available for designing web pages and websites.

Navigation

There should be a clear plan of how the web page/website should be navigated. Links can either be internal within the website or external to other websites. Users may select material using a search engine and may not arrive at the home page initially (Alexander & Tate, 1999 p. 15). Links should therefore be provided at the bottom of each page for navigation to other sections of the site, for example to home and/or the next page. Describe the internal and external links for the pages that ensure that users can easily navigate the pages.

Feedback

Detail the methods to be made available for users to give feedback. There are a variety of methods available such as e-mail, guestbook or discussion room. For e-mail responses a 'mailto' function can be incorporated so that if users click on it their e-mail system will automatically respond.

Resources

Provide details of any resources that could be useful for the target audience and that will be promoted on the web pages.

Other information

Include any other information that may be relevant and appropriate.

Publishing

Describe how the pages will be published. Mock pages can be produced so that they can be viewed as if they were online. Note that as soon as pages are online they will need to be checked for mistakes and to ensure that they function as expected.

Uniform Resource Locator (URL)

Provide details of the Internet address of the website or web pages. It is advisable for URLs to be short or memorable, or both (Bradley, 2000, p.106).

Promotion of the message

Describe how the Internet website or web pages will be promoted. There are various methods of advertising Internet web pages or websites such as:

- Focus groups
- Networks
- Requesting that other organisations link their web pages to yours
- Internet cafes/workshops
- Brochures
- E-mails
- Letters
- Listserves
- Bulletin boards

Evaluation

Describe the evaluation procedures for the intervention. Include what is to be evaluated. For example:

Audience response to:

- Content
- Navigation and design

Describe the method(s) of evaluation to be used, for example:

- Access counters (which record how many people have accessed the site)
- Online questionnaire
- Chat room
- Outside evaluation (for example, by the Health on the Net Foundation)

Maintenance

Web pages need to be maintained. Describe maintenance procedures. When pages have been updated the date of the update should be included on the web page.

4.6 Summary

It is evident from the results of this research that health promotion messages need to be designed specifically for the Internet. There are a variety of factors that were identified that facilitate the communication of health promotion on the Internet. These include message suitability for the target group, quality principles and appropriate use of technical components. Knowledge of communication factors relevant to health promotion strategies assist when designing content. There is a need to follow a variety of principles to ensure that the information provided is of good quality. In this research the factors that had been identified were compiled to form draft guidelines which guided the development of health promotion web pages and the questionnaire. They were adequate only as a base however, and additional information was accumulated during these processes with further development necessary to produce the final guidelines.

CHAPTER 5

DISCUSSION

5.1 Introduction

The purpose of the study was to develop guidelines for health promotion on the Internet. This discussion centres on the findings of the research. These were derived from the literature review, the compilation of the draft guidelines, the production of the women's health pages and the questionnaire, the responses to the questionnaire and the refinement of the draft guidelines to form the final guidelines. The strength of the methodology was that there were three main processes involved in building the guidelines, the literature review, the production of the Indigenous women's health pages and the online questionnaire. Using a variety of methods for gleaning information meant that there was input from diverse sources and practical elements could be tried and tested. The utilisation of the Australian Indigenous Health*InfoNet* website provided an opportunity to observe and participate in strategies for producing web content. The draft guidelines were an effective base for building Internet web pages on Indigenous women's health; however, more information needed to be added during the course of the research. Evaluation of health promotion on the Internet as with other forms of mass media can be challenging. In this research, although there were only 15 responses from the target audience to the online questionnaire, the method did provide an insight into audience needs. This discussion of the research findings is divided into three components: the limitations of the study; the findings of the research; and the recommendations.

5.2 Limitations of the Study

There were limitations associated with the online questionnaire that impacted on the research. There should have been a question on gender to identify male and female respondents. In particular, as the web pages were on Indigenous women's health, it would have added value to the research to have identified which of the respondents were female. Additionally although four respondents identified as Aboriginal it was unknown how many of these were women.

There was also a limitation in terms of instrument bias in regard to the questionnaire. Some of the questions could be viewed as ambiguous. The qualitative questions needed to be more specific as it was evident from the range of answers that respondents had slight differences in their interpretation. For example asking respondents to assess 'accuracy' or 'currency' opened up a range of possible interpretations of the terms. It would have been better to ask respondents how they would assess these criteria for the women's health pages. Another alternative would be to have made suggestions such as stating for the question on 'accuracy' that "a way of ensuring reputable sources are used for designing web page content is to use information from peer reviewed literature", and then ask for the respondent's views on this statement. Contributing to the problem was that, due to input from the pilot test, the method of response to two questions was changed for the final questionnaire from using comment boxes to using the Likert scale of responses. This proved too limiting for the information required. The questionnaire could have been improved by adding comment boxes so that the respondents could explain their choice of answer on the Likert scale. Another problem was that the word limit should have been given for all the comment boxes as the last sentences in two of the responses were incomplete. These problems had not been identified when the questionnaire was piloted. These limitations would be worth consideration in the design of any future online questionnaires.

The small number of responses to the questionnaire limited this research. There were time limitations that meant the online questionnaire was only available for a short period. The period allocated by the ethics committee was the time of year when, according to previous statistics, the Australian Indigenous Health*InfoNet* was the least likely to be accessed. This was probably one reason for the small number of

responses. In future research it would be advisable to more actively promote the online questionnaire and make it available at a time when the website was most likely to be accessed. Time limitations also prevented the guidelines from being widely tested in this project. It would be expected that changes and additions would be made if they were tested in the design, implementation and evaluation of a range of Internet based health promotion interventions. Overcoming the limitations would also require further exploration by testing the guidelines in a variety of interventions. A range of evaluation methods could be utilised such as focus groups or discussion rooms.

5.3 Discussion on the Findings of the Research

It was clear from this research that health promotion strategies on the Internet require a distinct framework for action. The main points discovered were that health promotion messages need to be designed specifically for the Internet; they need to be tailored for the target audience and designed using quality principles. These issues are discussed below in relation to the research processes involved in their identification.

This research identified a gap in guidance for health promotion strategies on the Internet. The aim of producing guidelines for health promotion on the Internet can be viewed as worthwhile, particularly in view of the advantages of this medium such as flexibility, speed of transmission, reach and low cost. The study contributed to the multidisciplinary field of health promotion by suggesting further expansion with integrated information on communication, Internet health communication and health promotion on the Internet. It is evident in this research that health promotion on the Internet needs to be considered in terms of the communication factors identified in Devito (1997) including: sender of the message; the channel; the medium; the message; the context in which the message is sent; and the receiver of the message. These factors provide focal points as advised by Mohan, McGregor, Saunders and Archee (1998, p. 5) for designing communication strategies. From the literature review it was noted that the assessment of the reading level of the target group is also an important consideration. Communication factors were incorporated into the guidelines for health promotion on the Internet in order to provide a base for building up a substantial framework of material on each stage of action.

To address the well established theme in the literature that the quality of health information on the Internet is of concern (Eng, Gustafson, Henderson, Jimison & Patrick, 1999; Robinson, Patrick, Eng & Gustafson, 1998; and Cline & Haynes, 2002), principles were installed into the guidelines to ensure quality health promotion messages. The findings of this research indicated however, that it might not be easy for users to assess the quality of the message. For example respondents appeared to have difficulty in assessing accuracy and currency. Users of websites may therefore need guidance and reassurance of how to determine the 'quality' of the information provided. Quality is also subjective and members of the target group may have their own views on what constitutes quality on a web page. When asked to comment on the design of the webpages respondents to the questionnaire identified features that they considered important such as the layout, the colours used, the font size, and the simple approach.

It was evident from the literature review that sending health promotion messages requires information about the health topic, its determinants and the target group for the intervention (Green & Kreuter, 1999). From the literature review and the research process it was clear that input from the target group in tailoring the health promotion messages is advisable. The findings of the study support the views of Kar, Alcaly and Alex (2001) that health communication needs to be inclusive of culture and involve members of the target group in message design. Through the process of this research a place was provided on the Internet for health information designed specifically for Indigenous women on the Australian Indigenous Health*InfoNet* website. Apart from these pages on Indigenous women's health other relevant information on the Internet is very limited. As one respondent to the questionnaire acknowledged, there is benefit in providing a dedicated area for Indigenous women's health. Although other respondents were also encouraging and supportive of the health pages, some expressed the value of adding more input from Indigenous people. Respondents had commented on the limited Indigenous input; however some of the content had been derived from the few Indigenous sources available. Difficulties identified for this issue were that, it was not always clear if information was from an Indigenous source and there appears to be a gap in information on Indigenous women's health from Indigenous sources.

Health message origins can be criticised if they are not viewed as representative of the target group. This was highlighted by a respondent who identified the need for Indigenous women to research and report on Indigenous women's health issues. Looking at the bigger picture, the advantage of Indigenous input has also been expressed in relation to other Indigenous health strategies particularly in respect to the value of community control and participation. These factors have been identified as keys to success, for example, as expressed in *Better health care: studies in the successful delivery of primary health care services for Aboriginal and Torres Strait Islander Australians* (Commonwealth Department of Health and Aged Care, 2001). Community control and participation are also relevant to research, for example as outlined in *Research partnerships: Yarning about research with Indigenous peoples* (Brown et al. 2002). Feedback from respondents in this research clearly identified that the pages could be improved by including input from Indigenous women. This is in keeping with views expressed by Downie, Fyfe and Tannahill (1991) that in all health promotion communications there is a need for understanding of how senders and receivers communicate in respect to their values, beliefs and attitudes.

Using the Internet medium for dissemination or retrieval of information requires skills; however as this research demonstrates there are ways of simplifying tasks in the design of message transfer. Sending health messages between the sender and the receiver via the Internet requires some technical knowledge. However, it was evident from the production process of the women's health pages that software packages, such as Dreamweaver, ease the task of creating hypertext. The quest of the research to develop guidelines for producing quality web pages can be related to the term 'usability'. Usability is an assessment of how easily users can use a website to accomplish specific tasks, websites can be designed to assist usability (Pearrow, 2000). Pearrow (2000) defines usability of websites as:

> Usability is the broad discipline of applying sound scientific observation, measurement, and design principles to the creation and maintenance of websites in order to bring about the greatest ease of use, ease of learnability, amount of usefulness, and least amount of discomfort for the humans who have to use the system. (p. 12)

Pearrow (2000) explains that ideally websites should have a balance of form and function where content is appropriate and appealing to the target audience and they are easy to use.

There are a number of ways identified in this research by which users may be impeded in accessing the information they require. An example is that people may not have the necessary skills to find information. Raising awareness of difficulties was incorporated in the design of the guidelines for health promotion on the Internet to ensure that usability of web pages or websites was maximised. Methods of increasing access to computers and building computing skills were identified at the Australian Indigenous Health*InfoNet* organisation. These included workshops and Internet cafes to build Internet awareness and provide an opportunity for developing skills. Ensuring ease of navigation of web pages requires planning ahead. In this research, as expressed in the limitations, navigational difficulties could have been more fully identified if the questionnaire had been better designed. Responses from the questionnaire demonstrated that not all the participants found that the women's health information was easy to find, unfortunately the opportunity was not provided for them to explain why. This information would have been useful in determining what the problems were. It is obvious though that careful planning of the navigation of websites and web pages assists users in locating the information they require. For health promotion on the Internet identifying and minimising any disadvantages in accessing communication messages can be viewed as a priority. This research highlights that maximising the accessibility of the Internet message for the target audience requires particular attention.

5.4 Conclusions

There are many forms of communicating health messages and this thesis was concerned specifically with designing guidelines for the communication of health promotion messages via the Internet. This research confirms that health promotion on the Internet is an innovative and dynamic strategy that opens an array of opportunities for communication. The findings of this descriptive study have a number of theoretical and practical implications. The research linked the areas of communication, health communication and health promotion on the Internet. The aim of developing guidelines for health promotion on the Internet was fulfilled

although the guidelines would certainly require further development. From the literature review it was evident that there was a lack of guidance for health promotion on the Internet so this research provides a stepping stone towards documenting and improving the process.

It is evident, due to the concerns identified in the literature, that there is a need for improvement in the quality of health communication on the Internet. This can be partly addressed by following quality principles for the production of content, as developed in this research. It was also identified that there is a need for input from the target audience in health promotion messages, particularly in respect to cultural values, attitudes and beliefs. Overall health promotion messages need to be reliable, acceptable to the target group and conform to a set of standards. This research has produced a set of guidelines which, it is anticipated, will streamline the process of health promotion on the Internet and provide a base for further exploration. In a variety of ways this research can be considered a beginning to accomplishing effective health promotion on the Internet.

5.5 Recommendations

The guidelines offer a basic approach to health promotion on the Internet. The research opens up questions on how to produce quality health promotion information on the Internet that is suitable for the target audience. A recommendation is for further development of the guidelines. Any guidelines produced would need to be regularly updated as the Internet is dynamic and evolving and there may be changes that would affect the guidelines that cannot be predicted.

Further research could involve a comprehensive evaluation of the quality of health communication on the Internet as it has been identified as a major concern. Users of health information on the Internet may not find it easy to identify quality issues as identified in this research. The recommendation would be to use the information obtained to develop guides specifically for health promotion websites to assist users in identifying quality information.

It is also recommended that there should be an assessment of the ways in which people search and use online health promotion information for the purpose of developing methods of increasing website usability. An online questionnaire, as

used in this research, is one method of evaluating health promotion on the Internet. However, it is recommended that a variety of methods of evaluation could be identified and assessed. A suggestion for further research would be further exploration of the methodology of evaluating health promotion websites.

A recommendation would be to seek appraisal of health promotion on the Internet from a range of individuals, groups and organisations. Cultural viewpoints should be included for example, by using a focus group of people of a particular ethnicity, to a view a health promotion webpage and asking them if there were any ways in which it was not suitable in respect to their culture.

As identified in this thesis there is a need for research in health promotion for Indigenous women particularly by Indigenous people, so this would be a final recommendation.

This original research is based on health promotion models and theories and previous research that has investigated health communication on the Internet. It sets the scene for further exploration, with an inclusive approach, in order to produce quality health promotion interventions on the Internet.

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Appendices

APPENDIX A

This is an anonymous questionnaire. Please ensure that you do not enter your name, or any other comments that will make you identifiable. By completing the questionnaire you are consenting to take part in this research. As such you should first read the Disclosure Statement carefully as it explains fully the intention of this project.

1. Which age group do you belong to?

- ○ Under 20 years
- ○ 20 - 29 years
- ○ 30 - 39 years
- ○ 40 - 49 years
- ○ 50 - 59 years
- ○ Over 60

2. What is your occupation? <-------- OPTIONS --------->

Other

3. Are you of Aboriginal or Torres Strait Islander origin?

- ○ yes
- ○ no

4. What is your place of residence (State or Territory)?
<-------- OPTIONS --------->

5. What is your postcode?

6. Please indicate the extent of your agreement or disagreement about the following statement.

The information on Indigenous women's health was easy to find

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

7. Please indicate the extent of your agreement or disagreement about the following statement.

This information on Indigenous women's health is accurate

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree

- ○ Disagree
- ○ Strongly disagree

8. What are your comments on the design of the web page on Indigenous women's health?

9. Do you think the information is up to date?

10. How suitable do you think this information is to Indigenous women's health?

11. Do you have any suggestions about other women's health topics that you would like to see on this page?

12. Do you have any other comments?

Thank you for taking the time to complete this questionnaire

Submit

Population & identifcation Population sub-groups

Last modified: 28 January, 2003

Population sub-groups

Women's health

If you live in Australia, we invite you to give your opinion of the women's health page. Please read this statement before filling in the questionnaire. NEW

ChooseTopics:

This section is being restructured. Other women's health topics will be added soon. Currently, some of the sub-headings listed here may not link to the related sub-section as relevant information is not yet available. However, as we continue to develop this page, the links will become active progressively.

What do we know about women's health?

Content currently under development.

Summary of Indigenous women's health

Indigenous women have experienced many challenges to their health. They

are survivors of the damaging effects of colonisation, racism and, inequities in living standards when compared with the majority of Australians. Indigenous cultural perceptions of health are inclusive of body functioning, spirituality, connections to family and community and to the environment. Therefore holistic approaches are necessary in overcoming health disadvantages for women. The sharing of Indigenous women's knowledge, skills and networks is invaluable for addressing health issues.

Population

According to experimental projections produced by the Australian Bureau of Statistics, there were approximately 220,000 Aboriginal and Torres Strait Islander females living in Australia on 30 June 2002, accounting for 2% of the total female population [3]. The Indigenous female population has a younger age profile than the Australian female population, with over half being aged 20 years or less [6].

Mortality

In the period 1997-1999, the life expectancy for Indigenous females was estimated to be 63 years compared with life expectancy for females in the total Australian population of 82 years [7].

According to mortality data for 1995-1997 from Western Australia, South Australia and the Northern Territory, 41% of deaths among those identified as Indigenous females occurred before the age of 50 years (compared with 7% of other female deaths) [10]. About 8% of Indigenous female deaths occurred among infants under the age of one year compared with 1% in the general population.

Diseases of the circulatory system accounted for 30% of the deaths of Indigenous females registered in Queensland, Western Australia, South Australia and the Northern Territory in 1997-1999 [6]. Of 78 Indigenous deaths attributed to renal failure, 64% were Indigenous females (eight times as many deaths as expected based on rates for the total population). Neoplasms (cancer) were responsible for 14% of all deaths of females identified as Indigenous, and death rates from cancer were higher for Indigenous females than other Australian females in all age groups above 35-44 years. Diabetes was the underlying cause of death for 10% of all deaths of Indigenous females, with further deaths reporting diabetes as an associated cause. The major causes of death due to external causes among Indigenous females were transport accidents (31%), assault (19%) and intentional self-harm (17%). There were twice as many suicide deaths than expected for Indigenous females, with the highest rate in the 15-24 year age group (18 per 100,000 compared with 6 per 100,000 for all females).

Hospitalisation

Data are limited, but Indigenous females were estimated as being at least twice as likely to be hospitalised as other Australian females in 1997-98 [9]. Haemodialysis accounted for approximately 41% of all recorded principal procedures for females identified as Indigenous with over 11 times more

dialysis procedures for Indigenous females than expected on Australian rates. The other main reasons for hospitalisation included conditions associated with pregnancy and childbirth (17% of all stays), respiratory disease (9%), injury and poisoning (8%), digestive diseases (5%), mental disorders (4%) and circulatory diseases (3%). Hospitalisation of Indigenous females for injury inflicted by others was around 20 times higher than expected from rates for the total female population, and hospitalisation for self-inflicted injury was almost twice as high as expected.

Health risk factors

Lifestyle factors can place the physical and mental health of Indigenous women at risk. The 1995 National Health Survey reported that Indigenous women are less likely than non-Indigenous women to drink alcohol, but those that do are more likely to consume alcohol at hazardous levels [6]. Since then, according to the 2001 National Health Survey, the proportion of the Indigenous population in non-remote areas reporting alcohol consumption at risky or high levels has declined slightly [5]. The 1995 National Health Survey also, when describing health risk factors, reported that approximately 46% of Indigenous females over the age of 18 years who lived in non-remote areas said they smoked [4]. The 2001 National Health Survey reported a similar rate of smoking [5]. Approximately 29% of adult Indigenous women were classified as obese in the 1995 National Health Nutrition survey and the 1994 Aboriginal and Torres Strait Islander survey compared with 19% of other Australian adult females [7]. Domestic violence is a cause for concern in many Indigenous families, but the extent of the problem is not clear as Indigenous women are less likely to report injuries than are non-Indigenous women [1].

The caring role of Indigenous women

In considering the wellbeing of Indigenous women, attention needs to be directed also to the complexity of their caring roles, and the earlier age at which many begin their families. In 1996-1998, over 80% of Indigenous mothers had babies before the age of 30 years, compared with 54% of mothers in the total population [7]. Many Indigenous women have their first babies before 20 years of age - 30% of all Indigenous women who gave birth in the Northern Territory in 1996-98 were 19 years or less [6].

Indigenous families tend to be larger than Australian families overall - according to the 1996 Census, almost 13% of Indigenous families had four or more children compared with less than 5% of other Australian families [2]. About 40% of Indigenous families with children under 15 years of age were sole-parent families, and the majority of sole parents were female [11]. On average, female Indigenous sole parents cared for a larger number of children, had lower employment rates, received less income and had lower education qualifications than their non-Indigenous counterparts.

In the Indigenous population as well as larger family sizes there is a higher burden of illness [6] which impacts on Indigenous women's caring roles.

Higher education, employment and income

Indigenous women are often disadvantaged in access to education and employment, however improvements are occurring. More than 2,300 Aboriginal and Torres Strait women commenced higher education courses in 2001 - an increase of 4.7 per cent from the previous year [8]. Labour force participation for Indigenous women was 43% in 2000 (including those employed under the Commonwealth Government's Community Development Employment Projects (CDEP) Scheme), compared with 55% for non-Indigenous women. Unemployment for Indigenous women was estimated at 15%, compared with 8% for non-Indigenous females. According to the 1996 Census, health and community services, education and retail trade were the main industries for the employment of Indigenous women. The median individual income of Indigenous women reporting their income in the Census was $190 per week, compared with $224 for non-Indigenous women. These levels compare with $189 for Indigenous men and $415 for non-Indigenous men.

Justice

Anti-social and self-destructive behaviour can bring Indigenous females into contact with the criminal justice system [6]. The rate of imprisonment in 2000 for Indigenous females aged 17 years and over was 251 per 100,000, compared with 19 per 100,000 for the total female population. Incarceration may be a risk factor for, and a result of, emotional distress and mental illness.

Policy

The women's movement and the National Women's Health Policy in 1989 have advanced women's health, but Indigenous women have not benefited to the same degree as other women in the Australian population. There are increasing opportunities for Indigenous women to be included in policy decision making, however, and the Indigenous Women's Advisory Group [12], which was formed in 2002, will provide advice to the Commonwealth Government to ensure that programs and policies address the needs of Indigenous women.

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Policies and strategies

Minister for Family & Community Services The Hon Amanda Vanstone MP (2002)
New Indigenous Women's Advisory Group
View media release

Lessons learned

Currently no information available.

Case studies

Currently no information available.

Published resources

Journal articles

2002

Watson J, Hodson K, Johnson R (2002)
Developing strategies to gather information about the maternity experiences of Indigenous women in acute care settings.
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The Aboriginal and Torres Strait Islander Women's Task Force on Violence report.
Brisbane: Department of Aboriginal and Torres Strait Islander Policy and Development, Queensland Government.
View full-text (PDF)
View full-text (Word doc)

New South Wales Health Department
2000 edition of the Chief Health Officer's Report
This report is available in a number of formats including HTML, frames/javascript, and downloadable with Adobe Acrobat (available at site). The frames version allows you to choose a health issue (Health of Aboriginal peoples), and to search within this on a wide range of issue specific topics.
View report

Campbell S (2000).
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Victorian Aboriginal Community Controlled Organisation and the Victorian Department of Human Services, Melbourne.
Abstract available

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Chan A, Scott J, McCaul K, Keane R (1997).
Pregnancy outcome in South Australia 1996.
Pregnancy Outcome Unit, Epidemiology Branch, South Australian Health

Commission. Adelaide.
Abstract available

Koori Health Unit, Department of Human Services, Victoria
Information about Koori women and their babies - 1996
This report provides information on Koori women who gave birth in 1996 and babies born to Koori mothers in 1996. The report outlines characteristics of the mothers, such as age, number of previous births and the regions they were from. For babies, statistics of low birthweight, prematurity, still birth and deaths are provided.
View report

New South Wales Health Department
New South Wales Mothers and Babies 1996 report
This report is downloadable with Adobe Acrobat (available at site - note this document takes a considerable time to download). Part 3 of the report is on Aboriginal and Torres Strait Islander mothers and babies. The report covers trends, plurality, previous pregnancies, maternal age, health area of residence, booking status, duration of pregnancy at 1st antenatal check, smoking in pregnancy, medical conditions and obstetric complications, labour and delivery, epidural block, episiotomy, birthweight, gestational age, apgar score, and perinatal mortality.
View report

New South Wales Health Department
New South Wales Midwives Data Collection 1995
This report is downloadable with Adobe Acrobat (available at site). The report notes that two per cent of confinements were to Aboriginal mothers. The proportion of low birthweight infants born to Aboriginal mothers was 11.1 per cent - almost twice that of non-Aboriginal mothers, and the rate of prematurity among Aboriginal infants was 10.7 per cent.
View report

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Conference abstracts

2001

From the Ground up: Conference on Aboriginal health in the 63rd millennium
Rachel Atkinson
A collaborative model for maternal and child health service
View abstract

4th Australian Women's Health Conference
Donna Ah Chee, Sandra Alley and Sharon Milera
Congress Alukura- Women's business
View paper

Prior to 2000

5th National Rural Health Conference
Lee Martinez & Brenda Carter
Improving the access of health services to the local Aboriginal community
View paper

Other resources

Presentation to the Tenth Advanced Course in Obstetrics, Women's Reproductive Health and Care of the Newborn, Joint Consultative Committee on Obstetrics
Stephanie Bell
Indigenous women's health-what can make a difference?
View paper

Queensland Government Office for Women
The Queensland Government's Office for Women maintains the Register of Indigenous Women to give Aboriginal and Torres Strait Islander women a stronger voice in decision-making.
View brochure (PDF)
View infosheet (PDF)
Website: Register of Indigenous Women
For more information, contact the Office for Women or telephone (07) 3224 4062.

Programs & projects

Currently no information available

Guidelines

Currently no information available

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Central Australian Aboriginal Congress Inc
Provides information on Alukura - an Aboriginal women's community-controlled health and birthing centre
View website

Women's Hospitals Australasia
Care of Aboriginal and Torres Strait Islander Women
View article

Queensland Government, Department of the Premier and Cabinet
Contact details for various Aboriginal and Torres Strait Islander organisations.
View website

Australian Department of Health and Ageing
Women's Health
View website

Other web- based materials

Information about Australian Aboriginal women
Minmia - Australian Aboriginal Woman
View website

Some of the resources on this page are available in Adobe Acrobat pdf format. Adobe Acrobat Reader is available free of

charge from Adobe's website

Population & identifcation Population sub-groups

Last modified: 4 December, 2002

Population sub-groups

Women's health - cervical cancer

If you live in Australia, we invite you to give your opinion of the women's health page. Please read this statement before filling in the questionnaire.

Topics:

This section is being restructured. Currently, some of the sub-headings listed here may not link to the related sub-section as relevant information is not yet available. However, as we continue to develop this page, the links will become active progressively.

What is cervical cancer?

Cervical cancer affects cells in the lining of the cervix which is the lower part of the uterus (womb) and situated at the connection to the vagina [2]. The disease can spread to other parts of the body. Cervical cancer can take 10

years or more to develop, but cells may show pre-cancerous changes before this time. There are no real symptoms of the early stages of cervical cancer. The main symptoms that may occur are unusual bleeding from the vagina and sometimes an unusual vaginal discharge, but these symptoms may not always be due to cancer. There is an increasing risk of the disease with age, it is very rare before the age of 25 years.

There are several forms of cervical cancer, the greatest proportion are squamous cell carcinomas and adenocarcinomas or combinations of both [2]. Cervical cancer is preventable in most cases - internationally it has been demonstrated that 90% of squamous cervical cancer can be prevented through early screening and treatment [3].

Risk factors

Risk factors for cervical cancer include human papilloma virus (HPV) infection, sexual behaviour and cigarette smoking [4]. In Australia HPV infections are among the most common types of sexually transmitted infections (STIs), but it is difficult to monitor the incidence as they are not notifiable diseases [1]. HPV often does not cause symptoms as the immune system suppresses the infection. It is only some strains of HPV that lead to abnormal cell changes.

Screening for cervical cancer

The Papanicolaou (Pap) smear test is the usual means of screening and can detect changes in the cells before they develop into cancer. Pre-cancerous lesions are treatable. Currently the Australian recommendation is for all women who have been sexually active at any stage in their lives to have a Pap smear every 2 years until the age of 70 years [2]. Pap smears may cease at age 70 years for women who have had two normal Pap smears within the previous five years. Women aged 70 years or older who have never had a Pap smear, or who request a Pap smear, should be screened. Women who have had a hysterectomy should seek advice on their individual needs regarding screening.

Cervical cancer screening for Australian women began in the 1960s [3]. The National Cervical Screening Program (NCSP) was introduced in response to the report *Cervical Screening in Australia* in 1990. The program has been widely accepted by women, service providers and other stakeholders and there has been increasing participation in the program.

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by Aboriginality, age and rurality. *International Journal of Epidemiology;29*(5): 813-816.

Summary of cervical cancer among Indigenous women

Data about cervical cancer among Indigenous women are incomplete, with only Western Australia, South Australia and the Northern Territory considered to have adequate coverage.

Over the five-year period 1993-1997, there were 20 cases of cervical cancer notified among Indigenous women in Western Australia, at an incidence rate of 22 cases per 100,000 population [6]. This rate is three times higher than the incidence among non-Indigenous women.

In 1995-1997 there were 19 deaths from cervical cancer reported among Indigenous women living in Western Australia, South Australia and the Northern Territory (an age-standardised death rate of 27.6 per 100,000 women, which is over nine times more than in non-Indigenous women - 3.0 per 100,000 women) [2].

Analysis of data from 1986-1997 demonstrates a geographical disparity in the risk of death from cervical cancer for Indigenous women compared with non-Indigenous women [5]. The risk ranges from 4.3 times higher for Indigenous women in metropolitan areas, 9.7 times higher for those in rural areas and 18.3 times higher for those in remote areas.

Screening for cervical cancer among Indigenous women

The 2001 National Health Survey reported that 50% of Indigenous women aged 18 years and over had regular Pap smears [3]. However, they are far less likely to attend regularly for Pap smears than non-Indigenous women, with those in rural regions and communities the least likely not to have Pap smears and to be the least educated about cervical cancer issues [5]. The lack of facilities, support networks and the likelihood of delayed diagnosis appear to be the main contributors to the excess mortality of Indigenous women from cervical cancer in these areas. State and Territory cervical screening plans identify Indigenous women as a priority target group and aim to encourage communities to take ownership of the cervical screening initiatives [3].

Generally, most women go to their general practitioners (GPs) for Pap smears, with other options including family planning services, government-funded community health services, and government hospital outpatient departments. For Indigenous women, Aboriginal community-controlled health services are major providers of screening services, supplemented by the Royal Flying Doctor Service in rural and remote areas [4].

In the general population, the women who are less likely to participate in screening are: over 50 years of age; single; less well educated and from lower socioeconomic groups [4]. Barriers to accessing cervical screening are often exacerbated for Indigenous women and include: physical access to general practitioners (GPs), poor transport, lack of child care, difficulty getting time off work, financial problems, lack of understanding or confusion about Pap smear procedures, and fear or embarrassment about the

procedure (particularly if there is prior history of sexual abuse).

A Queensland study found that Indigenous women generally preferred a female practitioner and access to one increased the number of women attending women's health programs [4]. There are growing numbers of female practitioners in urban and regional centres, but a limited number in rural and remote areas. Trust, security, confidentiality and respect between patient and practitioner were essential for Indigenous women accessing cervical cancer screening services. A recommendation from this study was for women's health programs to be developed in partnership with local women and be based on an Indigenous community development model.

In an anthropological assessment of a successful cervical screening program in remote northern Australia it was found that understandings about culture and gender were found to be crucial factors in the design and application of Pap smear programs [7]. Key elements for better service delivery included committed health practitioners, cross cultural education, and improved socio-economic conditions for Indigenous populations.

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Policies and strategies

Commonwealth Department of Health and Aged Care
The National Cervical Screening Program
View details

Lessons learned

Currently no information available.

Case studies

Currently no information available.

Published resources

Journal articles

2002

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View full paper (HTML)
View full paper (PDF)

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Conference abstracts

2001

From the Ground up: Conference on Aboriginal health in the 63rd millennium
Fay Acklin and Jill Cockburn
What do Koori women know, feel, believe and perceive about cervical cancer and pap tests?
Click here for abstract

Other resources

Currently no information available.

Programs and projects

Cervical screening in Australia 1997-1998
View report

The National Cervical Screening Program
View details

Cervical cancer: when did you last have a Pap smear? A joint Commonwealth/ State Territory Health initiative
View details

Guidelines

Currently no information available.

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You may wish to search through the Health*InfoNet* bibliographic database for references to cervical cancer or Pap smears.

Organisations

Currently no information available.

Other web-based materials

Currently no information available.

Some of the resources on this page are available in Adobe Acrobat pdf format. Adobe Acrobat Reader is available free of charge from Adobe's website

Population & identifcation Population sub-groups

Last modified: 29 November, 2002

APPENDIX D

Population sub-groups

Women's health - breastfeeding

If you live in Australia, we invite you to give your opinion of the women's health page. Please read this statement before filling in the questionnaire.

Topics:

What do we know about breastfeeding among Indigenous women?
- Introduction
- Benefits of breastfeeding
- Lifestyle and breastfeeding
- Barriers to breastfeeding
- Services
- References

Policies and strategies
Lessons learned
- Case studies

Published resources
- Journal articles
- Reports and publications
- Theses
- Conference abstracts

Other resources
Programs & projects
Guidelines
References
- Key references
- Bibliography

Organisations
Other web-based materials

This section is being restructured. Currently, some of the sub-headings listed here may not link to the related sub-section as relevant information is not yet available. However, as we continue to develop this page, the links will become active progressively.

What do we know about breastfeeding among Indigenous women?

Introduction

Traditionally, Indigenous women breast-fed their babies for periods up to four years with the gradual introduction of nutritious bush foods [5]. Breastfeeding decreased with European settlement, and now, according to survey information, Indigenous Australians have lower breastfeeding levels than non-Indigenous Australians, except where more traditional lifestyles have been maintained. As reported to the 1994 National Aboriginal and Torres Strait Islander Survey, breastfeeding levels were higher in rural and remote areas than in urban areas [1]. According to the 2001 National Health Survey 77% of Indigenous children aged under 4 years living in non-remote areas were reported to have been breastfed for at least some period [3]. In the 1995 National Health Survey, the percentage of Indigenous children aged less than four years who had been breast-fed was lower (75%) than the percentage of non-Indigenous children (86%) [2]. Indigenous children aged 6 months or more who had been breast-fed were more likely, however, to have been breast-fed for longer than their non-Indigenous counterparts.

Benefits of breastfeeding

The recommendation to 'encourage and support breastfeeding' was listed first in the National Health and Medical Research Council's (NHMRC) dietary guidelines for children and adolescents, thus stressing the unequivocal importance of breastfeeding [7]. Breast milk is the natural and the optimum food for babies - it contains proteins, fats and carbohydrates at levels that are appropriate for an infant's metabolic capacities and growth requirements [8]. The poor health status of many Indigenous infants is often related to inadequate nutrition and its synergistic relationship with infection. Breastfeeding is the natural way of providing a healthy start to life that addresses both these factors.

Breastfeeding is associated with reduced infant illness and mortality, and the effects of diet and nutrition in early life may have lifelong consequences [4]. Breast milk has anti-infective properties and contains immunoglobulins which provide some immunity against early childhood diseases [5]. The poor physical environment in which many Indigenous infants live means that they are susceptible to infections (particularly gastrointestinal and respiratory infections), and there is significant evidence that breastfeeding offers some protection to these common causes of morbidity and mortality [8].

There are other advantages of breastfeeding. Health benefits for mothers include the hastening of uterine involution after birth and some protection against pre-menopausal breast cancer, ovarian cancer, and osteoporosis [8]. There are financial benefits to individual households and the community also, as families do not have to purchase infant formula and feeding equipment, and breastfed babies are less prone to childhood ailments (thus saving medical costs). Breastfeeding also provides psychological benefits for mother and child [5].

Lifestyle and breastfeeding

A mother may need to make some lifestyle adjustments during the period she breastfeeds [8]. A healthy diet is recommended, and mothers need to

increase their daily intake of nutrients. However, in many Indigenous communities, nutritious food is not always accessible. It is advisable for breastfeeding mothers who smoke cigarettes to give up - or at least to reduce their levels - to eliminate or minimise harmful effects. In the 1994 National Aboriginal and Torres Strait Islander Survey (NATSIS), 46% of Indigenous females aged 15 years and over said they were smokers [2]. It is also recommended that alcohol be avoided, or, if it is consumed, limited to a maximum of one or two drinks per day [8]. Surveys have indicated that Indigenous people are less likely than non-Indigenous people to drink alcohol, but, according to the 1995 National Health Survey, Indigenous females are more likely than non-Indigenous females to consume alcohol at hazardous levels [4].

Barriers to breastfeeding

Sometimes breastfeeding is not possible - due to maternal illness and infections, alcohol or drug use, maternal separation or death [8] and some women choose not to breastfeed [9]. A number of socio-cultural, physiological and psychological factors have been identified as barriers to breastfeeding. Focus group discussions in a Melbourne Koori community found these factors included: embarrassment of feeding in public places; belief that feeding formula was as good as breast milk; sore and cracked nipples; perception that breast-feeding was painful and inconvenient; and poor milk supply [6]. Contributing factors included: competing demands; lack of support and appropriate advice; lack of knowledge; and lack of confidence and low self-esteem.

Services

It has been demonstrated that, with encouragement, many barriers to breastfeeding can be overcome. Input from health professionals and voluntary workers, and a positive environment (including the provision of information, support, demonstrations of practical skills and locally relevant strategies) can provide valuable assistance for breastfeeding mothers [8]. The Government's National Breastfeeding Strategy is a multi-faceted approach which includes an Indigenous perspective. A review of current interventions and identification of best practice currently used by community-based Aboriginal and Torres Strait Islander health service providers in promoting and supporting breastfeeding and appropriate infant nutrition details the need for multiple strategies to achieve substantial and sustained increases in breastfeeding levels [5]. Community ownership, empowerment and participation, sustained program funding, and specially trained healthworkers were seen as essential for overcoming barriers to breastfeeding for Indigenous women.

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Policies and strategies

Department of Health and Ageing
National Breastfeeding Strategy
View details

Lessons learned

Currently no information available.

Case studies

Currently no information available.

Published Resources

Journal articles

2001

Gracey M (2000)
Infant feeding and weaning practices in an urbanizing traditional, hunter-gatherer society.
Pediatrics;106(5):1276-1277.
View abstract

Hayman N, Kanhutu J, Bond S, Marks GC (2000)
Breast-feeding and weaning practices of an urban community of Indigenous Australians.
Asia Pacific Journal of Clinical Nutrition;9(3):232-234.
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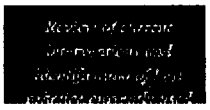
Reports and publications



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Review of current interventions and identification of best practice currently used by community based Aboriginal and Torres Strait Islander health service providers in promoting and supporting breastfeeding and appropriate infant nutrition.
Canberra: Office for Aboriginal and Torres Strait Islander Health Services.
View abstract
View full-text

Groos, A., Miller, M., Engeler, T., & McDonald, M. (1998).
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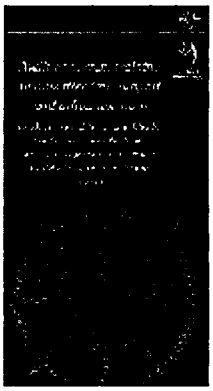
Canberra: Office for Aboriginal and Torres Strait Islander Health Services.
View abstract
View full-text



Theses

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Conference abstracts

Currently no information available.

Other resources

Currently no information available.

Programs & projects

Currently no information available.

Guidelines

The Australian Breastfeeding Association
View details

National Health and Medical Research Council
Infant feeding guidelines for healthworkers
View details

References

Key references

Currently no information available.

Bibliography

You may wish to search through the Health*InfoNet* bibliographic database for references about breastfeeding

Organisations

The Australian Breastfeeding Association
View details

Other web-based materials

Currently no information available.

Some of the resources on this page are available in Adobe Acrobat pdf format. Adobe Acrobat Reader is available free of charge from Adobe's website

APPENDIX E

Template for Planning a Health Promotion Intervention on the Internet

Title of the project:
Description of the project
Description of the health issue
Objectives What are the objectives of the project?
Expected outcomes
Expected outputs
Funding body
Budget
Timeline
Plan
Target group • Description • Demographic characteristics • Barriers • Reading ability of the target group • Input from the target group

Principles

Check list:

- Ethics
- Accuracy
- Copyright
- Authorship
- Currency
- Confidentiality and privacy
- Accessibility
- Cultural awareness

Contact details

Provide contact details for the developers and sponsors of the information provided.

Content

- Written
- Visual
- Sound

Design

Describe the design

Software package (if applicable)

Navigation

Provide a map of the website

- Internal links (describe for single web pages only)
- External links (describe for single web pages only)

Feedback

Detail methods to be available for users to give feedback.

Resources

List information to be included on the website of other resources that may be useful for the target group.

Other information

List other information to be included on the website for the target group.

Publishing

Describe responsibility for publishing.

(Include contact details if external)

Uniform Resource Locator (URL)

What is the URL?

Promotion of the message

Put a cross by which apply and provide details.

- Focus groups
- Networks
- Requesting that other organisations link their web pages to yours
- Internet cafés/workshops
- Brochures
- Emails
- Letters
- Listserves
- Bulletin boards

Evaluation

What is to be evaluated?

Audience response

Content

Navigation and design Other? **Methods** Online questionnaire Chat room Outside evaluation eg Hon Other
Maintenance What are the maintenance strategies?