Nutrition Project in a Remote Australian Aboriginal Community

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Much of the ill health of Australian indigenous populations can be attributed to diet-related diseases. This community nutrition project is part of a wider renal screening and prevention program based in the Umoona aboriginal community in Coober Pedy in South Australia's far north. The nutrition project facilitates the capacity of the Umoona aboriginal community to identify and redress nutrition-related issues considered important in improving their overall health status. Project nutritionists developed and implemented a specialized nutrition training program with the Umoona aboriginal health workers. The nutritionists were responsive to requests from community groups to provide nutrition expertise and support in program development. Individual nutrition counseling for adults and children taking part in renal health screening was also provided. The aboriginal health workers reported increased nutritional knowledge and confidence in addressing nutrition-related issues within the community after nutrition training. Individual consultations and partnerships formed with community groups have increased awareness and prompted action to address the importance of nutrition in renal disease and overall health in the Umoona community.

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Diet-related diseases contribute to much of the ill health of Australian indigenous populations. Mortality rates from diabetes and cardiovascular and renal diseases are very high. Obesity and overweight are also significant health issues in this population. In Australia, the number of aboriginal people with renal disease is at least 6 times that of nonaboriginal Australians. The number of cases of end-stage renal disease (ESRD) in aboriginals has increased almost exponentially in the last 10 years.

This nutrition project is based in the Umoona aboriginal community of Coober Pedy in remote South Australia, which is 850 km north of Adelaide. Coober Pedy has a population of approximately 2,790 people, of which 419 (15%) are aboriginal. In the aboriginal population, diabetes mellitus and renal disease are identified as priority health issues.

The nutrition project is part of a wider renal screening and prevention program between Umoona Tjutagku Health Service (UTHS, an aboriginal community-controlled health service in Coober Pedy) and the renal units at Flinders Medical Centre (FMC) and the Women's and Children's Hospital (WCH) in Adelaide. The program's voluntary health screening for adults and children includes a full clinical assessment, individual nutritional advice (when required), and follow-up care, including the provision of

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angiotensin-converting enzyme (ACE) inhibitor medication for adults requiring intervention therapy (also voluntary).

Of the 179 adults screened in the program to date (aged 18 years or older), 43% were overtly hypertensive (blood pressure >140/90), 23% had non-insulin-dependent diabetes mellitus (NIDDM), 31% were obese with a body mass index (BMI) >30 kg/m², 18% had microalbuminuria with an albumin creatinine ratio (ACR) between 3.4 and 34 mg/mmol, and 7% had evidence of established renal disease (ACR > 34 mg/mmol). Of the 152 children screened (aged 1 month to 18 years; mean age, 8 years), twenty-two (14%) are being followed for renal abnormalities including 14 children with significant glomerular hematuria, 3 children with hypertension, and 1 child with significantly raised ACR (>3.4 mg/mmol).

The nutrition component of the renal program incorporates a strong health promotion, training, and community development focus. The 3 nutritionists involved are from IMC, the WCH, and Flinders and Far North Community Health Service (FINCHS, based in South Australia); the latter provides nutrition outreach services to Coorab Pedy. Renal teams and/or outreach visits to Coorab Pedy are made every 6 to 8 weeks.

The aim of the nutrition project is to increase the capacity of the Umoona aboriginal community to identify and address nutrition-related issues considered to be important in improving their overall health status. This is being achieved by (1) increasing the knowledge and skills of the aboriginal health workers (AHWs) in areas of food and nutrition and increasing their capacity to develop community nutrition programs, (2) being responsive to requests from the community to assist with food and nutrition-related issues, and (3) providing one-to-one nutrition counseling for community members screened by renal physicians.

Method

Objective 1: Nutrition Training Program for Umoona AHWs

In consultation with Umoona's 4 AHWs, the project nutritionists developed and delivered a nutrition training program. The program was composed of 3 nutrition topic modules on nutrition (1) in general, (2) for children, (3) for overweight and heart disease, (4) for diabetes and kidney disease, and (5) in pregnancy. The AHWs are all undertaking or have completed a certificate in primary health care, which includes basic nutrition information relating to the diet-disease relationship and dietary requirements for different age groups. The nutrition training aimed to extend this knowledge for these specific topics and to increase the AHW's skills in transferring this knowledge to community members through individual or group interventions. The topic modules had associated learning outcomes for the AHWs to achieve during each session. Each of the modules was reviewed by an external dietitian and an indigenous evaluator for cultural appropriateness. Each module was divided into 2 sessions, each 3 hours in duration, and run at the UTHS on 5 separate visits to Coorab Pedy by 1 project nutritionist (the FMC and WCH nutritionists alternated visits) and the FINCHS nutritionist.

Session 1 included medical, physiologic, dietary, cultural, and lifestyle issues explained by using adult learning principles and practical activities. As an example, the section on kidney disease incorporated topics such as the physiology of kidney disease (using the concept of a leaky sieve to explain progressive kidney damage), risk factors for developing kidney disease, treatment for kidney disease and ESRD, dietary management, and other relevant lifestyle factors. Practical activities undertaken during training sessions included AHWs working through case studies for each condition, food product label reading, and supermarket tours. Session 2 outlined health promotion principles and strategies in developing, implementing, and evaluating community nutrition programs based on the Ottawa Charter for Health Promotion and the Alma Ata Declaration. Concepts of program development were explained by using examples of programs from other aboriginal communities and by the AHWs profiling the Umoona community to develop programs suited to the needs of the Umoona community. A detailed nutrition training manual has been developed for the AHWs to support the training provided.

Objective 2: Nutrition Activities and Consultancy

Project nutritionists responded to numerous verbal requests from the Umoona community.
during field visits to assist with community-driven nutrition initiatives. The FFNCHS nutritionist is involved in all such requests to provide ongoing support during outreach visits.

Objective 3: Nutrition Counselling

Adults and children of the Umoona community were offered personal nutrition counseling by a project nutritionist after medical examination and referral by the renal clinic. Follow-up consultations and/or referral to the FFNCHS nutritionist were arranged as needed.

Evaluation

Process and impact evaluation of the nutrition training program was performed by using workshop activities that assess participant learning and skills acquisition. These included case studies for each topic module to apply information learned, plotting children's weight and height on growth charts, and reading food labels for specific nutrients and commenting on their suitability. Additional evaluation was undertaken by using a focus group with the 4 AHWs and an independent facilitator (the clinical nurse in charge at UTHS). The focus group addressed participant satisfaction (usefulness and relevance of topics, level and content of modules, cultural appropriateness), quality of materials (overhead, handouts, practical activities), and perceptions of changes in knowledge and skills (regarding understanding of topics, confidence in speaking to community members about nutrition, and in organizing simple nutrition programs). The 4 AHWs participated in a specially designed board game with questions from all topic modules, including principles of program development, at the completion of training in the presence of the nutritionists to assess knowledge gained.

Changes in food habits of clients and clinical indicators for nutrition counseling were monitored through the renal project's database and included measures of height and weight, biochemistry, and urine analysis. Project renal physicians track these indicators over time and modify treatment accordingly. Outcome evaluation of the project will occur over time with the assistance of the FFNCHS nutritionist and includes the ability of the AHWs to develop and implement community nutrition programs and numbers of community requests for input.

Results

Nutrition Training Program for Umoona's AHWs

A minimum of 3 of the 4 AHWs attended each training session. Focus group evaluation indicated a high level of participant satisfaction, with comments such as "it's good to have practical stuff as well as the information." The timing and content were rated favorably, and the modules were deemed to be culturally appropriate.

A major outcome of the training has been an increase in nutrition knowledge and skills of the AHWs, which is evidenced in several ways. First, the learning outcomes for each module were achieved by the AHWs through participation in simple activities designed to test their knowledge. Secondly, the AHWs showed their knowledge during the board game at the completion of training. Finally, focus group feedback indicated that the AHWs believed the training helped reinforce their current knowledge. The second major outcome of the training has been the AHWs' increased capacity to work with and communicate nutrition messages to the community. One AHW reported an occasion when he/she felt confident in discussing a nutrition issue with a community member. Focus group feedback indicated that the AHWs felt more confident in the processes of program development. From the training, the AHWs helped plan a healthy tucker poster competition for the aboriginal children of Coober Pedy area school promoting consumption of healthy "store foods" (purchased supermarket foods) and "bush tucker" (traditional, aboriginal foods sourced from the local environment, e.g., witchetty grubs, kangaroo, and bush fruits such as quandongs).

Community Consultancy and Requests

The nutrition team responded to requests for nutrition advice and input from community groups including Umoona Aged Care Services, the Aboriginal Mesh Program (who provide meals for community members unable to cook for themselves), and a local child care center. Other activities included active participation in a bush tucker trip with aboriginal elders and children to provide opportunity for cultural exchange of knowledge and for the children to learn the value of bush tucker as part of a healthy lifestyle. The nutritionists currently support the
development and implementation of classroom-based nutrition education and healthy food choices at the centre of the Coober Pedy area school.

Nutrition Counseling

Approximately 45 adults and 20 children had one or more encounters with project nutritionists for conditions including obesity, NIDDM, hypertension, hyperlipidemia, and proteinuria. Numerous individuals reported having changed their eating patterns and other lifestyle factors as a direct result of nutrition counseling and medical management. Group data on weight and hemoglobin A1c levels have shown small but nonsignificant decreases, whereas individuals receiving ACE inhibitor medication have experienced significant declines in blood pressure and ACR. The following case study provides an example of changes made on an individual basis by a community member.

Mrs. S. is a 50-year-old woman who has had NIDDM for 10 years. Screening revealed hypertension, poor diabetes control, and evidence of diabetic nephropathy with significant proteinuria. Other risk factors included smoking, heavy alcohol use, and obesity. After advice from the nutritionist and medical support, she lost 8 kg through dietary modification and exercise. She is now normotensive and has cut her alcohol consumption by half. Mrs. S. has been taught how to use a glucometer to monitor her blood glucose levels at home and is aware of monitoring her hemoglobin A1c level.

Discussion

Risk factors for aboriginal renal disease include poor nutrition, infections, health-related behaviors, metabolic and hemodynamic profiles, and possibly a familial tendency. The high rates of diabetes, hypertension, infections, and (possibly) low birth weight babies predispose aboriginal people to renal disease. Thus, nutrition intervention programs in aboriginal communities should target healthy eating and lifestyle practices that reduce these contributing factors and assist those with pre-existing disease. Successful programs in aboriginal communities often have the common features of extensive community consultation, forming community partnerships, a “train the trainer” approach, and community ownership of the program.

Positive outcomes from Umoona’s nutrition training have been assisted by flexibility in delivery, ensuring information was culturally appropriate, and content being relevant to the nutritional needs of the Umoona community. Community groups continue to request input from project nutritionists, indicating an increased awareness of nutrition in renal and overall health. Individual accounts of lifestyle changes and group data trends from renal screening show that community members are motivated to act in improving their health status.

Some barriers have arisen during the project. The AHWSs have been unable to develop new community programs after nutrition training because of staffing problems and time constraints. Thus, the ability of the AHWSs to develop, implement, and evaluate programs cannot yet be fully assessed. Affordability, range, and quality of the local food supply, with food deliveries occurring only once a week, is an issue. Also, some members of the aboriginal community do not have access to refrigeration and have limited cooking facilities. A number of other aboriginal nutrition programs around Australia have addressed such issues in food supply and lack of fresh produce in remote communities. However, these programs are run solely in aboriginal communities that have 1 or 2 small community stores, thus, these programs are less transferable to the Umoona community who use the Coober Pedy supermarkets (also accessed by the nonaboriginal population). However, elements of these programs, such as community empowerment (as discussed earlier), are adaptable to the Umoona experience. To our knowledge, there are no other comparable nutrition programs being run as part of renal screening interventions; the Umoona model is the first of its type in Australia.

The sustainability of the program beyond the funding period is assisted by the training of AHWSs from the community. This way, knowledge and skills are left with the Umoona community. Further, because any nutrition programs developed by the AHWS will arise from community consultation, programs are more likely to be accepted and modified. The involvement of the FFNCHS nutritionist (through ongoing outreach services) in supporting the AHWS, community partnerships, and individuals through counseling is invaluable to the project’s long-term sustainability.

Future issues for the Umoona project include investigation of difficulties surrounding cost,
availability, and quality of the local food supply. The methods of the Umuona nutrition program are transferable to other communities with indigenous people experiencing similar health concerns, such as the New Zealand Maoris or North American native populations, and who have access to a Nutritionist on a periodic basis.

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