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NEWSPAPER ARTICLES AS A TOOL FOR CARDIOVASCULAR PREVENTION PROGRAMMES IN A DEVELOPING COUNTRY

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ABSTRACT:

The purpose of this study was to evaluate changes in knowledge and attitudes as intermediate measures of community impact of a health education campaign using newspaper articles. The intervention involved prominently placed, illustrated newspaper articles by Heartfile (http://heartfile.org) with nationwide urban outreach, posted regularly in the largest English newspaper in Pakistan using newspaper donated space for a period of 130 consecutive weeks. The post intervention evaluation involved a cross sectional telephone survey in a major city. In the total sample, 26.5% were readers of the newspaper and majority of them (72%) stated that they were regular readers. These 500 persons were eligible for the interview; of these, 93% remembered having seen the Heartfile articles. In this group, 87% of the respondents stated that the articles significantly supplemented their knowledge about diet, and in 5% they were the sole source of information. With respect to exercise, these articles supplemented the knowledge of 77% of the respondents and were the sole source of information for 9% whereas in the case of smoking, knowledge was supplemented in 85% and the articles were the sole source of information in 4% of the cases. Of those interviewed, 40% reported that they had made some dietary changes, 39% made some changes in their exercise habits and 8% reduced the amount of tobacco consumption as a result of reading these articles. In relation to newspaper articles, the per article production cost was US$ 169 and the articles were read regularly by an estimated 0.66 million and occasionally by 0.79 million individuals all over the country. Newspaper articles are a useful supplement to other health education activities as part of cardiovascular disease prevention programs. Lessons from the Heartfile experience in Pakistan could be useful for other similar initiatives in low resource settings.

KEY WORDS:
Health promotion; Cardiovascular diseases; Communications media.

INTRODUCTION:

The emerging cardiovascular disease (CVD) epidemic poses a unique challenge for the developing world economies[1,2,3,4] with serious implications for ongoing development initiatives. Located in South Asia, Pakistan has a population of 134 million;[5] surveys in Pakistan indicate very high prevalence rates of cardiovascular disease with over 30%[6] of the population above 45 years of age affected. With a per capita income of $500, privately funded health care falls far short and total health expenditure at 0.8% of the GNP,[5] the public sector is far from widening it health sector outreach for curative care. This spells out the need for aggressive preventive strategies for the prevention and control of these diseases. Since non-communicable disease prevention and control do not feature prominently on Pakistan's public sector health agenda,[7] this necessitates interfacing with other organizations in the private sector with the relevant technical expertise for implementing cardiovascular disease prevention programs. Heartfile, Pakistan has been bridging this vital gap over the last three years.

In this paper we report our experience on the penetration of a cardiovascular health education campaign through newspaper articles. We assessed the community impact on intermediate parameters such as levels of knowledge and attitude. The intervention involved targeting the urban, English literate population of Pakistan with regular prominently placed newspaper articles in the largest circulating English daily newspaper with nationwide outreach. This campaign was the opening intervention for the Heartfile Program in Pakistan, which has a nationwide focus on CVD prevention and health promotion both through the community wide approach and by engaging health professionals. Heartfile's community based projects are three tiered with respect to the medium of information dissemination suited to different target audiences. The print media

forms the first tier and the reported intervention is a part of this component targeted to the English newspaper reading group; other print media campaigns are ongoing in newspapers in the national and local languages whereas the electronic and grass root campaigns which form the second and the third tier respectively have been adapted to the non English speaking and non literate target audience.

Newspapers are a readily available tool for health education. In addition to providing health information, such messages can provide practical skills and social support for change and help promote policy change. They can also help shape the public discussion agenda. It has also been demonstrated that media coverage on an issue increases public perception about the issue as being important.[8,9] Health education through newspapers in a low resource setting can be an important component of CVD preventive strategies and needs to be identified as being distinct from advertising, with important cost implications.

METHODS:

The objective of this study was to evaluate changes in the levels of knowledge and attitudes as the intermediate impact indicators of a community health education campaign through newspaper articles. This campaign was launched by the name of *"THE NEWS-Heartfile Public Awareness Drive"* (http://heartfile.org/news.htm) through complimentary space donated by the Newspaper group "JANG" which owns, amongst others, the English newspaper "The NEWS", which is the largest circulating daily English newspaper in the country with a daily circulation of over 450,000 and an estimated readership of 6 persons per copy. The newspaper is 56 cm X 38 cm in size with an average of 15 pages on weekdays.

The intervention involved posting articles on a regular weekly basis for 130 consecutive weeks on the inside front page of the newspaper; the only regularly coloured page, that also posts local headlines and current news. Occupying on average, one fifth of a page; spread over two to three columns, these article ranged from 300-800 words in newspaper font invariably accompanied by a coloured version of the Heartfile Mascot, adapted to the

message of the text and the Heartfile logo lettering in red. The articles appeared on different weekdays depending upon space availability. A highlighted box with a checklist was inserted prompting blood pressure checks and repeatedly advocated healthier lifestyles; another box was also inserted into the body of the text, prompting questions, answers of which were posted as subsequent articles. The style of the article varied from being a topic-oriented discussion on a specific aspect of a risk factor to an article that was generated in response to a particular question. The style of the topic oriented texts encompassed health information, persuasion, teaching skills, discussion, environmental support, contacts with health services and policy issues; in addition, stories and checklists were also published. Of the 130 articles published, 93 (71.53%) were topic oriented, 27 (20.76%) answered questions whereas 10 (7.6%) featured an adaptation of a story. Articles, which focused on diseases gave an outline of a particular facet of cardiovascular disease and emphasized on the prevention component linking it to healthy behaviours. The fear-based approach was avoided. Subjects covered are given in Table 1.

Table 1: subjects covered

Subject	**n=130**	**%**
Exercise	21	16.15
Smoking	15	11.53
Diet	25	19.23
Diseases	63	48.46
Other subjects	6	4.61

Overall the project specific cost for the duration of the study was US$ 22,000 with the per-article production cost of US $ 169 whereas the total value of the donated newspaper space was US$ 104,000 with the per article donated space value of US$ 800.

This campaign, which began in February 1999, is ongoing for a total of period of five years. After 130 consecutive weeks of publication in October 2001, we carried out an intermediate evaluation assessing levels of knowledge and attitudes. The study was carried out though a telephone survey, administered by trained interviewers during

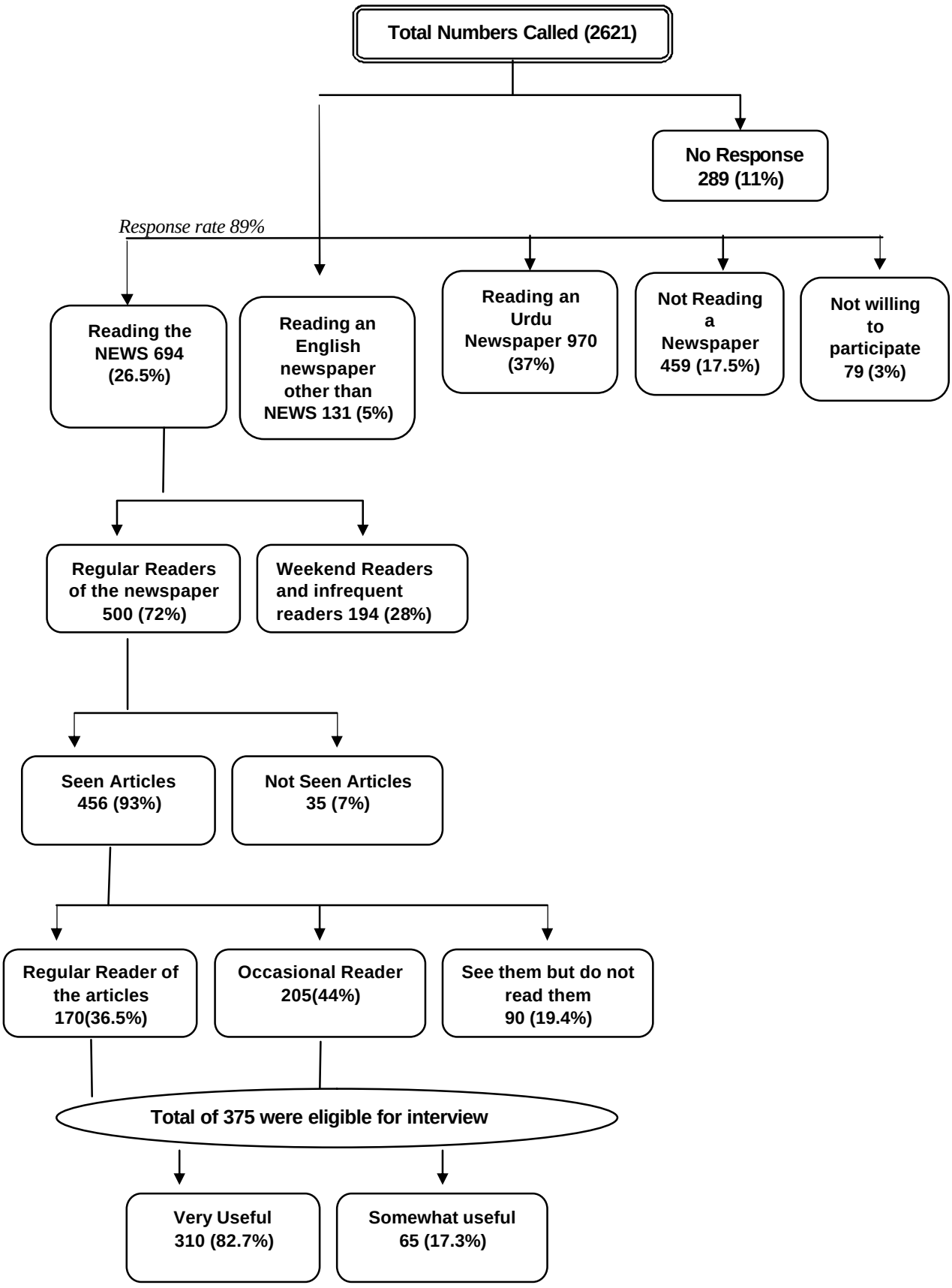
October through to December 2001.The study was carried out in the city of Islamabad, Pakistan where an estimated 81% of the urban households have telephones. A cross sectional a sample of adults possessing land telephone lines was taken.

Every third residential number on each column of the telephone directory pages starting from the first was contacted. If the number did not answer after three calls on three successive days at different times, the next number on the list was contacted. Individuals who did not wish to proceed further, those that either did not read a paper, read an Urdu newspaper or an English newspaper other than The News were excluded. Of *The News* readers, those that read the newspaper less than once a week or weekend readers were excluded. Figure 1 shows the flow chart of the interview procedures; out of the 2332 adults who responded, 500 (21.5%) stated that they were regular readers of the newspaper.

…….insert Figure 1 here….

People who were not eligible for the interview were asked a few questions on age, income and level of education. In case of an eligible respondent, the callers identity and the disclosure statement was given subsequent to which the respondent's willingness to participate was ascertained, and the questionnaire administered. The core areas in the questionnaire related to cardiovascular risk and socio demographics, assessment of the increase in cardiovascular health related knowledge and assessment of the change in behavior involving a total of 15 questions. Results were analyzed using SPSS version 7.5; the statistical analysis was done by using simple chi square tests. Mean values were compared with the independent samples t test.

Figure 1 *Flow chart for the 2621 numbers called for the telephonic survey to evaluate the individual levels of knowledge and attitudes as the intermediate measures of community impact of a health education campaign through newspaper articles in Pakistan.*


Total Numbers Called (2621)
No Response 289 (11%)
Response rate 89%
Reading the NEWS 694 (26.5%)
Reading an English newspaper other than NEWS 131 (5%)
Reading an Urdu Newspaper 970 (37%)
Not Reading a Newspaper 459 (17.5%)
Not willing to participate 79 (3%)
Regular Readers of the newspaper 500 (72%)
Weekend Readers and infrequent readers 194 (28%)
Seen Articles 456 (93%)
Not Seen Articles 35 (7%)
Regular Reader of the articles 170(36.5%)
Occasional Reader 205(44%)
See them but do not read them 90 (19.4%)
Total of 375 were eligible for interview
Very Useful 310 (82.7%)
Somewhat useful 65 (17.3%)

RESULTS:

No differences were found between the mean ages and gender distribution of those that were eligible for the interview and those that were not eligible or refused to participate. The latter category had however, fewer years of education compared with those that were eligible for the interview. The flow chart shows that 2621 telephone numbers were called in total with an 89% response (n=2332). 3% not wanting to proceed further with the interview, 17.5% not reading a newspaper, 37% reading an Urdu[1] newspaper, 5% reading an English newspaper other than THE NEWS were excluded. Of the 26.5% that were readers of the NEWS, 72% were regular readers of the newspaper whereas 28% were weekend or infrequent readers. 62% (n=236) of those interviewed had a personal cardiovascular disease experience of them or a close member of the family suffering from cardiovascular disease.

Table 2: Differences between those that were interviewed and those that were ineligible for the interview

	Eligible for the interview	Not eligible for the interview	
Mean age	46.8±14.14	48.01±9.9	p=0.158
Years of schooling	14.71±1.68	2.23±1.46	p=<0.001
Sex	60% males	57% males	p=0.179
Mean income	18880±16339	6800±1167	p=<0.001

Of those who read the newspaper regularly, 93% (95% CI 90.8 - 95.2) remembered having seen the "Heartfile articles". In this category, 84.5% responded spontaneously when questioned whereas in 15.5% a response was sought after referring to the logo lettering and the Mascot. Of those who had seen the articles, 36.6% (95% CI 32.2 - 40.9) read them regularly and 44% (95% CI 39.6 – 48.6) read them when prompted by a title of interest; these respondents (n=375) were eligible for the full interview; 19.4% (95% CI 15.8 – 22.9) saw the articles but never read them. Individuals over the age of 45 were more likely to be regular readers compared with younger respondents. 82.7% (95% CI 78.8 – 86.5; n=310)

of those that were either regular or occasional readers rated the articles as being very useful whereas 17.3% (95% CI 13.5 – 21.2; n=65) found them somewhat useful. A number of questions were asked in order to evaluate changes in knowledge and perceptions with respect to diet, exercise, smoking, obesity and disease perception as a result of reading these articles. Of those that had seen the articles, 87% of the respondents stated that the articles significantly supplemented their knowledge about diet, and in 5% they were the sole source of information. With respect to exercise, these articles supplemented the knowledge of 77% of the respondents and were the sole source of information for 9% whereas in the case of smoking, knowledge was supplemented in 85% and the articles were the sole source of information in 4% of the cases. (Table 3)

Table 3: Impact of the Heartfile newspaper articles in influencing knowledge and perceptions

	Sole source of information		Supplemented knowledge		No change in knowledge	
	n	**% (95% CI)**	**n**	**% (95% CI)**	**n**	**% (95% CI)**
Exercise	35	9.3 (6.4-12.3)	290	77.3 (73.1-81.6)	50	13.8 (9.9-16.8)
Smoking	15	4 (2-6)	320	85.3 (81.8-88.9)	40	10.7 (7.5-13.8)
Diet	20	5.3 (3.1-7.6)	325	86.7 (83.2-90.1)	30	8 (5.3-10.7)
Obesity	20	5.3 (3.1-7.6)	315	84 (80.3-87.7)	40	10.7 (7.5-13.8)
Disease	30	8 (5.3-10.7)	315	84 (80.3-87.7)	30	8 (5.3-10.7)

Table 4: Impact of the Heartfile newspaper articles in influencing attitudes and behaviour

	Total change in practise		Made some changes		No change at all		Already practising the ideal	
	n	**% (95% CI)**	**n**	**% (95% CI)**	**n**	**% (95% CI)**	**n**	**% (95% CI)**
Exercise	70	18.7 (14.7-22.6)	75	20 (16-24)	155	41.3 (36.3-46.3)	75	20 (16-24)
Smoking[2]	11	15.7 (7.2-21.2)	18	25.7 (15.5-36)	41	58.6 (47-70.1)		
Diet	45	12 (8.7-15.3)	130	34.7 (29.8-39.5)	95	25.3 (20.9-29.7)	105	28 (23.5-32.5)

Amongst the subset of the respondents, which included those that knew everything already and those, in whom these articles supplemented knowledge, further questions

[1] Urdu: national language in Pakistan

[2] Quit smoking, reduced number of cigarettes and no change in practise as a result of the articles in the 18.4% current smokers (70/381).

were asked to ascertain the source of previous exposure to information on this subject. In 73% of the cases, health care providers were the sole source of information; in 22.5%, a combination of health care providers and family/friends was referred to; in 3.5% of the cases, internet was mentioned as a source whereas 1% of the respondents mentioned a travel abroad as their source of exposure to such knowledge.

46.7% (95% CI 41.6-51.7; n=175) of those who were interviewed reported that dietary changes were made as a result of reading the articles; in this category 12% had "changed their diet entirely" and 34.7% had made "supplementary improvements" in their diet. 28% were already following the recommended diet whereas in 25.3% no dietary changes were made. When asked how diet had been modified in an open-ended fashion, 42.7% (95% CI 37.7-47.7; n=160) admitted reducing fats whereas 34.7% (95% CI 29.8-39.5; n=130) had reduced red meat. 26.7% (95% CI 22.2-31.1; n=100) had increased white meat consumption whereas 36.0% (95% CI 31.1-40.9; n=135) were eating more vegetables and 26.7% (95% CI 22.2-31.1; n=100) were eating more fruits. 26.7% (95% CI 22.2-31.1; n=100) admitted eating less refined sugar and had also reduced the amount of added salt in their diet.

Overall, 38.7% (95% CI 35-45; n=145) of all those interviewed reported to have made some changes in their physical activity, whereas in 41.3% there was no change. As a response to these articles, 25.3% (95% CI 20.9-29.7; n=95) of those that were interviewed had begun to exercise for the first time and 13.3% (95% CI 9.9-16.8; n=50) increased the duration of exercise. In those who had started to exercise or were already exercising, walking was the main and preferred activity.

18.4% (95% CI 14.5-22.3; n=70) of those interviewed were current smokers and another 20% (95% CI 15.9-24; n=76) ex smokers. Over half of the ex smokers had quit smoking more than ten years ago. 66% (95% CI 61.1-70.6; n=251) of those interviewed, came to know about the harmful effects of passive smoking for the first time as a result of reading

these articles. 7.6% (95% CI 1.1-13.2; n=5) of current smokers reported that they had quit smoking or reduced the amount of smoking as a result of having read these articles.

Self reported impact was assessed in different age groups and among males and females. Table 5 and 6 show that for all age groups and amongst both males and females the impact of these articles in influencing knowledge was more towards supplementing existing knowledge than being the sole source of information. With respect on behaviour, the impact was higher in terms of supplementing the existing favourable behaviour rather than a drastic change. With respect to dietary change in particular, women were seen to make consistently more favourable changes compared with men.

DISCUSSION:

Large community based projects focusing on CVD prevention have demonstrated the effectiveness of combined interventions that assess both individual behaviour change and system level change[10,11,12,13,14,15] Mass media attention to heart disease prevention issues is known to result in increased awareness and knowledge,[16] with projects of almost two years of intervention showing modest positive changes in the prevalence of behavioural risk factors.[17,18,19]

Several studies have shown the importance of print media in improving CVD knowledge in the developed world setting.[20] The effectiveness of print media has not been assessed in the setting of developing countries where fewer newspapers are likely to have a higher penetration. This was the first health education campaign, which focused on cardiovascular disease prevention in Pakistan. No previous educational campaigns through the print or electronic media or previous effort have ever been undertaken in Pakistan aimed at preventing cardiovascular diseases at a national level. The campaign was the opening intervention for the Heartfile Program in Pakistan (http://heartfile.org), which incorporates various modes of health education. The newspaper is privately run and like most newspapers in the country, devotes a certain amount of print space to

public service activities; this formed the basis of negotiating complimentary print space. The newspaper group had to be convinced however, that this activity would bring added value to the newspaper.

There can be many questions regarding the relevance of an English Newspaper campaign in a country with a literacy rate of 47.1%[21] and a functional English literacy rate of around 7%. However the intervention is justified as one part, in the overall context of the Heartfile Community Based Health Promotion strategy. The English newspaper campaign forms part of the "First Tier" of the community based interventions, which use the print medium as the tool of intervention; newspapers form an important component of this medium. In addition, the target group for this campaign was also the English literate urban population as the campaign intends to coin behaviours in the urban elite that may prove to be trend setting for other social groups. As part of the Tier 1 campaigns, other similar interventions are also currently ongoing which are focused on newspapers in the national and local languages.

Other limitations of the study should also be noted; the study lacked a true experimental design and comparison groups. Secondly, the evaluation of a mass media campaign in general is usually based on the results of cross sectional surveys of the general public before and after the campaign. In this study, we only had one survey after the campaign and asked for self reported changes in knowledge and behaviour. Although this method opens for recall bias; we do not feel that such a bias can totally explain the presented results. Penetration of "The News- Heartfile Public awareness campaign" was strong and the degree to which information was supplemented even in this otherwise very well educated group was encouraging.

Other problems with this study concern issues that are inherent to telephone surveys; however in the native Pakistani setting, the use of mobile phones, answering machines and other latest telephone technological advancements is very infrequent and therefore these issues are not a major concern. The limitations of the telephone survey method

notwithstanding, there did appear to be some behaviour change in areas such as diet, exercise and smoking, which have been shown to respond slowly to health education programs. The repetitive visibility of the message over an extended period of time and the prior baseline level of knowledge of the target group may be important determinants for the higher than expected degree of penetration of the Heartfile messages. With respect to dietary change in particular, women were seen to make consistently more favourable changes compared with men (Table 6). This observation has important favourable implications for influencing household diets in a culture where women of the house determine dietary practises of the entire family.

Evaluation of the community impact of this campaign reveal that if information is provided in an interesting, interactive and appropriate manner to a receptive audience, it is internalised and can result in a some changes in behaviour. The use of simple tools like an identifiable logo, and mascot, are useful, as part of this approach.[22]

450,000 copies of the newspaper are circulated on a daily basis in major urban cities of Pakistan and the per-copy readership is estimated to be around 6; the newspaper therefore is estimated to reach out to 2.7 million individuals all over the country. From the results of this survey (Fig 1) it is evident that 24.5% (170/694) of those that were readers of the NEWS, were regular readers of the Heartfile articles and another 29.5% (205/694) were occasional readers and that 44.7% (310/694) would find this activity very useful. Extrapolating this to the total readership of the newspaper it can be roughly estimated that 0.66 million individuals in Pakistan would be regular readers and another 0.79 million occasional readers of the Heartfile articles. In addition it can be further estimated that 1.2 million individuals in Pakistan would find this activity very useful. Although this estimation tends to overestimate impact because of limitations already mentioned, it cannot be entirely attribute to recall bias and does indicate a significant level of penetration in the urban English literate population, which were the target group for this intervention. However it remains to be seen as to how successful this intervention has

been as “trend setting” and how it has contributed in catalyzing other similar campaigns using the print and electronic media and through other community campaigns.

Overall the project specific cost of production of 130 articles over a 33 month duration during February 1999 through to October 2001 was 22,000 US$ and the per article production cost was US $ 169. Based on this it can be estimated that for every dollar spent on each article an estimated 7,100 “The News” readers would benefit from these publications, as they would find them very useful. This finding indicates that even with modest resources, community based interventions show promise in improving behaviours related to cardiovascular disease risk within brief periods.

The commercial approach to health education in the developing world is neither affordable nor desirable. Public health initiatives can never hope to compete with strong commercial interests for valuable air and print media space. The Heartfile experience demonstrates an alternative, in which effective messages are produced at low cost in a public health as opposed to a commercial advertisement house setting, and are carried by a premier media product not only as a public service but also as a valuable addition to the quality of their product.

Newspaper articles are a useful supplement to other health education activities as part of cardiovascular disease prevention programs in the developing countries. Lessons from the Heartfile experience in Pakistan could be useful for other similar initiatives in low resource settings.

Table 5: Impact of the Heartfile articles in influencing knowledge relating to diet, exercise, obesity, smoking and cardiovascular disease.

	Sole source of information		Supplemented knowledge & perception		No change in knowledge & perception	
	n	**%**	**n**	**%**	**n**	**%**
DIET						
Age Groups						
Less than 29	10	20	40	80	-	-
30-44	5	3.8	120	92.3	5	3.8
45-59	5	4.5	100	90.9	5	4.5
60 and above	-	-	65	76.5	20	23.5 p=<0.001
Sex						
Male	10	4.3	210	91.3	10	4.3
Female	10	6.9	115	79.3	20	3.8 p=0.002
EXERCISE						
Age Groups						
Less than 29	10	20	35	70	5	10
30-44	15	11.5	100	76.9	15	11.5
45-59	10	9.1	90	81.8	10	9.1
60 and above	-	-	65	76.5	20	23.5 p=<0.001
Sex						
Male	15	6.5	200	87	15	6.5
Female	20	13.8	90	62.1	35	24.9 p=0.001
OBESITY						
Age Groups						
Less than 29	15	30	35	70	-	-
30-44	-	-	115	88.5	15	11.5
45-59	5	4.5	100	90.9	5	4.5
60 and above	-	-	65	76.5	20	23.5 p=<0.001
Sex						
Male	10	4.3	210	91.3	10	4.3
Female	10	6.9	105	72.4	30	20.7 p=<0.001
DISEASES						
Age Groups						
Less than 29	10	20	40	80	-	-
30-44	10	7.7	115	88.5	5	3.8
45-59	10	9.1	95	86.4	5	4.5
60 and above	-	-	65	76.5	20	23.5 p=<0.001
Sex						
Male	10	4.3	210	91.3	10	4.3
Female	20	13.8	105	72.4	20	13.8 p=<0.001
SMOKING						
Age Groups						
Less than 29	10	20	40	80	-	-
30-44	-	-	115	88.5	15	11.5
45-59	5	4.5	100	90.9	5	4.5
60 and above	-	-	65	76.5	20	23.5 p=<0.001
Sex						
Male	10	4.3	205	89.1	15	6.5
Female	5	3.4	115	79.3	25	17.2 p=0.005

Table 6: Impact of the Heartfile articles in influencing behaviour change relating to diet.

	No change in behaviour		**Moderate change in behaviour**		**Drastic change in behaviour**		**Already following recommended diet**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Age Groups								
Less than 29	20	40	15	30	5	10	10	20
30-44	45	34.6	50	38.5	5	3.8	30	23.1
45-59	15	13.6	40	36.4	30	27.3	25	22.7
60 and above	15	17.6	25	29.4	5	5.9	40	47.1 p=<0.001
Sex								
Male	70	30.4	55	23.9	30	13	75	32.6
Female	25	17.2	75	51.7	15	10.3	30	20.7 p=<0.001

Table 7: Impact of the Heartfile articles in influencing behaviour change relating to exercise

	No change in behaviour		**Moderate change in exercise behaviour**		**Begun to exercise for the first time**		**Already exercising at the ideal level**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Age Groups								
Less than 29	30	60	10	20	5	10	5	10
30-44	45	34.6	30	23.1	25	19.2	30	23.1
45-59	30	27.3	25	22.7	25	22.7	30	27.3
60 and above	50	58.8	10	11.8	15	17.6	10	11.8 p=<0.001
Sex								
Male	100	43.5	45	19.6	40	17.4	45	19.6
Female	55	37.9	30	20.7	30	20.7	30	20.7 P=0.731

Table 8: Impact of the Heartfile articles in influencing behaviour change relating to various dietary components.

	Not made favourable change		**Made a favourable change**	
	n	**%**	**n**	**%**
LESS RED MEAT				
Age Groups				
Less than 29	40	80	10	20
30-44	85	65.4	45	34.6
45-59	55	50	55	50
60 and above	65	76.5	20	23.5 p=<0.001
Sex				
Male	175	76.1	55	23.9
Female	70	48.3	75	51.7 p=<0.001
LESS SALT				
Age Groups				
Less than 29	35	70	15	30
30-44	110	84.6	20	15.4
45-59	55	50	55	50
60 and above	75	88.2	10	11.8 p=<0.001
Sex				
Male	175	76.1	55	23.9
Female	100	69	45	31 p=0.129
MORE FRUITS				
Age Groups				
Less than 29	45	90	5	10
30-44	95	73.1	35	26.9
45-59	60	54.5	50	45.5
60 and above	75	88.2	10	11.8 p=<0.001
Sex				
Male	180	78.3	50	21.7
Female	95	65.5	50	34.5 p=0.007
MORE VEGETABLES				
Age Groups				
Less than 29	40	80	10	20
30-44	90	69.2	40	30.8
45-59	45	40.9	65	59.1
60 and above	65	76.5	20	23.5 p=<0.001
Sex				
Male	155	67.4	75	32.6
Female	85	58.6	60	41.4 p=0.085
MORE WHITE MEAT				
Age Groups				
Less than 29	40	80	10	20
30-44	95	73.1	35	26.9
45-59	70	63.6	40	36.4
60 and above	70	82.4	15	17.6 p=0.019
Sex				
Male	185	80.4	45	19.6
Female	90	62.1	55	37.9 p=<0.001
LESS FAT				
Age Groups				
Less than 29	30	60	20	40
30-44	80	61.5	50	38.5
45-59	45	40.9	65	59.1
60 and above	60	70.6	25	29.4 p=<0.001

Sex				
Male	145	63	85	37
Female	70	48.3	75	51.7 p=0.005

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