Are South African women willing and able to apply the new food-based dietary guidelines? Lessons for nutrition educators

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Abstract

Background

Consumer testing was a prime consideration in developing specific South African food-based dietary guidelines (FBDGs) which were nationally adopted in 2003.

Objectives

This study aimed to determine the consumer's ability to apply the FBDGs appropriately, in terms of identifying foods/drinks according to the FBDG food categories; perceived importance of and barriers to applying each FBDG; and planning a typical day's meals to reflect the FBDGs.

Design

A cross-sectional study of 333 women from different cultural and socio-economic backgrounds.

Setting

KwaZulu-Natal, South Africa.

Methods

Data collection comprised focus-group discussions (n = 103) and structured individual interviews (n = 230).

Results

The identification of foods/drinks according to the FBDG food categories reflected a high level of comprehension by participants of these food categories. Participants from all study samples endorsed the importance of applying the FBDGs, predominantly for health reasons. Participants cited barriers to the application of the FBDGs as affordability, availability, household taste preferences, routine food-purchasing habits, time constraints, traditional/habitual food-preparation methods, and persistent attitudes. Only three FBDGs were mentioned as difficult to apply, namely, "fruits/vegetables", "foods from animals" and "legumes". Meal plans did reflect the FBDGs, illustrating the flexibility of their use across cultural and socio-economic differences.

Conclusions

Consumer testing of the FBDGs was mainly positive. The study has highlighted areas of confusion regarding certain concepts, terminology and misconceptions, and has identified barriers to application. These concerns can be addressed through the reformulation and retesting of certain dietary guidelines, and the provision of explanatory consumer information and health-worker training materials.

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Introduction

Background

Sustained behavioural change, conducive to good health, is regarded as the ultimate goal of effective nutrition education. For this to occur, it is imperative that nutrition educators narrow the gap between the mere provision of nutrition information, and the enhancement of nutrition knowledge and promotion of actual dietary practice.[1]

Consumer testing is therefore strongly recommended as critical to the success of a country's dietary guidelines, to ensure that the public is aware of, understands and can apply these dietary messages.[2] Despite this recommendation, few countries have documentation available describing consumer testing of their dietary guidelines.[3,4]

The South African situation

Country-specific food-based dietary guidelines (FBDGs) for South Africans (see Table I) were officially adopted as national dietary guidelines in May 2003.[5] Prior to this, a multitude of different, often conflicting and confusing, nutrition education messages were used independently or together with a variety of food guides adapted mostly from westernised countries.[6–10]

Extensive consumer testing was a prime consideration when developing the FBDGs,[11] to ensure that the dietary guidelines could be understood and applied appropriately by the consumer. Consumer understanding and interpretation of the FBDGs have been reported on previously.[12] This paper will report on the consumer's ability to apply the FBDGs appropriately, in terms of:

- identifying foods/drinks according to FBDG food categories,
- perceived importance of applying each FBDG,
- perceived barriers to applying each FBDG, and
- planning a typical day's meals that reflect the FBDGs.

Methodology

A cross-sectional study was conducted among 333 women in KwaZulu-Natal, South Africa (focus-group discussions with

103 women; individual interviews with 230 women). There were five study samples, namely: rural, urban informal and urban formal black Zulu-speaking; urban formal Indian English-speaking; and urban formal white English-speaking. The study sample selection was by a random sample of two groups of five geographically separate magisterial districts within KwaZulu-Natal, as supplied by Statistics South Africa (KwaZulu-Natal Provincial Office).[13] The districts were stratified according to settlement type and ethnic representation, as described above. Within each magisterial district a random sample of one enumerator area was drawn. The women participating in the focus-group discussions and individual interviews were selected by a convenience sample during weekdays of women who (a) make the food-purchasing and food-preparation decisions in the household, (b) have received no formal training in nutrition, and (c) agreed to participate in the study. The magisterial districts selected for the focus-group discussions were Estcourt, Durban Central, Nqutu, KwaDukuza and Durban Outer West. The magisterial districts selected for the individual interviews were Eshowe, Camperdown, Umlazi, Chatsworth and Durban Central. Within these magisterial districts the enumerator areas selected for the focus-group discussions were as follows (numbers of individuals participating shown in brackets): Thembalihle Village (n = 24), Cato Crest (n = 19), Empumelelweni (n = 25), Stanger (n = 16) and Hillcrest (n = 19). The enumerator areas selected for the individual interviews were Ufasimba Village (n = 70), Hlanganani (n = 40), Umlazi Y-section (n = 40), Croftdene (n = 40) and Montclair (n = 40).

This study was approved by the Ethics Committee of the University of Natal. A detailed sample description can be found in Table II. Findings regarding education attainment and employment type reflect those of the South African 1996 census.[14] (Further details of the methodology are described elsewhere.[15])

Table I: Preliminary and final versions of the FBDGs for South Africans[5,12]

Preliminary Version[12]	Final Version[5]
Dietary Guidelines for South Africa (older than 5 years) (tested 1999)	Dietary Guidelines for South Africa (older than 7 years) (adopted 2003)
• Enjoy a variety of foods	• Enjoy a variety of foods
• Be active!	• Be active!
• Make starchy foods the basis of most meals	• Make starchy foods the basis of most meals
• Eat plenty of fruits and vegetables everyday	• Eat plenty of vegetables and fruits everyday
• Eat legumes regularly	• Eat dry beans, peas, lentils and soya regularly
• Foods from animals can be eaten everyday	• Chicken, fish, meat, milk or eggs could be eaten daily
• Use fat sparingly	• Eat fats sparingly
• Use salt sparingly	• Use salt sparingly
• Drink lots of clean, safe water	• Drink lots of clean, safe water
• If you drink alcohol, drink sensibly	• If you drink alcohol, drink sensibly
• Eat healthier snacks	• Use food and drinks containing sugar sparingly and not between meals

Data collection

Data collection comprised focus-group discussions (phase 1) and structured individual interviews (phase 2). Phases 1 and 2 made use of food photographs for the purpose of identifying foods/drinks according to the FBDG food categories. Food photographs depicted foods/drinks (photographed in an uncooked/unprepared manner to reduce bias) commonly consumed by South Africans as identified from regional and ad hoc food and nutrient intake studies.[16]

Focus-group discussions

Each session took an average of 1 hour 40 minutes (including a mid-way refreshment break). Sessions were conducted by trained female moderators and observers, in the home language of the participant (English or Zulu), using a pre-tested topic guide (English or Zulu) and food photographs. All sessions were recorded using two audiotape cassette recorders, and written notes were made by the observers.

Individual interviews

Each interview (average of 1½ hours) was conducted by a trained female interviewer in the participant's home, in the home language of the participant (English or Zulu), using a pre-tested questionnaire (English or Zulu) and food photographs.

Data analysis

Recordings for each focus-group discussion were translated (Zulu groups) and transcribed independently by the moderator and observer

Table II: Description of study samples in terms of settlement type, ethnicity, home language, age, education attainment, and employment type

Settlement Type	Ethnicity	Home Language	No. of women (% total sample)	Age Mean [Std. Dev. (SD)]	Education Attainment (% participants)					Employment Type (% participants)		
					0 years	1-6 years	7-11 years	12 years	12+ years	Unemployed/ Housewife	Part-time	Full-time
INDIVIDUAL INTERVIEWS												
Rural	Black	Zulu	70 (30.4)	37.48 (12.88)	35.7	32.8	21.4	10.0	0.0	92.9	5.7	1.4
Urban Informal	Black	Zulu	40 (17.4)	37.29 (15.36)	7.5	27.5	50.0	5.0	10.0	75.0	20.0	5.0
Urban Formal	Black	Zulu	40 (17.4)	35.85 (14.28)	0.0	12.5	42.5	17.5	27.5	55.0	12.5	32.5
Urban Formal	Indian	English	40 (17.4)	34.5 (10.06)	2.5	7.5	55.0	32.5	2.5	72.5	12.5	15.0
Urban Formal	White	English	40 (17.4)	38.9 (12.76)	0.0	0.0	35.0	30.0	35.0	40.0	22.5	37.5
			n=230	**36.80 (13.07)**						**Ave: 67.1**		
FOCUS GROUP DISCUSSIONS												
Rural	Black	Zulu	24 (23.3)	35.54 (9.29)	8.3	50.0	41.7	0.0	0.0	100.0	0.0	0.0
Urban Informal	Black	Zulu	19 (18.5)	36.63 (11.35)	15.8	52.6	31.6	0.0	0.0	73.7	5.3	21.1
Urban Formal	Black	Zulu	25 (24.3)	32.24 (9.25)	4.0	24.0	36.0	36.0	0.0	88.0	4.0	8.0
Urban Formal	Indian	English	16 (15.5)	44.06 (11.02)	12.5	12.5	50.0	25.0	0.0	87.5	12.5	0.0
Urban Formal	White	English	19 (18.5)	35.84 (9.47)	0.0	0.0	5.3	15.8	78.9	57.9	21.1	21.1
			n=103	**36.86 (10.08)**						**Ave: 81.4**		

of that session. Both transcripts were then compared and adjusted to produce a final transcript that accurately reflected the discussions. Notes made by the observers were considered in the compilation of the final transcript. Final transcripts of all focus-group discussions (n = 15) were submitted to a trained consultant for text analysis and interpretation using the Atlas.ti computer software program.

Analysis of interview data was done using statistical functions of MS Excel. Chi-squared tests were calculated to determine the significance of any associations for questionnaire answers within the interview sample. Significance was measured at a p-value of < 0.01.

Results

Focus-group discussions and interviews investigated several issues.

Data regarding the identification of foods/drinks according to participants' understanding of the FBDG food categories and perceived importance of applying each FBDG were collected from focus-group discussions and individual interviews. Unless otherwise stated, interview data presented reflects the dominant opinion of focus-group discussions.

Data regarding perceived barriers to applying each FBDG and ability to plan a typical day's meals to reflect the FBDGs were collected from focus-group discussions only and are therefore presented in a qualitative format, providing quotations to reflect the dominant opinion of the discussions.

The following abbreviations are used when reporting results across the enumerator areas (EAs): RB (rural black), UIB (urban informal black), UFB (urban formal black), UFI (urban formal Indian), and UFW (urban formal white).

Identification of foods/drinks according to participants' understanding of the FBDG food categories

Commonly identified foods/drinks according to the participants' understanding of the FBDG food categories are summarised below. The percentage of participants identifying the food belonging to the FBDG food category being discussed is shown in brackets. In general, UFI and UFW participants identified a greater range of foods for each FBDG category. Participants queried the categorisation of some foods/drinks, as reported below.

Starchy foods

Commonly identified "starchy foods" were white rice (90%), samp (84%), mealie-rice (72%), maize (mealie) meal (67%), potatoes (61%), flour (47%) and bread (43%). Samp and maize (mealie) meal were commonly identified by black participants (across all EAs), while UFI and UFW participants identified a greater variety of the more expensive "starchy foods" (breakfast cereals, pasta, oats, sweet corn). There was uncertainty about categorising dry beans, sugar and coffee creamer as "starchy foods" (by UFI and UFW) as these items were regarded as providers of protein (dry beans) or are commonly used in beverages (sugar and coffee creamer).

Fruit and vegetables

Participants generally identified the same "fruit", that is oranges (95%), bananas (94%), apples (94%), pineapples (90%) and avocados (55%). In addition to fresh fruit, canned fruit (peaches), fruit juices and dried fruit (mango, dates, raisins and mixed) were also mentioned by UFI and UFW participants. Numerous vegetables were commonly identified, for example carrots (93%), cauliflower (92%), cabbage and spinach (91%), peppers (87%), onions (84%), butternut/pumpkin (82%), peas (81%), imifino and tomatoes (80%). UFW participants identified the greatest variety of vegetables, including some foods (potato, sweet potato, mealies [whole corn], sweet corn and amadumbes [Zulu potato]) which were previously identified as "starchy foods". All urban participants queried the categorisation of avocados (fruit, vegetable or food containing fat).

Legumes

Commonly identified "legumes" were dry beans (92%), split peas (dhal) (89%), canned baked beans (67%) and lentils (50%). UFI participants identified the greatest variety of legumes. UFW participants expressed confusion about separate categories for "legumes" and "meats" (both being protein-rich food categories). There was uncertainty among UFI about categorising baked beans (starchy food, vegetable or legume) and among UFI and UFW about categorising nuts and peanut butter (legumes, foods containing fat or snacks – "*because of their high fat content*").

Foods from animals

Commonly identified "foods from animals" were poultry (95%), fish (72–73%), red (88–97%) and processed meat (65–88%), fresh milk (51%), yellow cheese (48%) and eggs (60%). UFW participants identified the greatest variety of "foods from animals", particularly dairy products, but also expressed uncertainty about the categorisation of some of these foods. UFW participants queried the categorisation of butter and condensed milk as dairy products and therefore "foods from animals". UFW participants also queried the fact that "legumes" and "meats" were categorised separately (as both are protein-rich foods). Only black participants (across all EAs) identified 'maas' (cultured milk product) as a "food from animals". Fish, eggs and cheese were commonly identified items among urban participants. Across all EAs, cream was categorised as a "food from animals" as it was considered a dairy product.

Foods containing fat

Commonly identified "foods containing fat" were white cooking fat (77%), oil (76%), butter (68%) and margarine (48%). UFI participants identified foods with high visible fat contents (fatty meat, chicken skin). UFW participants were the only participant group to identify foods with a high fat composition. All EAs queried the placement of mayonnaise within this category, with some participants categorising mayonnaise as a "vegetable" ("*as vegetables/salads are eaten with mayonnaise*"), and others categorising it as a "food from animals" ("*as it contains milk*").

Foods containing salt

Salt was identified as the most common "food containing salt" (78%) and the most commonly added seasoning (used to enhance the taste of food both in food preparation/cooking and table use). Other "foods containing salt" included stock cubes (57%), soup powders (52%) and Aromat (66%). Only UFI and UFW participants identified foods with a high salt composition, such as nuts, potato crisps (chips), popcorn and salted meats (bacon, biltong).

Water

UFW participants queried the use of other fluids instead of water, such as tea, coffee, fruit juice, milk and fizzy drinks, as well as foods with a high water content, such as salads and soup. Water was regarded as a food by 52.6% of interview participants (predominantly black participants across all EAs) mainly because "*the body needs it to survive*" (41.1%) and "*it is healthy*" (26.8%). Of participants interviewed, 47.4% (predominantly UFI and UFW participants) did not regard water as a food, mainly because "*it contains no nutrients*" (61.6%) and "*it cannot be eaten*" (32.3%).

Alcoholic beverages

Commonly identified "alcoholic beverages" were commercial beer, whiskey and wine. Black participants (across all EAs) also identified home-brews (Zulu beer). Alcohol was regarded as a food by 7.0% of interview participants because "*it provides energy*", "*it makes you feel full*", and "*it goes via the mouth*". Ninety-three per cent of interview participants did not regard alcohol as a food, but rather as a "*luxury*" that was "*unhealthy*" and/or "*unnecessary…habit forming*". No UFI participants regarded alcohol as a food.

Snacks

Commonly identified "snacks" were crisps (58%), popcorn, sweets/wine gums, biscuits (all 48%). Focus-group and interview participants made two distinctions, namely:

- luxury, ready-made, convenience food items (regarded as having little nutritional value), such as cakes, biscuits, chips, chocolates, ice-cream, sweets, Chelsea buns, muffins, doughnuts, nuts, samoosas, chilli bites, pizza, sausage rolls, and pies; and
- smaller portions of food items usually eaten as main meals, such as crackers, fresh and dried fruit, fruit juices, dairy products (milk, yoghurt, maas, cheese), sandwiches (bread with cheese, egg, cold meats, peanut butter), and leftover food (e.g. roti, mealie meal/phutu).

Perceived importance of applying each FBDG

Participants across all EAs endorsed the importance of applying the FBDGs, predominantly for health reasons. Social reasons were also cited for endorsing the "alcohol" FBDG food category. A minority of participants stated that "starchy foods" and "legumes" should not be eaten, whilst "alcohol" intake could be encouraged "in moderation". The "healthier snacks" FBDG food category elicited the greatest discussion and uncertainty among participants. Specific findings for each of the FBDGs are presented in Table III.

Perceived barriers to applying each FBDG

Perceived barriers to applying the FBDGs were investigated using focus-group discussions (see Table IV). A few key points are mentioned here.

Participants across all EAs, but especially RB and UIB participants, cited affordability as the greatest limiting factor to achieving variety in the diet. For black participants in particular, consumption of fruit, vegetables, foods from animals and snack foods decreased when disposable incomes were small. When affordability limited intake of

Table III: Perceived importance of applying each FBDG

GUIDELINES	Endorsement responses from focus group participants	Endorsement responses from interview participants
Variety	- accommodated household taste preferences - improved the nutritive value of the diet by incorporating a variety of foods - encouraged the enjoyment of eating through the incorporation of different tastes	Endorsed by 93.9% of interview participants: - improved the nutritional value of the diet - alleviated boredom (enhanced enjoyment) - to a lesser degree, reduced hunger
Be active	- improving general health - weight reduction - increasing resistance to illness - improving one's mental state	{Interview participants were only asked to comment on the FBDG food categories, which excluded the "Be active" message}
Starchy foods	- providing variety and balance to the diet - providing energy and satiation (more than other foods) - being relatively cheap in comparison to other foods Main reasons cited for not eating more starchy foods: - Did these foods cause bloating/oedema and weight gain? - Could these foods be eaten by people with diabetes? - Was it healthy to eat these foods with protein-rich foods ("food combining")?	Endorsed by 86.1% of interview participants: - for similar reasons to that of focus group participants 13.9% o f interview participants (predominantly UFI) were concerned with starchy food intake in relation to diabetes mellitus.
Fruits and vegetables	- improving general health - preventing diseases	Endorsed by 99.6% and 100% of interview participants respectively: - for numerous health-related reasons
Legumes	- valuable contribution to the diet for their nutritional value (protein, vitamins, low fat) - relative cheapness - perceived ability to satiate - use as a meat substitute and/or supplement	- Endorsed by 93% of interview participants: - for similar reasons to that of focus group participants 7% of interview participants (all urban) cited reasons for not eating legumes as a personal preference or because legumes were *"not essential … can eat meat"*, fattening and/or caused heartburn/gas.
Foods from Animals	- physiological (health) benefits (*"providing protein, iron, calcium and other nutrients"*)	Endorsed by 98.7% of interview participants: - for similar reasons to that of focus group participants 1.3% of interview (UFI and UFW) participants stated that foods from animals should not be eaten every day as they can be high in fat and should therefore be eaten *"only in moderation"*.
Fats	- health risks associated with excessive fat consumption in particular, high blood pressure, heart problems and weight problems	Endorsed by 77.4% of interview participants: - 43.7% stated that fats should be eaten *"in moderation"* and *"as part of a balanced diet"* - 22.68% stated that fatty foods *"were unhealthy"*
Salt	- potential physiological harmful effects of excessive salt consumption, such as high blood pressure, heart disease, kidney disease and swelling of the knees and feet	Endorsed by 83% of interview participants: - 17% stated that salty foods should not be eaten due to health reasons as cited by focus group participants
Water	- general health, such as - *"flushing the kidneys"* - *"to prevent dehydration ..... constipation"* - *"it might help me lose weight"*	Endorsed by 100% of interview participants: - *"it is healthy"* - *"it purifies the body"*
Alcohol	- social consequences of excessive alcohol consumption, causing problems in the domestic and work spheres - physiological effects of excessive alcohol consumption (e.g. liver cirrhosis)	Endorsed by 79.6% of interview participants: - *"unhealthy"*, *"unnecessary…a drug"*, *"causes problems socially"*, and *"against my religion"* 20.4% of interview participants stated that people could drink alcohol as it was *"enjoyable"*, *"relaxing"* and *"socially acceptable"*, but that this should be done *"in moderation"*.
Snacks	Uncertainty expressed about the importance of this message: - purchasing of such *"luxury"* food items was accorded very low priority by rural and informal urban EAs (where low disposable household incomes are limited and sometimes even the regularity of main meals uncertain). Confined to special occasions or when there was *"a little bit of money to spare"*. - regarded by all urban EAs as *"treats"* (chocolates, sweets, cakes) and/or *"desserts"* (ice cream, custard, jelly) that should be *"eaten on occasion"*.	82.8% of interview participants stated "snacks" could be eaten because these foods are "satiating" 17.8% of interview participants stated that "snacks" should not be eaten as these foods *"are unhealthy"* (9.4%), *"are unnecessary junk foods"* (5.8%), *"are fattening"* (5.7%), *"are expensive"* (1.1%), and *"spoil the appetite"* (0.8%)

foods from animals (in particular meat), the use of fats increased in an attempt to enhance the taste of the meals. Where cooking fuel was an expensive resource, legume consumption (specifically dry beans) was limited.

For participants across all EAs, availability was mostly related to fruit consumption and highly contingent on seasonal fluctuations. For RB and UIB participants who were communal (shared) water users, the further the water source from the household, the greater the likelihood of a reduced allocation of water for drinking purposes.

Participants across all EAs cited taste preferences as a reason for the exclusion of fruit and vegetables, and the inclusion of fats and salt. Participants from urban formal areas all cited taste preferences as a primary barrier to the drinking of water.

Time constraints were cited by UFI and UW participants as a reason for the repetitive consumption of certain foods, which could reduce variety in the diet. UFW participants also made use of fat more often when a quicker cooking method (i.e. frying) was required. For black participants (across all EAs), limited time often led to the replacement of legumes (mostly dry beans) with quicker-cooking soy products. Participants from urban formal areas all cited a lack of leisure time (and the use of transportation as opposed to walking) as a main reason for inactivity.

Despite an awareness of the health consequences of high intakes of fat and salt, participants across all EAs acknowledged that these guidelines would be the most difficult to implement due to household taste preferences, traditional/habitual food preparation methods, and persistent attitudes. Persistent attitudes were also cited as a primary barrier to increasing intake of starchy food (urban formal EAs) and limiting alcohol intake (all EAs).

Ability to plan a typical day's meals to reflect the FBDGs

Focus-group participants were divided into smaller groups of two to three individuals each and asked to plan a typical day's meals using photographs of foods/drinks previously identified by them as commonly consumed items within each of the FBDG food categories (see Tables V and VI). After a large group discussion of all the meals planned, focus-group participants were asked the following question: "Did you find it easy or difficult to use the FBDGs to plan meals, and why?"

Only three FBDGs were mentioned as difficult to apply. Black participants across all EAs stated that it would be easier to apply the FBDGs regarding "fruit/vegetables" and "foods from animals" if more money was available to purchase these foods. UFW participants found it difficult to incorporate the "legumes" FBDG food category into their meal plans, citing taste preferences and traditional/habitual eating habits as reasons. These findings verify those previously elicited when focus-group participants were asked about their perceived barriers to applying the FBDGs. Despite the many perceived barriers cited by participants, when tasked with planning meals to reflect the proposed FBDGs, most participants stated that this was easy to achieve as they were "*already doing most of them*".

Discussion

Quantitative data regarding the health/disease status of South Africans and their food consumption patterns indicate that nutrition education has not made much impact on achieving desired behaviour change and optimal nutritional status.[17,18] With the adoption of national FBDGs for South Africans, it is vital to ensure that these dietary messages enable consumers to achieve desirable behaviour change. This paper therefore investigated the ability of consumers to apply the FBDGs.

The categorisation of foods/drinks by participants according to the FBDG food categories reflected a high level of comprehension by all groups as to the meaning of these food categories as defined by professional opinion to address major nutrient requirements (see Table VII). The difference in foods/drinks identified per FBDG food category reflected cultural, religious and financial considerations within the different EAs, and was not the result of indecision regarding the categorisation of foods/drinks.

When indecision did arise regarding the categorisation of certain foods/drinks, it was based on logical reasons related to the manner

Table IV: Barriers to application of the FBDGs as cited by focus group participants

BARRIERS	GUIDELINES										
	VARIETY	BE ACTIVE	STARCHY FOODS	FRUITS/VEGETABLES	LEGUMES	FOODS FROM ANIMALS	FATS	SALT	WATER	ALCOHOL	SNACKS
Affordability	ALL (especially RB UIB UFB)			RB UIB UFB	RB UIB UFB (#)	ALL					RB UIB
Availability	RB UIB UFB			ALL					RB UIB		
Household taste preferences	ALL			ALL	UFW		ALL	ALL	UFB UFI UFW		
Time constraints	UFI UFW	UFB UFI UFW			RB UIB UFB		UFW				
Use of private transport (cars)		UFB UFI UFW									
Food preparation methods								ALL			
Persistent attitudes			UFB UFI UFW				ALL			ALL	

(#) Affordability of legumes related to lengthy cooking period required where fuel resources were expensive (paraffin, wood fires)

Legend of Enumerator Areas (EAs): RB – rural black participants UIB – urban informal black participants UFB – urban formal black participants UFI – urban formal Indian participants UFW – urban formal white participants

Table V: Correlation between the FBDGs and typical meals as planned by Black focus group participants

GUIDELINES	MEAL PLAN EXAMPLES								
	Rural black			Urban informal black			Urban formal black		
	Breakfast	Lunch	Supper	Breakfast	Lunch	Supper	Breakfast	Lunch	Supper
Starchy foods	Porridge, Brown bread	Potatoes, Samp	Phutu	Porridge, Bread	Phutu, Rice	Potato, Samp, Maize rice, Amahewu	Porridge, Brown bread	Rice, Samp, Phutu	Phutu, Rice, Potato
Fruits and vegetables		Cabbage, Tomatoes	Cabbage, tomato and onion, Pumpkin, Peas	Tomato	Cabbage, Imifino, onion and tomato, Mixed vegetables Butternut, Beetroot	Carrots, Butternut, Green beans, Cabbage		Cabbage, Onion	Imifino, Cabbage, Green beans, Orange
Legumes		Beans				Beans		Bean stew	
Foods from animals	Milk, Leftovers, Eggs/Polony	Tinned fish	Tripe Beef	Milk Eggs	Chicken	Beef, Chicken, Milk	Milk, Polony/ Eggs/ Cheese		Boerewors, Maas, Beef, Chicken
Fats	Margarine, Holsum			Margarine, Cooking oil		Holsum Oil	Margarine	Oil	
Salt	Salt		Salt, Curry powder, Chillies	Salt	Chillies, Curry powder	Stock cubes, Salt Curry powder		Salt	Spices, Aromat
Water	Tea/Coffee			Tea/Coffee		Tea/Coffee	Tea/Coffee	Juice	
Alcohol									
Snacks	Sweets; fruit (banana, apples, oranges, pears); cool drink; 'Amahewu' (maize-based drink); juice; biscuits			A sandwich (egg, jam, peanut butter); juice, piece of fruit (apple, banana, peach, orange); 'Maas' (cultured milk product); cool drink; chips; biscuits			Banana; cake; cool drink; popcorn		

Table VI: Correlation between the FBDGs and typical meals as planned by urban formal Indian and white focus group participants

GUIDELINES	MEAL PLAN EXAMPLES					
	Urban formal Indian			Urban formal white		
	Breakfast	Lunch	Supper	Breakfast	Lunch	Supper
Starchy foods	Bread/Toast, Cereal/ Porridge	Roti/Potatoes, Bread	Rice/Roti	Porridge/Cereal, Toast	Bread/Rolls, Potato salad	Rice/Pasta/Potato
Fruits and vegetables	Tomatoes, Fruit juice/ Banana	Green beans/Salad, Tomatoes	Tomato and onion, Carrots, Orange, Green beans	Fruit/Fruit juice	Cucumber/Lettuce, Tomato/Gherkins, Fruit juice, Banana	Mixed vegetables, Carrots, Peas, Onion, Spinach, Salad
Legumes		Sugar beans, Baked beans	Dhal curry, Breyani (lentils)			
Foods from animals	Milk, Egg/Cheese, Leftover curry	Tinned fish, Egg, Leftover meat curry	Mutton/Chicken curry	Yoghurt, Milk, Eggs/Bacon	Cold meats/Cheese/ Eggs/Tuna	Meat/Mutton, Chicken, Cheese
Fats	Margarine			Margarine, Oil	Margarine, Mayonnaise	Gravy
Salt		Chutney, Masala, Salt				
Water	Tea/Coffee	Water, Tea/Coffee				
Alcohol				On weekends (wine)		
Snacks	Peanut butter and jam sandwich, nuts; chips; biscuits			Apple; cool drink; ice-cream		

in which these foods/drinks were consumed, the origin of the food/drinks, and exposure to nutrition information. Indecision regarding categorisation of foods/drinks with a high fat content (such as mayonnaise, butter, cream and coffee/tea creamers/whiteners) may prevent the achievement of a healthy diet if these items are consumed in excessive amounts and/or to the exclusion of other essential foods and nutrients (such as milk and calcium).

The use of the terms "legumes", "foods from animals" and "healthier snacking" were not clearly understood, which led to indecision regarding the foods/drinks in these categories. The dietary guidelines on "legumes" and "foods from animals" have since been reworded to reflect these findings. The South African Food-Based Dietary Guidelines Work Group also decided to omit the guideline on snacks due to the confusion expressed by the consumers in this study. The final version of the dietary guidelines, adopted nationally (see Table I), is therefore highly compatible in terms of participant understanding of the FBDG food categories.

Participants across all EAs endorsed the importance of applying the FBDGs, predominantly for health reasons, with social reasons also cited for endorsing the "alcohol" FBDG. These findings are in

accordance with professional opinion and the scientific evidence as reflected in the technical support papers produced for each FBDG.[19] While participants endorsed the importance of applying FBDGs, food and nutrient intake studies[16,18] indicate that actual application is more difficult, with intake of unrefined starchy foods, fruit, vegetables, legumes and water being lower, and intake of fats, salt and alcohol being higher than optimal.

Barriers to the application of the FBDGs, as cited by participants, were affordability, availability, household taste preferences, time constraints, traditional/habitual food purchasing and/or preparation methods, and persistent attitudes. These findings are similar to those reported by countries that have conducted surveys to assess the impact of their dietary guidelines.

Surveys conducted in the United States[20–22] between 1991 and 1994 showed that commonly perceived barriers to good nutrition included taste, time and confusion. In a consumer attitudinal survey of the European Union,[23] a number of barriers to the implementation of dietary advice (guidelines) were identified, namely time, taste of food, willpower, price, and preferences of others. Similar findings have emerged from a recent British study,[24] in which consumers cited numerous barriers, namely cost and access to food, food preferences, acceptability, life skills (e.g. cooking), health and attitudes to health, knowledge and understanding of the dietary messages, the ability to translate dietary messages in to practical food-based advice, and readiness to change.

The extent to which South Africans are conforming to health advice has not been investigated to any great extent, and where change is occurring this may be confined to the more affluent sector of the population.[25,26] In light of such limited response, there is little certainty that other South Africans will be more responsive, especially since high levels of unemployment, poverty and violence making the quest for healthy eating a low priority.[27] Poverty and high levels of household food insecurity are therefore the greatest barriers for the majority of people (especially those in rural and urban informal areas) to the application of many FBDGs. Various segments of the South African population have no real choice about the way they eat and live.[28,29] As a means of addressing food insecurity concerns, Maunder, Matji and Hlatshwayo-Molea[30] recommend fast-tracking the Poverty Alleviation Programme, promotion of income generating projects, and appropriate nutrition education campaigns that are sensitive to financial and other constraints facing South Africans.

When food insecurity is a factor, nutrition education also needs to focus more on combating hunger and under-nutrition, encouraging self-sufficiency, and supporting environmental and economic sustainability.[1,31] The South Africa FBDGs may not improve household food insecurity by increasing the availability of and access to food, but they could assist in promoting the best use of available resources, including food.

Table VII: Comparison of food categories: FBDGs versus participant FBDG food categorisation

FBDGs[a]	Participant FBDG food categorisation[b]
Starchy foods	
cereal (bran flakes, puffed wheat), brown/white bread/rolls, brown/white rice, cream crackers, flour, mealie-rice, mealie-meal, mealies (corn), oats, pasta/noodles, potatoes, Provitas, roti, samp, sweet potatoes, sweet corn (canned)	*white rice, samp, mealie-rice, mealie-meal, potatoes, flour, brown/white bread, brown rice, rusks, pasta, mealies (corn), sweet potatoes*
Fruits/Vegetables	
apples, apricots (dried), bananas, fruit juice, oranges, peaches (canned), pineapples, raisins, avocado, beans (green), beetroot (bottled), broccoli, butternut/pumpkin/gem squash, cabbage, carrots, cauliflower, garlic, ginger, imifino (wild spinach), mealies/corn (green, yellow), mixed vegetables (frozen), onions, peas (frozen), peppers (green, red, yellow), potatoes, sweet potatoes, spinach, sweet corn (canned), tomatoes	*oranges, bananas, apples, pineapples, avocado, peaches, dried apricots carrots, cauliflower, cabbage, spinach, peppers, onions, butternut/ pumpkin, peas, imifino, tomatoes, mixed vegetables, garlic, green beans, chillies, potatoes, beetroot, broccoli, mealies (corn), sweet potatoes, sweetcorn*
Legumes	
baked beans (canned), beans (dried), lentils, peanut butter, peanuts, soya mince, split peas (dhal)	*dry beans, dhal (split peas), baked beans, lentils*
Food from animals	
bacon, boerewors, buttermilk, cheese (yellow, cottage, spread, wedges), chicken, chicken feet and heads, chicken livers, chops, custard, eggs, hake (frozen), maas/inkomasi, meat (canned), milk (fresh, flavoured, powder), mince, polony, snoek, tinned fish (pilchards, tuna), viennas, yoghurt, yogi-sip	*chops, chicken, mince, chicken heads and feet, chicken livers, boerewors, bacon, polony, canned meat, hake, tinned fish, viennas, biltong, eggs, fresh milk, yellow cheese, snoek, maas/inkomasi, cheese spread, cottage cheese, yogi-sip, fish paste, yoghurt, cream*
Fat	
butter, cream, creamer/whitener, margarine (brick/tub), mayonnaise, oil, salad dressing, white cooking fat (Holsum)	*white cooking fat, oil, butter, margarine, chops, boerewors, bacon, chicken, canned meat, maas/ inkomasi, mince*
Salt	
Aromat, Marmite, salt, spices, soup powder, stock cubes	*salt, Aromat, stock cubes, soup powder, spices, peanuts, Sev 'n nuts, soya mince, crisps, biltong, Marmite, popcorn, fish paste, polony*
Water	
coffee, tea, water (bottled, plain)	*water*
Alcohol	
commercial beer, home-brew/Zulu beer, spirits (Whiskey, Cane), wine	*spirits (Brandy, Whiskey), beer (including home-brews and cider), wine*
Snacks	
amahewu (maize drink), biltong, biscuits, cake, chocolate, condensed milk, cooldrinks, crisps, doughnuts, fish paste, honey, ice-cream, jam, jelly, koeksisters, muesli-type snack bars, muffins, pies, popcorn, rusks, samoosa, scones, Sev 'n nuts, sugar (brown, white), sweets (boiled sweets, wine gums), syrup, vetkoek	*crisps, popcorn, sweets/wine gums, biscuits, snack bars, peanuts, Sev 'n nuts, chocolate, cream crackers, scones, muffins, cake, raisins, doughnuts, Provitas*

Footnote: Examples of foods/drinks provided (in italics) sourced as follows:
a = FBDGs – food/drink examples are food photographs used in study; categorised into FBDG food categories using traditional (nutrient composition) approach
b = participant FBDG food categorisation – food/drink examples are as identified by participants during focus group discussions and individual interviews

In terms of other barriers to the application of the South African FBDGs, consumer-testing results have clearly highlighted areas of confusion regarding certain concepts, terminology and misconceptions.[12] These and other identified barriers can all be addressed through the reformulation and retesting of specific FBDGs, and the provision of additional explanatory information (such as consumer brochures and health-worker training material) to provide appropriate examples of foods/drinks within the FBDG food categories and practical ways to overcome barriers to applying each FBDG.

Meal plans provided by participants across all EAs showed clear differences in the selection of foods/drinks for each meal, indicative of available resources (especially financial) and cultural food preferences. These meal plans, however, still reflected the FBDGs, illustrating the flexibility of the FBDGs across cultural and socio-economic differences. It has been suggested[32] that a more practical approach to dealing with the diverse South African population, where both under- and over-nutrition coexist, might be to have two sets of dietary guidelines. However, the findings of this study imply that a single, national set of FBDGs can be used cross-culturally, thereby assisting in the provision of consistent nutrition messages in a non-segregating manner.

Conclusions

Participants understood the FBDGs and their suggested food categories, and could construct a typical day's meals using the FBDGs. Areas of confusion were identified regarding certain terminology ("legumes" and "foods from animals") and concepts ("healthier snacks"), confirming the need to modify these guidelines as per the nationally adopted version. Several barriers to applying the FBDGs were identified, the primary ones being the affordability and availability of foods, and household taste preferences. Although participants across all EAs identified a number of barriers to the application of the FBDGs, it is encouraging that the majority endorsed the importance of applying the guidelines, predominantly for health reasons.

Overall, it can be said that a single, national set of FBDGs can be used cross-culturally within South Africa, thereby assisting in the provision of consistent nutrition messages in a non-segregating manner. However, considering the identified barriers to application, all nutrition education, including the South African FBDGs, requires appropriate interpretation by nutrition educators to meet the needs of the situation, especially where food insecurity is apparent.

Recommendations

The methodology used for this study is regarded as reliable and reproducible for use in other studies of this nature, and has in fact been used for assessing the appropriateness of the FBDGs in other South African provinces, namely the Western Cape, Eastern Cape, North West and Gauteng. It is therefore recommended that consumer testing (involving both focus-group and individual interview methodology) of the approved South African FBDGs be an ongoing process throughout the different provinces of South Africa. This will assist in maximising the generalisability of results to the different cultural groups within South Africa and to the country as a whole. Such studies could be done in conjunction with the recommended five-year review period to measure the impact of the South African FBDGs. In this way, adjustments can be made to the guidelines regarding their relevance in terms of nutrition-related public health problems, their scientific basis (if applicable), as well as their "consumer appeal" (the ability of the consumer to understand and apply the guidelines).

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