

Issue: 8, 2005

How does a Household Health Survey Change Consumer Perspectives of Diabetes in a Multiethnic Area of New Zealand?

AUTHOR(S): David Simmons, Lisa Bourke

ABSTRACT

The aim of this paper was to investigate whether or not a diabetes research project had benefits for, or other impacts on, health consumers. A face-to-face household survey in inner urban South Auckland, a multiethnic community, was undertaken between 1991 and 1994 among randomly selected households. This study had been associated with a major media campaign. This survey was followed by a second survey in 1995-1996 among randomly selected households, which asked residents if they remembered the earlier study. Between 27% and 36% of residents (depending on gender and ethnicity) remembered either the face-to-face encounter, radio or newspaper coverage associated with the first study. Overall, up to 4.4% reported taking action about preventing diabetes (predominantly lifestyle changes) as a result of the first survey. This was more common among women than men. Overall, the memory of the face-to-face contact was far more likely, compared with other media, to be associated with a change in perspective and undertaking action in relation to diabetes. This suggests that research involving face-to-face contact, such as household surveys, might be a useful strategy of informing consumers and promoting health.

ARTICLE

Diabetes and health behaviours

The rate of Type 2 diabetes is increasing dramatically and diabetes will soon be one of the most common health conditions in the Western world (Amos, McCarty and Zimmet, 1997). Given changes in lifestyle over the past four decades, including diets with more fats

and carbohydrates, more sedentary work places and less physical activity generally, many Western societies are experiencing higher rates of obesity, lower rates of physical fitness overall and, consequently, rates of diabetes are rising. In New Zealand , 115,000 people are estimated to have known diabetes , including 2.7% of the European population aged between 25 and 74 and higher rates for Maori (7.3%) and Pacific Islander (5.3-7.7%) peoples of the same age (Health Funding Authority, 2000 ; Simmons, Harry and Gatland, 1999).

It is well documented that consumers who change their diet, physical activity and health behaviours generally can prevent diabetes and other chronic illnesses (Tuomilehto, Lindstrom, Eriksson, Valle, Hamalainen, Ilanne-Parikka, Keinanen-Kiukaanniemi, Laakso, Louheranta, Rastas, Salminen and Uusitupa, 2001). Therefore, promoting healthy living messages is important for public health, especially for the prevention of Type 2 diabetes (Simmons, Voyle, Swinburn and O'Dea, 1997). There is now growing evidence that, although complex, such strategies can prevent weight gain across whole communities (Simmons , Fleming, Voyle, Fou, Feo and Gatland, 1998).

Few interventions have been successful in achieving the necessary behaviour changes to avoid the onset of diabetes on a significant scale. Research is one means of distributing information and encouraging reflection on particular topics. The research process encourages consumers to think about a topic in answering a set of questions. In doing so, consumers may think about and reflect on these issues, before, during and after their participation. While not a proactive means of health promotion, this study explores the impact of a research study on awareness of diabetes and changes in lifestyle among health consumers in an area of Auckland .

Changes in participant perspectives and behaviours resulting from research

Few studies have examined the impacts of research on consumers, especially benefits and issues of recall. Recall, where researchers ask respondents to think about the past, is a common method incorporated into much research. However, little research has studied respondents' recall of previous participation in research. In a double-blind randomised clinical trial in Israel , one-third of participants remembered both the oral and written explanation given at recruitment. Few participants remembered the written explanation only but more remembered the verbal explanation (Yuval, Halon, Merdler, Khader, Karkabi, Uziel and Lewis 2000). Similarly, approximately one-third indicated that they had full comprehension of the study while one in five had little or no

understanding (Yuval et al., 2000). Featherstone and Donovan (1998) found that most participants in the Collaborative Low-Dose Aspirin Study in Pregnancy, a randomised control trial, were able to describe aspects of randomisation but fewer had full understanding. The opportunity to ask questions and discuss the research was related to increased understanding and remembering of the study details. Thus, details of studies are not easily recalled, but more likely where verbal accounts are given face-to-face with the opportunity to ask questions (Featherstone and Donovan, 1998; Yuval et al., 2000).

The Hawthorne effect describes the phenomenon whereby undertaking an experiment influences its results (Srufferman, 1999). Finding suitable control populations to test for such effects can be difficult, even in clinical trials. However, the difficulties are particularly profound in non-clinical research, where the potential to "contaminate" control populations (and therefore reduce the ability to identify direct benefits from an intervention) is well recognised (Puska, Nissinen, Tuomilehto, Salonen, Koskela, McAlister, Kottke, Maccoby and Farquar, 1985). There are also ethical issues in having control groups, whereby some consumers are deliberately excluded from the benefits of health interventions. Hawthorne effects are not frequently reported, as they are often seen as more of a hindrance to testing a hypothesis than beneficial for participants involved.

Interestingly, it has been shown in studies of marriage that participation in longitudinal research has affected couples' marriages by engaging spouses in questions about their relationship. This has led to individuals thinking about issues raised in the research, talking to their spouse about such issues and making some changes (Veroff, Hatchett and Douvan, 1992; Bradbury, 1994). While emotional impacts were unlikely to have occurred in our study, the marriage research data demonstrate the potential reflection and action that can emanate from participation in research.

This study investigates the impact of a household survey and its associated media programme by returning to the same households two years later to ask questions about health behaviours, what was remembered from the previous study and impacts from the previous research. Participation in research is often viewed negatively, providing benefits solely to researchers and perhaps policy makers. This study provided an opportunity to assess whether or not the research was beneficial for the consumers involved.

Methods

The Context of the Study: South Auckland New Zealand has a population of 350,000 residents, including a high proportion of Maori and Pacific Islands people. Both of these ethnic groups have a high risk of Type 2 diabetes (Simmons, Gatland, Leakehe and Fleming, 1995) and obesity (Simmons et al., 2001). Diabetes has been found to affect 20-30% of Maori and Pacific Islands people aged over 40 years while less than 10% of similarly aged European New Zealanders (Simmons, Thompson and Voaklander, 2001).

Local communities recognised the importance of diabetes as a public health problem over 10 years ago and developed the first published local public health plan to control diabetes (Wilson and Simmons , 1994). The plan included a range of health interventions, community strategies aimed at healthy living (prevention), and promotion to increase awareness using media and other avenues were implemented (Simmons , Tregonning and Fleming, 2001; Simmons , Kenealy and Scott, 2000; Simmons et al., 1998). In addition, a large survey s was conducted to generate baseline data for future assessment of the impact of any local changes in health care delivery. At a later date, we wondered whether involvement in the original household survey was of benefit to the consumers by decreasing their risk of diabetes. We therefore revisited a sample of houses over 2 years later to compare any associations between memory of the original survey and reported changes in awareness and/or prevention.

Data collection: Between 1991 and 1994, household surveys were undertaken in 3 inner urban suburbs of South Auckland Simmons , Harry and Gatland, 1999). The survey was preceded by a leaflet drop to each house and a number of radio and newspaper reports. All houses were visited by a locally recruited multiethnic team up to 15 times in order to undertake a baseline census and to identify all residents with known diabetes. Information was collected from the individual answering the door, with additional information provided by any other household members who asked for assistance, as well as those with known diabetes. Residents were defined as those living in the house for 4 months or longer. The age, sex and self-reported ethnic group of all household residents were recorded. Of the 27,419 occupied residences, 25,039 (91.3%) households participated. Within these households, known diabetes was self reported by 1,862 (2.1%) of the 90,477 residents.

Two years later, households with European, Maori and Pacific Islanders aged 40-59 and 60-79 years were randomly selected for re-visits. The goal of the second survey in 1995-96 was to ascertain if participants remembered the previous survey and if any

behaviours had changed. A survey of undiagnosed diabetes was also undertaken at this time. The target sample size was 450 aged 40-59 years and 150 aged 60-79 years for each ethnic group (total 1,800 households). A stratified sampling frame was used, randomly selecting households within each age and ethnic group. A second batch of households was randomly selected for inclusion because population mobility and death led to a shortfall in the initial selection process. Households were sent a letter advising residents of the study, including an invitation to participate. Households were then visited repeatedly until contact was made. All residents aged 40-79 within the household were then interviewed, totaling 1,644 respondents, 60% of the eligible participants.

The same questionnaire was completed including demographic data and known diabetes status. In order to assess the impact of the earlier survey, an additional set of four questions were added: (1) "Was your contact with the diabetes survey team..." (4 options: face to face; by phone; through another person; no contact), (2) "Have you seen/heard any publicity about the diabetes doorknocking survey in the local newspaper or on the radio? If yes, please describe briefly what you heard or read", (3) "Did the survey being done in your area cause you to change your thinking about diabetes in any way? [If yes, how?]" and (4) "Did the change in your thinking cause you to take any action? [If yes, how]". The study was approved by the University of Auckland Ethics Committee .

Analysis: Statistics were undertaken using SPSS for Windows. All tests were 2 tailed with a 5% level of significance. Discrete variables were compared using Chi squared or Mantel Haenszel test. Logistic regression was undertaken using forward, backward or direct entry options.

Results

Overall, 572/936 (61%) Europeans, 461/780 (59%) Maori and 611/1021 (60%) Pacific Islanders from the first questionnaire responded to the second questionnaire (see Table 1). The average time (mean) between visits was 2.4 ± 0.9 years. Statistically, there were no differences found between the 40-59 and 60-79 year age groups in relation to remembering face-to-face, media contacts or changes in perspective regarding diabetes. Less than 20% of residents remembered the face-to-face contact. Women were more likely to remember the initial survey than men. Pacific Islanders were more likely to remember hearing of the survey from the radio, and Maori and Europeans from the newspaper. Thinking about diabetes changed in very few residents overall. However, significantly more women were changed by the study than men. Some form of action about health behaviour occurred among 2-4%

women and 1% of men. While these numbers are small proportions, it indicates that research can be beneficial for participants and implies that it can lead to changes in health behaviours.

Table 1 - Characteristics of Study Sample

	Males			Females			Female v Male
	European	Maori	Pacific Is	European	Maori	Pacific Is	
Interviewed:							
40-59 years	149	146	191	199	202	248	
60-79 yrs	102	51	90	122	62	82	
Remember face to face contact	12.7%	18.8%	12.8%	19.7%	19.5%	17.6%	1.38(1.03-1.86)
Heard of survey:							
Newspaper	10.7%	9.4%	4.9%	14.9%	12.6%	7.7%*	1.48(1.02-2.12)
Radio	1.0%	5.4%	8.4%**	3.7%	4.2%	12.8%***	1.52(0.95-2.44)
Any memory of survey	27.1%	35.8%	31.0%	32.2%	27.4%	35.5%	1.35(1.09-1.66)
If remembered survey:							
Changed thinking about diabetes	0%	3.4%	1.8%*	3.3%	4.2%	4.1%	1.38(1.03-1.86)
Took action about diabetes	1.0%	1.3%	1.3%	2.2%	3.3%	4.4%	2.79(1.20-6.48)

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ between ethnic groups within sex

Of those who reported changes in their perspective of diabetes (total $n=37$), 43% indicated a review of lifestyle, 38% said they had a greater awareness of diabetes, 11% reported a new fear of diabetes, 3% stated an intention to help people with diabetes, 3% mentioned a concern for the family, and 3% indicated a desire to get tested for diabetes. Of those who reported acting as a result of the survey ($n=25$), 22 (88%) indicated they had changed their lifestyle (diet and/or exercise) and the remaining three had gone for a test for diabetes. If action occurred, this was most likely to have been undertaken in older (60-79 years) rather than younger participants. Those with pre-existing diabetes did not differ from those without diabetes.

Table 2 presents a logistic regression which compares those reporting and not reporting either a change in perspective regarding diabetes or direct action. Those who recalled direct contact via the household survey and notice of newspaper and/or radio publicity

were significantly more likely to change their perspective of diabetes. Radio publicity and/or face-to-face contact at the household were more likely to result in self reported behavioural change, while newspaper publicity was not associated with behavioural change.

Table 2 - Logistic regression comparing those reporting and not reporting either a change in perspective regarding diabetes or direct action

	Odds ratio (95% CI)	sig	R
Change in perspective regarding diabetes			
Remembers face to face contact (yes vs no)	10.09(4.94-20.64)	.000	.333
Remembers newspaper publicity (yes vs no)	3.73(1.80-7.73)	.000	.175
Remembers radio publicity (yes vs no)	3.04(1.22-7.56)	.017	.104
Undertook action relating to diabetes			
Remembers face to face contact (yes vs no)	12.71(5.75-28.11)	.000	.353
Remembers radio publicity (yes vs no)	4.75(2.01-11.23)	.001	.188

Sex, ethnicity, age, time between visits and pre-existing diabetes also entered. Relative contribution and significance similar whether forward, backward or direct entry options used.

Discussion

It has been demonstrated that progression from impaired glucose tolerance to Type 2 diabetes can be prevented or delayed if a consumer changes his/her lifestyle (Tuomilehto et al. 2001). This emphasises the need for the development of public health prevention strategies to improve the health of consumers (Simmons et al., 1997). Successful strategies are now emerging (Simmons et al., 1998), yet depend upon consumer awareness and mobilisation. The utility of a household survey for increasing participation in health activities likely to prevent/delay Type 2 diabetes as well as gaining important epidemiological information was, therefore, of interest.

The data reveal major heterogeneity in the receptiveness among participants to the remembered contact and the response to that contact. Firstly, women were significantly more likely to say they remembered and acted upon the fact that a diabetes survey had taken place. Older people were more likely to say they had acted, but equally likely to say they remember contact as younger people. The findings suggest, not surprisingly, a lesser impact of the programme on awareness among men of working age. The medium remembered was more likely to be the radio among Pacific

Islanders and newspapers among Maori and Europeans. Overall, face-to-face contact and radio delivered information that was associated with a change in both perspective and action, while newspaper delivered information that was associated with perspective only. Rural studies have also identified local media as an important vehicle to accessing consumer and health information (Bourke, 2001; Department of the Prime Minister and Cabinet, 1989).

The data do not show a major impact for a one-off approach, but do suggest that face-to-face contact could be helpful in increasing awareness and promoting behavioural change among health consumers. This is particularly important from the consumer perspective because it emphasises that benefits can result from participating in research. In particular, our findings emphasise the need to advise people that participating in such studies can improve their own health outcomes. Further, if consumers are aware of the benefits of participating in research, it may increase response rates and thus, the quality of health research. Although the proportion remembering contact was small, and the proportion taking action even smaller, given that change in health behaviours is very difficult to achieve, such strategies might be considered in future public health campaigns. This research met the objectives of many media-based health promotion programs (Galavotti, Pappas-DeLuca and Lansky, 2001), that being an increase, however small, in the health awareness and behaviours of consumers. If one such study can change the health behaviours of up to 4% of the population, this is significant in terms of both individual health as well as broader implications, such as decreasing the national health budget.

However, we were disappointed with the lower response to the follow-up phase of this study. Consumers participating and not participating had generally similar characteristics, but response may have been greatest in those with positive contact or positive experiences with the earlier research. We had not contacted participants in between times and persistent efforts by research staff and relevance of the issue do strengthen participation in follow-up studies (Stout, Brown, Noel and Longabaug, 1996). Diabetes is seen as a major issue among Maori elders (Kirkwood, Simmons and Weblemoe, 1997), and this is likely to reflect wider concern among residents of South Auckland. Research has been found to have more of an impact on participants if such a sensitive or potentially controversial issue is raised (Groves, Cialdini and Couper, 1992; Veroff et al., 1992) and if there are benefits for participants (Russell, Moralejo and Burgess, 1998; Featherstone and Donovan, 1998).

Further, it needs to be emphasized that there are three assumptions behind our findings: it assumes 1) that the self-reported remembering took place, 2) that the self-reported action took place, and 3) that the perception that the self-reported action is a direct result of participating in the survey reflected the reality of the situation. While these assumptions can be questioned, given that most reported that they did not remember the study or change their awareness/behaviour because of the earlier study, it does not suggest there is was a major persuasion on consumers to report recall or impact from the previous study. Although we have no evidence that a self-reported behavioural change did take place, we have no reason to disbelieve the information provided.

In view of the importance of consumers benefiting from participation as a motivating factor in behavioural change, the additional value of house-to-house surveys for major public health problems might be considered. As diabetes reaches epidemic proportions (Amos et al., 1997), we clearly need to know more on how to stimulate a greater response to the diabetes epidemic; population based research should be seen as having the potential to provide better health outcomes for individual consumers as well as the broader population.

References

Amos, A. F., D. J. McCarty, and P. Zimmet (1997), "The Rising Global Burden of Diabetes and its Complications: Estimates and Projections to the Year 2010," *Diabetes Medicine* , 14, S7-S85.

Bourke, L. (2001), "Australian Rural Consumers' Perceptions of Health Issues," *Australian Journal of Rural Health* , 9, 1-6.

Bradbury, T. N. (1994), "Unintended Effects of Marital Research on Marital Relationships," *Journal of Family Psychology* , 8, 187-201.

Department of the Prime Minister and Cabinet (1989), *Life has Never been Easy – Report of the Survey of Women in Rural Australia* , Canberra : Australian Government Publishing Service.

Featherstone, K. and J. L. Douvan (1998), "Random Allocation or Allocation at Random? Patients' Perspectives of Participation in a Randomised Controlled Trial," *British Medical Journal* , 317, 1177-1180.

Galavotti, C., K. A. Pappas-DeLuca, and A. Lansky (2001), "Modeling and Reinforcement to Combat HIV: the MARCH Approach to Behavior Change," *American Journal of Public Health* , 91, 1602-1608.

Groves , R. M., R. B. Cialdini, and M.P. Couper (1992),
Understanding the Decision to Participate in a Survey, *Public
Opinion Quarterly* , 56, 475-495.

Health Funding Authority (2000), *Diabetes 2000* , Wellington , NZ:
Health Funding Authority.

Kirkwood , M., D. Simmons, T. Weblemoe, and J. Voyle (1997),
"Perceptions of Diabetes among Rural Maori Elders and
Spokespersons," *New Zealand Medical Journal* , 110, 415-417.

Puska, P., A. Nissinen, J. Tuomilehto, T. Salonen, K. Koskela, A.
McAlister, T. E. Kottke, N. Maccoby, and J. W. Farquar (1985), "The
Community-Based Strategy to Prevent Coronary Heart Disease:
Conclusions from the Ten Years of the North Karelia Project,"
Annual Review of Public Health , 6, 147-193.

Russell, M. L., D. G. Moralejo, and E. D. Burgess (2000), "Paying
Research Subjects: Participants' Perspectives," *Journal of Medical
Ethics* , 26, 126-133.

Simmons , D., C. Thompson, and D. Voaklander (2001),
"Polynesians: Prone to Obesity and Type 2 Diabetes but not
Hyperinsulinaemia," *Diabetic Medicine* , 18, 1-6.

Simmons, D. , P. Tregonning, and C. Fleming (2001), "A
Community Diabetes Educator Course for the Unemployed in South
Auckland , New Zealand ," *Diabetes Educator* , 27, 94-100.

Simmons, D. , T. Kenealy, and D. J. Scott (2000), "Implementing
the South Auckland Diabetes Plan: Barriers and Lessons," *New
Zealand Medical Journal* , 113, 364-266.

Simmons, D. , T. Harry, and B. Gatland (1999), "Prevalence of
Known Diabetes in Different Ethnic Groups in Inner Urban South
Auckland," *New Zealand Medical Journal* , 112, 316-319.

Simmons, D. , C. Fleming, J. Voyle, F. Fou, S. Feo, and B. Gatland
(1998), "A Pilot Urban Church-Based Programme to Reduce Risk
Factors for Diabetes among Western Samoans in New Zealand,"
Diabetic Medicine , 15, 136-142.

Simmons, D., J. Voyle, B. Swinburn, and K. O'Dea (1997),
"Community-Based Approaches for the Primary Prevention of
NIDDM," *Diabetes Medicine* , 14, 519-526.

Simmons, D. , B. A. Gatland, L. Leakehe, and C. Fleming (1995), "Frequency of Diabetes in Family Members of Diabetic Proband," *Journal of Internal Medicine* , 237, 315-321.

Stout, R. L., P. J. Brown, N. Noel, and R. Longabaug (1996), "Determinants of Research Follow-up Participation in an Alcohol Treatment Outcome," *Journal of Consulting and Clinical Psychology* , 64, 614-618.

Tuomilehto, J., J. Lindstrom, J. G. Eriksson, T. T. Valle, H. Hamalainen, P. Ilanne-Parikka, S. Keinanen-Kiukaanniemi, M. Laakso, A. Louheranta, M. Rastas, V. Salminen, and M. Uusitupa (2001), "Prevention of Type 2 Diabetes Mellitus by Changes in Lifestyle among Subjects with Impaired Glucose Tolerance," *New England Journal of Medicine* , 344, 1343-1350.

Veroff, J., S. Hatchett , and E. Donovan (1992), "Consequences of Participating in a Longitudinal Study of Marriage," *Public Opinion Quarterly* , 56, 315-327.

Wilson , P. and D. Simmons (1994), "The Development of a Community Orientated Plan for Diabetes in South Auckland," *New Zealand Medical Journal* , 107, 456-459.

Yuval, R., D. A. Halon, A. Merdler, N. Khader, B. Karkabi, K. Uziel, and B. Lewis (2000), "Patient Comprehension and Reaction to Participating in a Double-Blind Randomized Clinical Trial (ISIS-4) in Acute Myocardial Infarction," *Archives of Internal Medicine* , 160, 1142-1152.

Copyright the Journal of Research for Consumers 2001