

The future for the Australian Nutrition Foundation: A survey assessing members' nutrition information needs

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The Australian Nutrition Foundation (ANF) conducted a survey of members which investigated their nutrition information needs together with their preferred communication formats, considering the technological advances in informatics. The survey was completed by 103 respondents with a large proportion of health professionals represented. It was found that members were quite satisfied with the performance of the ANF in critical areas like nutrition updates, but less satisfied with the ANF's response to topical nutrition issues in the media. Health professionals used the ANF as a source of nutrition information significantly less often than other occupation categories like teachers and the general public. Strategies were presented which could help the ANF management provide an improved service to the health professionals, a sector which is considered to be very important by the ANF. Print and electronic communication formats were those most preferred by the respondents for their nutrition information needs. Implications for the future directions of the ANF are discussed.

Key words: Nutrition Foundations, management, nutrition education, nutrition information, consumers, health-care professionals, doctors, dietitians, performance indicators

Introduction

The Australian Nutrition Foundation (ANF) is a non-government, non-profit organisation committed to educating Australians about nutrition from information which has a sound scientific base. The ANF was formed in 1980 and part of its charter is to "promote the health and well-being of the Australian people by encouraging them to make informed food choices"¹. The ANF strives to provide leadership in the area of nutrition advocacy in government, food industry and general public sectors and to strictly maintain its credibility and relevance through the systematic review of its resources and publications as scientific knowledge progresses. The ANF is a source of scientifically accurate nutrition education materials which can be used both by health, nutrition and education professionals in their roles as community educators and by the general public who can themselves act as educators within their social networks. The ANF management wanted to assess the nutrition information needs of the ANF membership so that it could plan its future directions and remain relevant to its members and the wider community, both locally and internationally.

There are two levels of membership of the ANF made up of citizens (corporate and private) who are members in part because they believe it is important to provide support for the continued existence of organisations like the ANF (Table 1). Corporate members have typically represented the Australian food industry although any corporate body interested in the health of its employees and the continued health of its consumers could be a member. General members are drawn from the constituencies of health

professionals, educators, industry representatives and interested members of the general public. The important role of these constituencies within the Australian nutrition scene in general, and the ANF in particular is twofold: 1) to support the ANF so that it may continue its promotion of the importance of good nutrition through nutrition advocacy and the development of accurate nutrition education resources, and 2) to educate their own networks (whether clients, colleagues or acquaintances) about the importance of good nutrition using the scientifically-based resources of the ANF. The power of these constituencies to reach and promote accurate knowledge in nutrition within the wider community is recognised as an extremely significant factor in nutrition education by the ANF who, as an organisation, does not have the fiscal resources for mass media campaigns. Member numbers of the ANF have been decreasing by about 10% per year for some years and certainly by particular occupation sectors of the membership. An investigation of some of the factors involved in this decline would help the management to address this situation.

Some sections of the Australian public are interested in information about health and nutrition and this information seeking depends on sociodemographics (like sex and age) and cultural tradition². The sources of nutrition information (in descending order of use) include the mass media (both

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print and electronic), followed distantly by health practitioners (including doctors and pharmacists), nutrition professionals (including dietitians) and health authorities (both government and non-government)^{3,4}. This may reflect the relative output of these source types, particularly the media⁵. However, the perceived credibility of nutrition information appears to be inversely proportional to the frequency of source use². Indeed, an analysis of information contained in half of the nutrition articles published in a selection of Australian women's magazines was considered to have some inaccuracies by nutrition professionals⁶. The ANF management wanted to investigate those information sources used by different sectors of the membership to determine its success at meeting the nutrition information needs of ANF members.

Table 1. ANF national membership structure by occupation (descending order).

Occupation	n	%
Teachers	579	28.1
Dietitians	445	21.6
General public	441	21.4
Media (complimentary)	91	4.4
Nutritionists	70	3.4
Nurses	68	3.3
Medical practitioners	64	3.1
Catering officers	54	2.6
Food technologists	47	2.3
Pharmacists	36	1.8
Child-care workers	32	1.6
University staff	28	1.4
Fitness industry personnel	27	1.3
Librarians	22	1.1
Home economists	21	1.0
Corporate	18	0.9
Dentists	13	0.6
Other	5	0.2
Total	2061	100

One of the roles of the ANF as a credible source of accurate, scientifically-based nutrition information is to respond to instances of misinformation about nutrition and to concerns held by the general public about food and nutrition. It is believed that with the plethora of nutrition messages and misinformation in the information environment that health authorities should start to employ appropriate marketing strategies in an attempt to get their messages across more successfully. These marketing strategies would have the ability to reach much wider audiences than has been the situation currently⁷. The ANF is now attempting to use some of these strategies in its quest to inform the wider public about the importance of good nutrition and healthy food choices.

The management of the ANF wanted to investigate how they can best serve the membership with nutrition information and the use of traditional and contemporary information communication strategies like printed newsletters and the Internet. The purpose of the 1996 ANF membership survey was to assess their satisfaction with various ANF activities, the sources of nutrition information used by various sectors of the membership, the nutrition topics they would like to know more about (reflecting their

concerns) and communication formats which would suit their information needs. In this way the efficient use of the fiscal resources of the ANF could be evaluated and appropriate long-term planning could occur.

It is even more imperative for organisations like the ANF to remain relevant to their members and the wider community, particularly in climates of both economic restraint and internationalisation where traditional borders become less pertinent. To this end the ANF has developed a homepage on the Internet which is updated regularly and contains nutrition information among other items. As the use of this technology increases within Australia and overseas, it is essential that the ANF maintains both its scientific credibility and relevance locally and internationally.

Materials and method

A survey instrument was developed which included both quantitative questions with Likert scale and categorical responses, and qualitative questions with open-ended responses. The quantitative questions included items about satisfaction with the performance of the ANF on topics like nutrition updates, responses to media issues and scientific accuracy; the sources of information used in the previous 12 months and their perceived accuracy; and the nutrition topics of interest to the membership. The preferred communication formats were assessed by asking about traditional and contemporary information technologies and the use of computers and the Internet by the membership. Background demographics like state of residence, age range and occupation were included to determine how representative the sample was (of the national membership) and to conduct comparisons using inferential statistics. Finally, members were asked in an open-ended response format what their main reasons for joining the ANF were.

The surveys were distributed with the October edition of the ANF Newsletter which was posted to all members. Data were analysed using SPSS for Windows and the open-ended responses were categorised and coded according to frequency.

Results

Characteristics of the sample

Surveys were completed and returned by 103 respondents representing a response rate of 5.2%. The occupational characteristics of the sample and the national membership are shown in Table 2. The sample appears to be over-represented by health professionals and academics and under-represented by the general public. Seventy-eight per cent of the sample were aged under 45 years.

Membership satisfaction with ANF performance

The average responses of satisfaction with the performance of the ANF in critical areas (five-point scale) are presented in Table 3. These figures indicate that the sample is much less satisfied with the performance of the ANF in its responses to issues in the media. It should also be noted that the standard deviation for this item was the largest of the four items indicating a higher degree of variability in the responses to this media item. The professional nature of this sample means that they are looking to the ANF, as a

reputable source of scientific information, for clarification in the media on topical issues.

Table 2. Comparison of occupation percentages of sample with national membership (in descending order - national).

Occupation	Sample (%)	National (%)
Health professionals*	60	38
Teachers	17	30
General public	3	22
Industry representative	3	5
Academic	10	4
Other	7	1

* Health professionals include dietitians, nutritionists, doctors, home economists, nurses, pharmacists, dentists.

Table 3. Average satisfaction scores with ANF performance (in descending order).

Performance item	Mean \pm SD
Scientific accuracy	4.6 \pm 0.6
Updates of nutrition issues	4.3 \pm 0.8
Updates of ANF activities	4.2 \pm 1.0
Response to media stories	3.4 \pm 1.1

Sources of information used in the last 12 months

The sources of information used by the sample in the last 12 month period and their perceived accuracy (three-point scale) are presented in Table 4. The ANF was the most popular source of nutrition information and was viewed to be highly accurate. This is to be expected because this was a survey conducted by the ANF management. The media sources were perceived to be less accurate than more professional sources which concurs with previous research.

The sources were factor analysed (a data reduction technique) using principal components analysis with varimax rotation according to standard procedures⁸. In this case, this technique allows sources to be grouped according to their use by the respondents. For example, if a respondent uses only conferences, seminars and journals as their sources of nutrition information then these will be grouped together. If many respondents answer in similar ways then patterns will be found through factor analysis. Factor loadings provide an indication of how strongly each source is associated with that group. Three factors accounting for 33% of the variation in source use were found. The factor groups and loadings are presented in Table 5. Further analysis of the types of respondents using the sources from the different groups is needed before interpretation of the factor structure can occur.

Factor scores were calculated, which are a measure of the degree to which each respondent, for example, has a high score on the information sources which have high factor loadings on a particular factor⁸, and these were used in a multivariate analysis of covariance (MANCOVA). The dependent variables used were the three sets of factor scores from the three factors shown in Table 5. The independent variables were age (younger than 25, older than 25) with occupation category (health professionals, all other occupations) as the covariate, ie the effects of a respondent's occupation were statistically removed from the analysis of the effect of age on the factor scores. The results are presented in Table 6.

Table 4. Nutrition information sources used and their perceived accuracy ratings (in descending order).

Source	Frequency	Mean \pm SD
ANF	85	2.96 \pm 0.20
Journals	69	2.95 \pm 0.21
Seminars	58	2.87 \pm 0.34
Books	56	2.80 \pm 0.41
Conferences	43	2.90 \pm 0.30
Magazines	38	2.08 \pm 0.67
Food Industry	36	2.41 \pm 0.61
Library	32	2.70 \pm 0.47
Newspapers	32	1.97 \pm 0.32
In-service Courses	31	2.87 \pm 0.35
Television	28	1.93 \pm 0.47
Dietitians	18	2.89 \pm 0.32
Other Health Agencies*	15	2.90 \pm 0.32
Radio	11	1.85 \pm 0.55
Schools	10	2.50 \pm 0.71
Doctor	7	2.75 \pm 0.46
Other Sources**	6	3.00 \pm 0.00
CD-ROM	6	2.67 \pm 0.52
Computer Bulletin Boards	4	2.33 \pm 0.58
Friends and Family	4	1.60 \pm 0.89

* these include NHF and DAA for example ** these include Choice Magazine and Australian Consumer's Association Journal, for example

Table 5. Factor loadings and groups of sources used.

Source	Factor 1	Factor 2	Factor 3
Group 1			
Television	0.75		
Newspaper	0.69		
Magazines	0.56		0.32
ANF	0.52	-0.20	
Radio	0.46	-0.27	
Food Industry	0.40	0.24	
Friends and Family	0.40		
Other	0.24		
Group 2			
Seminar		0.72	
Conferences		0.69	
CD-ROM		0.53	
Courses	0.29	0.45	
Journals	-0.24	0.40	0.22
Other Health Agencies		0.33	-0.26
Group 3			
Schools			0.66
Library			0.65
Doctor	0.26		0.52
Books			0.42
Dietitians			0.34
Computer Bulletin Boards		0.21	0.26

The multivariate analysis of the covariate showed that there were significant differences between health professionals and all others on their use of the sources from all three groups (Pillai's $F_{(3,97)} = 7.25$, $p < 0.0005$). Univariate tests showed that the significant differences were found only in Groups 1 and 2 and not in Group 3. Bonferroni post-hoc tests showed that respondents from all other occupations used the sources from Group 1 significantly more often than health professionals and health professionals used the

sources from Group 2 significantly more often than all other occupations (Group 1: $t_{101} = 2.91$, $p=0.004$; Group 2: $t_{101} = -3.10$, $p=0.002$).

Table 6. Average factor scores for occupation and age categories on each group of sources with MANCOVA results.

Group	Occupation (covariate)		Age		$F_{(1,99)}$ $p<0.01$
	HP*	All others	Younger	Older	
1 (Factor 1)	- 0.23 ^a	0.35 ^a	- 0.09	0.02	8.49 ^a
2 (Factor 2)	0.23 ^b	- 0.35 ^b	0.11	- 0.01	9.63 ^b
3 (Factor 3)	- 0.09	0.14	0.53 ^c	- 0.11 ^c	7.15 ^c

* Health Professionals

^{abc} letters denote a significant difference between the two means

The multivariate analysis for age was not significant indicating that over all three groups the effect of occupation was the most dominant (Pillai's $F_{(3, 97)} = 2.35$, $p=0.08$, not significant). However, univariate tests showed a significant difference for age on Group 3. The Bonferroni post hoc test confirmed this indicating that younger respondents used the sources in Group 3 significantly more often than older respondents ($t_{100} = 2.67$, $p=0.009$) regardless of their occupation type.

The results from Tables 5 and 6 allow the structures of the factors to be interpreted. Group 1 contains both print and electronic media, and resource oriented organisations like the ANF and some of the Australian food industry. This group of sources was used less by health professionals and more by all other occupations including the general public and teachers. These sources were also perceived to be less accurate overall except for the ANF. This group could be labelled *Media/Publication Resources* and is characterised by the types of sources who do target their information more at the general person than at the professional level. This is further exemplified by the negative factor loading of Journals on this factor.

Group 2 is characterised by professional journal publications and forums (seminars, conferences and in-service courses). This group of sources was used significantly more often by health professionals. The ANF and Radio also had negative loadings on this factor further indicating that Group 1 is for the mainstream person and not typically used as a professional resource by health professionals. This indicates that Group 2 could be labelled *Professional Sources*.

Group 3 contains books, schools, libraries and the health professions of doctor and dietitian. It is used significantly more often by younger respondents regardless of their occupation. These results suggest that this group could be labelled *Mentor/Professional Resources*. The younger respondents (whether they were health professionals or not) were more likely to use the 'mentors' of dietitians and doctors for nutrition information as well as books and computers. The ANF did not have a significant loading on this factor.

Communication formats

The printed quarterly newsletter was still the most preferred communication format (52% of the total number of options chosen). Electronic formats including e-mail updates and using the ANF homepage (<http://www.monash.edu.au/ANF>)

forum were the next most preferred (20%). Seventy-nine per cent of the respondents currently had access to a computer at work or home and a further nine per cent believed that they would have access to a computer within the next twelve months. This indicates that the ANF should continue its development in the electronic information environment, but while still maintaining its printed newsletters.

Discussion

The response rate was very low and the results may not be representative of the whole membership, particularly the over-representation of health professionals. The willingness to respond could have been affected by many factors. The aims of the questionnaire, which included detailed questions about computer use, may have seemed less relevant to some general public members. The survey was included with the ANF newsletter but the onus was on the respondent to find their own envelope, and address, stamp and post it. This is a particularly lengthy process for busy people. A previous ANF survey which included a reply-paid, pre-addressed envelope had a response rate in excess of 25% indicating that these structural factors were important. However, many of the results from this survey have implications for the future direction of the ANF and other similar organisations, both within Australia and overseas.

It was believed that the ANF should be more active in the media. The quick response to issues in the media would certainly raise the profile of the ANF while also providing a larger degree of scientific credibility to media articles. The ANF management has recently circulated a list of experts who can be drawn upon to speak on behalf of the ANF on topical issues. However, this response to issues after they have been raised in the media is a more re-active position. The ANF management has also developed a press-release program of topical issues in an attempt to have a more pro-active role in the media. However, the ANF still has some way to progress on this issue before member perceptions change.

The analysis of the three groups of sources used by the respondents within the last 12 months were surprising. The ANF is obviously meeting the needs of member sectors like teachers and the general public but not health professionals who form a significant proportion of the membership. The decline in membership has particularly occurred in the nursing and pharmacy sectors. The ANF also appears to be less relevant to younger members which is a concern for any organisation interested in future sustainability.

These results suggest that the ANF is seen to be a source of credible scientific information *after* it has been translated into a format which can be understood by the lay community. Health professionals may be likely to refer their clients to the ANF for resources but not use the ANF themselves when learning about the latest scientific information in nutrition. Health professionals are more likely to obtain their nutrition-science updates from professional sources and not from the ANF.

The management of the ANF must plan ways to service the needs of health professionals particularly on current nutrition issues. For brevity, some of these issues listed by the respondents included: phytochemicals, fat-replacers and antioxidants among many others. These may be a reflection

of both client inquiries and their own reading. The ANF usually proceeds by taking the current, considered view of the scientific community on a topic and producing an information resource. In topics where the scientific consensus is unclear and scientific knowledge is changing rapidly, the ANF is unable to proceed this way. However, seminars and background papers for use by the health professional which detail the latest scientific knowledge in certain areas may be appropriate options to consider in servicing this important membership sector.

The use of different communication formats for providing the ANF membership and the wider national and international community with nutrition information was evident in the results. The ANF will continue its presence on the Internet as a source of reliable nutrition information which can be accessed locally and internationally. The ANF management feels that this is particularly important to

regions and sectors which do not have the resources themselves to produce printed information for their clients and consumers. The ANF however, will continue to provide printed resources for its membership and others in line with membership preferences.

This is an immense period of change for the ANF and other similar organisations. Nutrition and food sciences are advancing rapidly together with greater technological changes particularly in the informatics area, which have national and international implications. In these respects, and as a general characteristic of an organisation with scientific educational responsibilities, it must be able to live with, and encourage the community to live with, uncertainty⁹. The ANF is an organisation committed to remaining relevant and to progressing change in its continuing role of educating the public about nutrition and healthy food choices.

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澳大利亞營養基金會的未來：會員們對營養信息需求的調查

澳大利亞營養基金會 (ANF) 在會員中進行了一項調查，考慮到傳播技術的進步，在了解他們對營養信息的需求的同時，也了解了他們喜歡的傳播方式。103位會員接受了這一調查，這103人中大部分為衛生專業人員。調查發現ANF的會員對ANF在有關領域如營養更新的表現十分滿意，而對ANF對媒介中當前的營養問題的反應表示不十分滿意。衛生專業人員比其它行業的人，如教師和一般公共行業的人更少地將ANF作為營養信息的來源。已提出的策略有助於ANF的管理，向ANF認為非常重要的部分——衛生專業人員提供更好的服務。印刷材料和電子傳媒是調查對象最喜歡的營養信息傳播材料。本文還討論了ANF將來的發展方向。

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