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Developing a stroke intervention program: What do people at risk of stroke want?
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Kate E. (2007) Developing a stroke intervention program: What do people at risk of stroke want?

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Abstract

Objective: There is currently little research examining what individuals who are at risk of a stroke want from an intervention program. In order to increase the usefulness of such programs, qualitative research methods were used to explore intervention design issues such as factors affecting accessibility of programs and preferred health information sources. **Method:** Thirty people, each with at least one stroke risk factor, participated in one of eight focus groups. **Results:** Broad support was indicated for our proposed intervention. Participants perceived the value and likely success of such a program enhanced if it: (a) was integrated with, and supported by, other respected health services; (b) included social components (particularly important to women); (c) produced long term benefits; and, (d) included information that was personally relevant and practical in terms of implementing change. Three reasons emerged for continuing stroke education campaigns as a component of intervention programs; these were: (a) a lack of awareness among some participants of gaps in their stroke knowledge; (b) participants' explicit requests for *specific* rather than general information; and (c) the apparent failure of some participants to self-identify as at risk. **Conclusion:** This study yielded a number of important design considerations that should be taken into account when developing stroke intervention programs. **Practical Implications:** We discuss ways of maximising the personal relevance of stroke prevention information along theoretically important dimensions, and consumers' recommendations for the design and delivery of stroke intervention programs.

Keywords: stroke, cardiovascular accident, aging, qualitative, stroke knowledge, health promotion

1. Introduction

Stroke is an increasingly serious health problem worldwide with significant associated costs, including both mortality and disability [1, 2]. In Australia, stroke is the second leading cause of disease burden [3], yet it is known that stroke risk can be reduced by controlling modifiable risk factors [4] and it has been estimated that up to 80% of all strokes are preventable [5]. In recognition of the need to reduce stroke risk, a number of stroke prevention programs have been developed and implemented internationally. For example, in the United States of America, states have run stroke prevention campaigns such as the Washington State Department of Health's *Signs of Stroke* campaign and, in Australia, the National Stroke Foundation launched its *strokesafe*TM campaign¹. These programs encourage stroke prevention utilising proven strategies, which according to consensus statements from leading stroke prevention bodies [7,8] and other more recent scientific reviews [2] include those pharmacological interventions for which we have "good evidence" (p. 1112) such control of hyperlipidemia, hypertension, and atrial fibrillation [7], and those strategies based around life style modifications which, in some cases are also based good evidence (i.e., Class I, Evidence A; [8]).

A criticism of some existing stroke prevention programs is that they do not have a clearly articulated theoretical base. Without this base, it may be difficult to know if there are ways in which a program might be refined to more comprehensively address the factors thought to underlie behaviour change, and how such refinements might be achieved. In 2006, we reported the results of a study attempting to predict engagement in stroke prevention behaviours on the basis of participants' health beliefs

¹ *strokesafe*TM is a major public health program developed to reduce the impact of stroke on the Australian community. This program targets the general public, those at risk of stroke, stroke survivors and health professionals. *strokesafe*TM is about protecting Australians from stroke through increased awareness of stroke, increased awareness of ways to reduce the risks and ensuring that treatments and services that reflect current scientific evidence are available [6].

[9]. The beliefs we tested were drawn from an expanded version of the Health Beliefs Model (HBM)². The results of this study showed that beliefs related to the perceived benefits of undertaking a modifiable stroke risk behaviour, such as exercise, were positively associated with stronger intentions to undertake exercise. In addition, self-efficacy beliefs were also important predictors of intentions to engage in such behaviours. Other belief types from the HBM (i.e., perceived susceptibility, seriousness, and barriers) were not identified as significant predictors of people's intention to engage in stroke prevention behaviours.

The current study sought “potential-consumer” input about a stroke prevention program intended to strengthen those belief types identified as significant predictors of specific stroke prevention behaviours (see [9]). Specifically, we aimed to use qualitative research methods (focus groups) to determine receptivity towards engaging in such a program among people at risk of stroke, as well as their ideas about what might strengthen relevant belief types and encourage preventative action. Whilst previous studies have utilised focus groups in the development of a variety of health intervention programs (e.g., [11-14]), or recommend their use for such purposes (e.g., [14]), no published studies have utilised focus groups in the development of health intervention programs specifically directed at reducing stroke risk.

A second aim of this study was to investigate the most appropriate format for such a program by examining the ways in which those at-risk of stroke access health information. We reasoned that such information would help establish an evidence base from which decisions about the format of a future stroke intervention programs could be made.

² The HBM comprises beliefs about disease susceptibility and severity, and beliefs about the benefits and barriers associated with preventative behaviours (for a recent review of the HBM see Abraham and Sheeran [10]).

Finally, we aimed to conduct a qualitative investigation of stroke knowledge because quantitative knowledge studies have yielded mixed results (e.g., 15, 16) and there may be insights gained into the reasons for these discrepancies that may be identified through focus group discussion. Some studies have revealed good public knowledge of stroke [15] whereas others report poor understanding of stroke risk factors [16]. Explanations for these mixed results include: differences in the way knowledge has been operationalised and assessed [17]; use of education materials that are written at a level that is too advanced for target audiences [18, 19]; or the delivery of generic information that does not address the specific needs of individuals [20]. These factors may have diluted genuine effects, and although it is possible that this could be tested through qualitative follow up, this approach has not typically occurred despite recognition that the parallel use of qualitative and quantitative research methods can be useful for this purpose [14, 21-23]. Given that the need to increase public knowledge of stroke is a key platform of major stroke prevention initiatives worldwide [24], and that others have found value in using focus groups to investigate people's health knowledge prior to designing an intervention [25], there may be value in obtaining an "insider's perspective" of why different estimates of community knowledge of stroke are obtained, and then, to what extent stroke education may be a necessary component of an intervention.

2. Method

2.1 Participants

Participants were recruited from a sample of 75 people who took part in an earlier study [9, 26] examining the predictors of intention to reduce stroke risk in an at-risk elderly population. Of the 75 eligible participants from that study, 54 agreed to be followed up, and of these, 30 participated in focus groups. The original (and

current) sample included participants at risk of stroke, defined as having one or more self-reported modifiable stroke risk factors. Modifiable risk factors were hypertension, smoking, diabetes, atrial fibrillation, cardiovascular disease, high cholesterol, obesity, physical inactivity and excess alcohol consumption [4].

2.2 Qualitative methodology

To optimise study design and take account of the specific needs of our older at-risk sample we consulted sources that: (a) utilised focus groups to investigate attitudes to health behaviours [11, 25, 27, 28] or develop health interventions [12, 13]; and, (b) provided general [29-33] or specific advice regarding the conduct of focus groups with seniors [34, 35]. This review contributed to limits we set on group size and number, session length, and our selection of both moderator and setting.

Although Morgan [32] recommends three to five groups to ensure adequate coverage of a particular topic we ran eight groups to ensure sufficient coverage of theoretical issues. Our groups ($n = 8$) were conducted at senior citizens' ($n = 4$) or bowls clubs ($n = 2$), and retirement villages ($n = 2$). These sites represented environments regularly frequented by participants that were comfortable and familiar to them. In addition, consistent with recommendations for effective focus groups: (a) meetings were held in informal environments [30, 32], (b) participants sat in a circle [30], and (c) we provided them refreshments [30, 34].

The ideal group size, and use of incentives, is much debated in qualitative research (see [29; 34, 36]). Kitzinger suggests groups of four to eight people. Our groups had three to five participants. Sessions lasted for approximately 90-minutes; an acceptable duration for seniors [34, 35]. Groups were formed based on participants' preference for available times. Our participants received the chance to win a

\$AUD30 shopping voucher and an Australian National Stroke Foundation information pamphlet that is available to the general public.

A review of participants' demographic and health characteristics revealed that females outnumbered males in all groups except one (group 4). Most groups (i.e., 6 or 7) included participants: (a) with a family history of stroke, (b) who exercised less frequently than recommended to reduce stroke risk, or (c) had high blood pressure. Risk factors that were either absent, or present among a very small numbers of participants, were infrequent blood pressure monitoring and TIA respectively. The average number of stroke risk factors per individual per group was three.

Given that the purpose of conducting focus groups was to elicit ideas that might inform the development of a stroke prevention program, we employed a semi-structured interview. Table 1 shows the questions incorporated in interviews.

Insert Table 1 about here

We employed a moderator experienced in a range of attributes identified as important for effective focus groups [34] such as: clear communication and listening skills, previous work experience with the elderly and prior group facilitation experience. Groups commenced with a statement of discussion ground rules [34], and as recommended by Krueger [31] and Morgan [32], a brief study overview. Specifically, participants were encouraged to: (a) respect opinions (b) provide each other opportunities to speak and (c) not engage in multiple conversations. We structured our questions according to precedent (see [34]), and began with general questions regarding experience with stroke, understanding of stroke risk factors and the effectiveness of preventative measures in reducing risk. When necessary we used

probes to elicit further information. Responses to open ended questions were summarised by the moderator and reflected back to the group to probe for agreement or consensus. This in-session checking ensured the accuracy of the moderator's interpretations and enabled clarification of ambiguity [37]. Table 2 includes the information we provided participants about our proposed intervention program.

Insert Table 2 about here

2.3 Data analysis: Qualitative methodology

Focus groups were digitally recorded and transcribed by an independent service. Theme identification was performed by an experienced, independent coder (KM). For each session, the coder read transcripts and listened to audio files to: (a) verify transcription accuracy (a process that resulted in a small number of corrections ($n < 10$)), and (b) gain insight into aspects of the sessions such as voice inflection, pauses, and laughter not otherwise apparent from transcripts. As recommended by Dudley and Phillips [38], also consulted were the session notes of the group moderator, which included a summary of emergent themes and group dynamics produced immediately after each group.

Similar responses were grouped together and classified under descriptive headings (ideas) based on the content of verbatim quotes. "Ideas" mentioned several times within or across groups were defined as themes [38]. An initial summary of themes, typical responses, and relevant verbatim quotes was reviewed by a senior member of the research team (KS) and the session moderator. To organise the data and facilitate analysis, transcripts were then analysed using NVIVO, a commonly

used qualitative analysis tool. This software was used to identify themes, which were organised into nodes representing ideas containing verbatim quotes.

3. Results

Table 3 shows the themes identified in focus group discussions and includes some examples of relevant participant statements. The section following includes a fuller discussion of these issues.

Insert Table 3 about here

3.1 Stroke knowledge

In this study, we asked participants: what is stroke? A selection of typical responses is shown in Table 3. These responses suggest that most participants did not clearly understand the causes of stroke or were only able to give vague answers. In terms of risk factor knowledge, the most commonly identified “modifiable” stroke risk factors, defined as those mentioned by at least one person in six of the eight groups were: insufficient exercise, obesity, and high blood pressure³. In relation to exercise, it should also be noted that at least two participants thought that a sudden resumption of exercise after a period of sedentary living, or “excessive” exercise, could precipitate stroke; a finding consistent with other similar reports in the literature [39, 43]. Less commonly reported modifiable stroke risk factors, mentioned by at least one person in three or fewer of the groups, were: excessive drinking, high cholesterol, and smoking. Modifiable stroke risk factors not mentioned were cardiovascular disease and atrial fibrillation. “Stress”⁴ was mentioned by at least one person in most (6/8) groups.

³ Blood pressure was actually mentioned in seven of the eight groups, though participants were not sure if it high or low blood pressure was associated with stroke.

⁴ Other terms used to refer to stress were: shock, tension, and “holding things in”.

Group discussions around the role of exercise in stroke prevention typically included reflections about how much exercise is sufficient to reduce stroke risk. Whilst some participants recognised this might depend on the individual, the consensus was that exercise three times a week for 30 minutes per session would be sufficient to reduce stroke risk. This amount of exercise is less than that generally recommended to ensure health benefits [8, 40]⁵. In addition, there was also a range of activities that participants “counted” as exercise, such as gardening, that may not produce beneficial effects and would need further clarification.

In terms of stroke warning signs, there were a number of people who could not list any warning signs (see Table 3). When warning signs were identified, the most commonly recalled ones, defined as those mentioned by at least one individual in two out of eight groups, were: headaches, dizziness, and speech difficulties. There appeared to be some confusion with heart attack symptoms (e.g., left sided shoulder region pain) which were mentioned by at least one person in two groups. Other warning signs (such as difficulty with swallowing or balance, or muscle weakness) were mentioned by at least one person in one out of eight groups. Not mentioned were: a sudden change in vision or paralysis. These findings suggest relatively poor knowledge of stroke warning signs.

3.2 Preferred health information sources

A variety of sources were identified as providing health information, although the extent to which participants reported consulting all suggested sources indicates that only a few of these are central. These were: general practitioner, friends, media (TV, radio, magazines, newspapers, books), organisations, internet and the library. All groups identified their general practitioner as one, if not the *primary*, source of

⁵ It is recommended that individuals gradually work up to an aerobic exercise session lasting 20 to 30 mins, and do this on at least most days of the week to ensure good health [41, 42], unless they have a disability that would prevent this level of exercise [8].

health information, and information gained from other sources was, in several cases, reported as being “checked” with the general practitioner.

Differences emerged about the amount and type of health information participants sought. A small number of participants reported that they purposely avoid health information, for example, “I try not to read too much about medical conditions, if I’m sick I go to the doctor” [Session 4], whereas a member of Session 8 reported “the more you know about these things the better”. Participants reported preferring information in non-medical terms, for example, not too much of the “nitty gritty” details, and receiving minimal, but large print written information. Perceptions about the personal relevance of health information or, put another way, an individual’s perceived susceptibility to specific conditions, were also seen as important; for example, “unless it affects me personally, I don’t go looking for [information]”.

3.3 Feedback on proposed intervention

We sought participants’ views on a proposed stroke intervention program that would include an educational component and small group activities designed to enhance theoretically significant HBM beliefs. Almost all participants responded positively to the proposed intervention. However, they also expressed many caveats in relation to their likely attendance. In addition, they were not certain that “others” would attend.

Most participants indicated they would attend if: they were interested or felt they would benefit from the program; to help someone else; if they were interested in their own health, or; if they thought they were at risk of stroke (an interesting observation since all participants in these focus groups were at risk). Promotional strategies should reflect these preferences. A few people expressed no interest in

attending an intervention program “it just doesn’t interest me”; “it’s a bit late in life to start [learning]... at my age”. Other participant comments suggest the importance of practical considerations such as the scheduling and location of sessions (i.e., close to public transport; not too time consuming). Interestingly, participants in Sessions 3 and 6 felt that they already knew how to avoid stroke so they would not learn much (this was not entirely borne out by their responses to questions about stroke risk factors, warning signs etc), but that it was just a matter of actually doing these things;

“it’s all very well for me to go to a group and learn what to do. I know what I should be doing. I know I have to give up smoking; I know I have to lose weight but at the moment I’m just quite not ready to cope with it”.

Other comments from participants reflecting the desire for small group interactions and peer-to-peer discussions suggest that including these elements in program design may serve to enhance self-efficacy among those participants that reported benefit in “sharing experiences”, hearing different ideas from people and getting ideas from them about how to engage in behaviours that would help reduce their stroke risk.

The importance of developing an intervention that is integrated with other health care services, particularly the local doctor, was evident from participants’ comments and is consistent with the general views expressed about preferred sources of health information. For example, responses of participants (session 3) who initially expressed that they would not attend, all agreed they would if referred by their doctor. In addition, the importance of trusting some sources of health information but not others came through when discussing willingness to be involved in a prevention program. This concept was expressed in terms of a preference that such a program would need to be run by a “qualified health professional”, and although this theme

was not one that was consistently expressed across groups, it is consistent with themes expressed in terms of preferred health information sources.

The longevity of gains associated with attending a prevention program was identified by several groups. For example, participants in session 6 wanted a program that would give them skills they could use beyond the life of the program. The theme of the “generalisability” of advice, or its relevance long-term, was identified by participants who reported having difficulty remembering all relevant health messages, unless this was reinforced to them. Participants indicated that when managing multiple risk factors and illnesses, they typically focussed on the one currently troubling them; so managing risks for a condition like stroke, which has a sudden onset and warning signs that may be more “tolerable” compared to those that involve pain, may be perceived as secondary relative to other more symptomatic conditions.

Our participants specifically requested information about: stroke risk factors and prevention, the impact of stroke, healthy eating and lifestyle, and immediate stroke signs. The importance of specific, rather than general guidelines was expressed in requests from participants interested in learning *how* to engage in behaviours to reduce stroke risk (i.e., how much exercise they needed to do on a daily basis, rather than that they *should* exercise). Participants also noted that education needed to convey the seriousness of stroke. All participants recognised the seriousness of stroke, e.g., “Terrifying”, “I’d rather have a heart attack than have a stroke” (separate females in Session 3). However, a level of fatalism was also noted, wherein participants expressed the “inevitability” of many strokes, for example one male participant in Session 4 noted he had “doubts on the ability to stop strokes”. Interestingly, participants anticipated a wider benefit of offering a group-format stroke prevention program which would flow beyond actual participants, because of the importance of

social sources of health information expressed by female participants particularly such as that from friends (see Table 3).

4. Discussion and conclusion

4.1 Discussion

The main aim of this study was to examine beliefs about a stroke prevention program in people at risk of stroke that may inform the subsequent intervention programs. We began by assessing participants' receptivity towards, and motivation for engagement in, such a program. Findings suggest that participants were generally positive about our proposed intervention. However, it also appears that participants felt that motivation could be enhanced if such a program was: (a) linked with other health services, specifically those provided by the local doctor; the preferred source of health information for our participants and one perceived as authoritative, and; (b) perceived as likely to produce lasting beneficial effects that would justify the time investment required for program participation. Findings indicate that the longevity and appeal of messages could be extended if these were reinforced and delivered in complementary ways. General public health messages including advice that applies across multiple conditions (e.g., diet and exercise) could be delivered. This information could be reinforced and tailored to the individual via program based messages seeking to maximise those beliefs (such as self-efficacy) that enable participants to determine how to apply such information themselves.

Those who reported a lack of interest in intervention programs tended to express the view that they already knew about stroke. This finding is interesting in light of participants' actual level of stroke knowledge which was variable, incomplete, and sometimes inaccurate. For example, stress was nominated as a stroke risk factor in a majority of groups, but in fact, stress is not formally regarded as increasing stroke

risk [39]. In relation to exercise, results suggest that participants might benefit from further information on safe levels, and appropriate forms of exercise, specific to their individual circumstances. Interestingly, all of the participants in this study had at least one modifiable stroke risk factor, yet participants may not have recognised themselves as at risk, perhaps because of the way that risk factor information had been put to them (i.e., they might have been told that they had diabetes, but not that this is a risk factor for stroke), or because they lacked sufficient knowledge of stroke risk factors to make these connections themselves.

More broadly, the overall findings in relation to participants' stroke knowledge suggest that participants do not know what they do not know (i.e., do not have insight about the gaps in their understandings); a finding consistent with previous research [17]. Additionally, many participants expressed the view that strokes were not preventable, or there was little that could be done to minimise the risks. Accepting that patient knowledge of stroke may be variable, it seems unlikely that self-referral to a program based on an individual's own assessment of their knowledge would be effective. Rather, a referral mechanism that incorporated a basic self-test of stroke knowledge, allowing for the identification of misconceptions, knowledge gaps, and areas of interest, could prove an important motivator. This strategy might provide an opportunity for people to explore their stroke understanding, facilitate their engagement with the learning process, and increase the likelihood of successful involvement in a stroke prevention program.

Other findings in relation to stroke knowledge include the need for careful consideration of the timing of information delivery. We identified some individuals who preferred *not* to know more about stroke. A similar finding was also recently reported by Townend et al. indicating the need to assess participants' readiness for

information; a process which could be incorporated in a self-test procedure. Such factors – readiness for information, ways of extending the longevity, currency and relevance of recommendations, plus the capacity of individual's to assess their information needs and readiness – need careful integration into intervention program design.

Our qualitative approach to understanding what people know about stroke and its risk factors, complements findings studies using more structured quantitative approaches, including telephone and postal surveys. Our approach, which included minimal prompts, shows what people can spontaneously recall about stroke and its risk factors, and how they understand their risk factor status and this approach is unique. Further, our use of qualitative research methods may reveal more about the reasons why participants hold the views they do than may be evident from other approaches. For example, this study has shown there are gaps in stroke knowledge, but has also shed light on why this might be the case, and perhaps how we might improve future public education campaigns. Participants expressed the view that radio and television advertisements may not be effective; rather, they prefer to get health information from their general practitioner. Since our participants' understanding of stroke and its risk factors was patchy, and taking into account their health information preferences, the results of this study suggest the need for non-broadcast public education. These findings also suggest the need for a review of the processes and approaches utilised by general practitioners to develop their patients' understanding of stroke and risk factor awareness.

Given our previous research examining the predictive utility of the HBM in this context [9], a further aim of this study was to use our focus group approach to determine to which factors related to the HBM (susceptibility, severity, benefits and

barriers) were discussed in the groups when considering stroke knowledge and possible interventions to encourage stroke-prevention beliefs and behaviours. Some of the topics raised may be understood within the context of the HBM (such as the need for interventions to highlight to people the seriousness of stroke). Other important themes emerged, however, that can be considered independently of the HBM or that have only indirect links to the HBM. For instance, whilst the HBM itself does not include a knowledge component, knowledge is regarded as having the potential to influence core HBM beliefs, including perceived susceptibility [10]. We found an apparent disconnection between participants' stroke knowledge and their assessment of their personal susceptibility to stroke, given that all of them had at least one stroke risk factor, yet they did not report themselves as personally at risk. In addition, issues surrounding personal susceptibility can be evidenced by an apparent third person effect (that others, rather than self, should be the target of interventions) revealed in statements expressed by some participants. Alternately, and perhaps especially with those older people who prefer to leave health decisions to their doctors [44], the role of an external motivator knowledgeable about one's personal susceptibility, such as the general practitioner, could be important to enhance self-assessments of risk and susceptibility.

Perhaps a stronger theme that emerged in the discussions was one of fatalism: that stroke is not preventable; a belief-type that has been identified in a previous study of stroke patients fear of recurrent strokes [43]. It may be difficult to manipulate or enhance perceived susceptibility in fatalistic individuals and it is important to determine if such beliefs could be addressed through education. Further, the comments of one participant, which suggested that concerns about stroke were relatively minor compared to other health concerns, may indicate that perceived

susceptibility to a single illness may be a relatively weak motivator in people at risk of stroke, if they are faced with other significant possibly competing health concerns; a situation not uncommon among the elderly. Taken together, these findings suggest that stroke intervention programs should specifically address ways of enhancing people's sense of self-efficacy to undertake stroke prevention actions. Further, there are implications of these results that may inform the choice of theoretical base for an intervention program. Compared to the HBM, the readiness to change model may provide a more appropriate theoretical base on which to develop a program for helping people reduce their stroke risk. This model draws less on the belief types investigated by us, and focuses more on people's problem awareness or readiness to receive change information; issues that were clearly identified by our participants as important. Whilst our findings suggest that that the potential utility of the readiness to change model over the HBM as the basis for stroke prevention programs, future investigations are needed to demonstrate this empirically.

There are several study limitations that should be noted, some of which are specific to our study; others reflect general limitations of qualitative research. Our original sample was a convenience sample, drawn from retirement villages, bowling, and senior citizens clubs. Participants in this study represent a subset of those from the larger study. As such, we may have sampled individuals who are more active and socially connected than less out-going individuals who are also at risk of stroke, or those that do not frequent such locations. It is possible that less positive views of the proposed intervention may have been expressed by individuals who do not participate in group activities, or that other barriers, such as embarrassment (or shyness) would have been endorsed by a less socially active group. We attempted to address this limitation, by asking participants their views on how "others" might be motivated in

an attempt to provide an indirect indication of the views of such persons.

Nevertheless, it may be argued that it is acceptable to use commence development of an intervention based on results from “motivated” participants, particularly if there is some possibility of the flow on benefits to others identified by our participants.

Some of the general limitations of focus group methodology also apply in this study. For example, Kitzinger [30] has argued that such methods can lead to group consensus and that this may artificially inflate the importance of particular ideas. We tried to minimise this effect by using a moderator with advanced training in group facilitation, in the ground rules we set for each group, and by encouraging participation by less vocal members when necessary.

4.2 Conclusion

In summary, the needs and preferences of people at-risk of stroke indicate there is demand for appropriately designed prevention programs, and that their success may be enhanced if they incorporate readiness to change principles. Such programs need to include: a social component that serves to develop and enhance participants’ self-efficacy to change those behaviours that put them at stroke risk, perhaps beginning with those behaviours that are risk factors for multiple conditions, such as obesity and exercise; an education component that addresses issues such as stroke knowledge and related beliefs, and personalizes this information taking account what participants already know; links to external motivators, such as the general practitioner, would could serve to reinforce changed beliefs and behaviours and extend the longevity of both commitment and benefits.

4.3 Practice implications

This study provides an important potential-consumer perspective on the need for, and likely success of, a stroke prevention program. This perspective indicates

there is consumer demand for an appropriately designed program. Further the incorporation of the design principles and preferences identified by participants in this study should mean that development efforts will be rewarded through the participation and involvement of those at-risk of stroke; an outcome that may ultimately contribute to fewer strokes.

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Table 1

Focus Group Questions Used in Semi-Structured Interviews, listed by topic

Focus Group Topic	Opening Question*
General understanding**	“Tell us a little about your understanding of and experience with stroke”
Health information sources	“Where do you get most of your health information from?”
Influences on preventative behaviours	“What determines whether you exercise/check your blood pressure?” “What do you consider to be the barriers to exercising/blood pressure?” “What do you consider to be the benefits of exercising?” and “Do you think it easy to exercise?”

* Note, all questions were followed with prompts. On some occasions, the questions needed to be re-phrased to ensure clarity. **

** This general opening was followed by a description of proposed intervention

Table 2

Information provided to focus group participants about a proposed stroke prevention program.

“I’d like to discuss with you some ideas that we have for a program that we may be developing ...to educate and motivate people, who are identified as at risk for stroke, to engage in the sorts of behaviours that can reduce their stroke risk. We are curious to obtain feedback about the ways in which the program would be run.

One aspect of the program would involve determining people’s level of stroke knowledge by having them answer certain questions about stroke. This would also involve having people request specific information that they realise they are unaware of. These would be coupled to develop written information packages that are tailored specifically to meet the knowledge needs of people at risk for stroke.

Another aspect of the program would involve small group sessions, whereby people might gather together to discuss their knowledge of stroke. The groups would be facilitated by a health professional and would aim to educate people about the sorts of things they could do to reduce their stroke risk and to assist them in engaging in such behaviours. For example, participants might be guided on ways to start an exercise program and helped to organise one. Discussions about healthy eating might take place.

“What would your thoughts be on such a program?”

“When would you utilise such a program?”

Table 3

Themes emerging from focus group discussions and examples of statements typifying each theme. Themes are grouped into broad content areas that reflect study aims.

Area	Theme	Examples of participants' statements
Preventative program	A good idea	<p>“I think it’s a jolly good idea, if you can get it off the ground”</p> <p>“I think it would be excellent”</p>
	Personal relevance/susceptibility	<p>“unless it affects you personally... all the information in the world, it’s in one ear and out the other”</p> <p>“if you thought you were really at risk of stroke, you’d do all you [could] to prevent it”</p> <p>“I don’t know. I just can’t remember [the warning signs].... I thought – I haven’t got any of those – so that’s why I don’t remember them. It was interesting to see them but because I wasn’t associated with them I wasn’t storing it up here”.</p>
	Fatalism	<p>“I have my doubts on the ability to stop strokes.”</p> <p>“I’m a bit of a fatalist, I think – when my numbers up, it’s up.”</p> <p>“There’s probably a lot of things you can do to prevent it, but there’s no guarantee that you’re going to do it. Some of the fittest people around the place have had strokes.”</p>
	Readiness for information	<p>“It’s all very well for me to go to groups and learn what to do. I know what I should be doing. I know I have to give up smoking; I know I have to lose weight but at the moment I’m just not quite ready to cope with it”.</p> <p>“the more you know about these things the better”</p> <p>“what you don’t know doesn’t hurt you”</p> <p>“too much information can be quite damaging”</p>
	Medical referral	<p>“I doubt if I would [attend]... I feel confident that my doctor would advise me if [attending was] necessary”</p>
	You don’t know what you don’t know	<p>“I don’t think we need to go to special sessions”</p>
	Social benefits	
	Reinforcing learning	<p>“unless you’re involved all the time...you lose it”</p>

	Written materials	<p>“its like CPR, you do it, you learn it, but unless you keep coming back, you forget it”</p> <p>“talking to people face to face is better than reading a pamphlet”</p> <p>“</p>
Sources of information about stroke		<p>“I’d ask/go to my doctor” (though recognition that the information provided by doctors was variable).</p> <p>“Talking to your friends” (females predominantly)</p>
Awareness of recent NSF media campaign	<p>Radio and television may not be effective avenues of communication</p> <p>Might be good for others but not me</p> <p>Readiness for information/Personal relevance of information</p> <p>Spontaneous recall of the ad campaign was difficult, as was prompted recall</p>	<p>“don’t watch a lot of TV/commercial TV”</p> <p>“I switch off when commercials come on”</p> <p>“well, I think it would be a good eye opener for some people who have ignored those kind of things. Those little things would have happened to a lot of people and they’ve just ignored them”</p> <p>“I remember seeing all those things [the symptoms] and I thought – no, I haven’t got any of those, forget it.:</p> <p>“if you took notice of the radio, you’d be running to the doctor everyday”</p> <p>“I don’t recall seeing those ads”</p>
Stroke knowledge	<p>Warning signs (responses typical of those who could not identify any warning signs)</p> <p>What is stroke?</p>	<p>“no idea”</p> <p>“I’ve forgotten what they are now”</p> <p>“I’m not exactly sure about the signs, because it’s different for different people”</p> <p>“we don’t know anything about stroke”</p> <p>“Blood not getting up to the brain”</p> <p>“Paralysis on opposite side of a blockage in the brain”</p> <p>“To do with blood vessels...”</p> <p>“Explosion of a blood vessel... bleeding in the brain”. [Associated with a belief that blood vessel weakness</p>

in was due to poor nutrition in childhood].
“a clot in the brain / something in the brain”
