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Research paper

Similarities and differences between aged-care facilities and school food services

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ABSTRACT

Aged-care facilities and schools both manage large volumes of food and people. An understanding of the influence of menu choice on the health and wellbeing of residents and school students provides the foundation for comparison. Key areas of similarity between aged-care facilities and school canteens are seen in the importance of food and socialisation, food needs, food choices and the role of dental health in food choices. The development of best practice models and guidelines will assist in menu planning and establishing the influence of food as a source of enjoyment and basis for social interaction.

Keywords: aged-care facilities, food, health, school canteens

Introduction

Nutrition has become a major focus for enhancing and maintaining the health of the community. Emphasis is often focused on the early years when school and their canteens play a prominent role, and the later years when aged-care facilities are, in the main, in control of the diet of residents. The aim of this paper is to compare and contrast the food service aspect of aged-care facilities and schools, as they both manage large volumes of food and people. This paper presents a review of the literature surrounding both aged-care facilities and school food services to provide health promoters working with catering industries and food suppliers with important information to help in current and future menu planning (see Box 1). The relevant outcomes detailed in literature reviewed are outlined, and key findings detailed. Recommendations for changes to current practice and for further research are cited.

The influence of menu choice on health and wellbeing of school students and aged-care facility residents

Menu choice is important for school students and aged-care facility residents, but for different reasons. The consequences of undernutrition in the elderly are significant (Lipski, 1995); conversely a recent proliferation of research shows that obesity in the young can, and if not altered will, have major consequences for the health of adults (National Health and Medical Research Council (NHMRC), 2003a).

School food services and aged-care kitchens share an unexpected similarity, for both client groups rely solely on the food supplied, although most school children will eat elsewhere at some point during the day. Both services are constrained by practical considerations (see Box 2). Although both schools and aged-care homes may purchase pre-made or pre-packaged food, consumers rely on the kitchens to

Box 1 Topics addressed in the review

- Need to understand the influence of menu choice on health and wellbeing of school students and aged-care facility residents
- Social influences on food choice: society, family and nutrition
- Food service and menu choices in school canteens
- Food service and menu choices in aged-care facilities
- Optimum nutrition requirements for school students, compared with aged-care facility residents: similarities and differences – residents of aged-care facilities, clients of school canteens, boarding schools
- Dental health and food choice
- Challenges facing suppliers of large-volume food services: volunteers' role in food preparation, challenges for food preparation and support for menu planning

Box 2 Constraints on providing meals in schools and aged-care facilities

- Cost
- Availability of staff to deliver large volumes of food in short time frames
- Providing pre-prepared food hygienically, with maximum efficiency in delivery and clean-up time
- Using packaging that presents food attractively and hygienically, but does not cause unnecessary negative environmental impact

have hot and cold food available and accessible at set times, with an expectation that it will be of a particular standard. Both school food services and aged-care facilities strive for healthy eating appropriate to meet the needs of their clients (Blades, 2002; Drummond and Sheppard, 2004). Catering for people with particular needs and wants can be challenging. Additionally, the type and practicality of foods offered for the differing demographics is noteworthy. One example is the relevance of product packaging. This is important to children due to consumer culture and branding, but not as important for the aged for whom health considerations and difficulties with package opening are arguably more important.

Explicit national nutritional guidelines such as the *Dietary Guidelines for Older Australians* (NHMRC), 1999) and the *Dietary Guidelines for Children and Adolescents in Australia* (NHMRC, 2003b) are available to guide the production of healthy food options. Constraints on the management of facilities and customer preferences, for example, the food is not always cooked and served exactly as the resident or student would like (Blades, 2002; Drummond and Sheppard, 2004), may mean that guideline ideals are not always met.

Social influences on food choice

Society

Food is used to build and maintain social relationships in all cultures (Ikeda, 2004). The basic tasks of growing, harvesting processing, and preparing food are almost always carried out by groups of people working together (Rozin, 1996). In traditional cultures, the members of a family or a group of families co-operate to ensure that their most basic need for food is met (Ikeda, 2004). The consumption of food is a social occasion, with family members and/or the community gathering together to eat. Rozin (1996) claims that food is an extremely valuable social instrument for humans, because it promotes social interaction: there is no culture that promotes solitary eating. McIntosh *et al* (1993) maintain that it is this positive social interaction that promotes physical wellbeing and decreases mortality. Meal times are occasions for sharing and bonding involving a pleasant atmosphere (Ikeda, 2004), and in schools and aged-care facilities food provides social opportunities that can promote interaction and sociability.

Schools

Schools are a major place for socialisation for adolescents. According to the South Australian Department of Education and Children's Services (DECS, 2004), 96% of 5–17 year olds attend school in South Australia. Pilot research carried out by Drummond (2004) indicated that the school setting is one that endorses social interaction between school students at recess and lunch times. In many South Australian schools, there is a 15 minute *eating time* at the commencement of the lunch break, where students stay in their classrooms to eat their lunch. It is during this time that students talk about what they have to eat and will often share foods, although this is not always allowed (Drummond, 2004). It is also during this time that school students are provided with their preordered lunch from the school canteen. The challenge of the school canteen is to have the hot and cold food available for the classrooms to be picked up by the students for this time. The extent of the influence of the canteen on what children and young people

actually eat is tempered by the percentage of students who purchase lunch from school canteens.

Aged-care facilities

Meal times provide an opportunity for socialisation in aged-care facilities. Drummond and Smith's (2006) research on ageing men's nutrition indicated that social interaction and meal time went hand in hand for senior Australians. A common view among the participants in their research was summed up as: 'Food has many facets to it. One is that eating is a social event. It is a means of keeping the body supplied with energy but provides an effective social outlet as well' (Drummond and Smith, 2006, p. 57).

Family

Family plays an important role in the dietary patterns of youth. Parents have a strong influence on food availability and eating practice of children from infancy through to their adolescence (Boutelle *et al*, 2001). It is within the family environment that the child learns the importance of eating well and staying healthy. The family is a major influence on adolescents' eating behaviour. It is the provider of food, and the family influences food habits, preferences and lifelong eating habits (Story *et al*, 2002). These habits and preferences can be perpetuated, although they may not always be supported with food supplied in schools or aged-care facilities. No review of the role of school canteens can be complete without consideration of eating patterns in families. However, detailed consideration of this aspect is not included here.

Nutrition

Nutritional guidelines are available to help guide the preparation of food for older Australians, children and adolescents. These guides are designed and often used within canteens and aged-care facilities to help with menu planning (Drummond, 2004; Sheppard and Landorf, 2005). They recommend a reduction in total and saturated fat, increased consumption of fruit and vegetables, and establishment and maintenance of a healthy body weight. School food service guidelines place an emphasis on healthy eating, with a central aim of reducing childhood obesity. There is some evidence that multifaceted school-based programmes that promote physical activity, the modification of dietary intake, and the targeting of sedentary behaviours may help to reduce obesity in school children, particularly girls (Wilson *et al*, 2003)

Food service and menu choices

Using the guidelines (NHMRC, 2003b) within schools proves challenging for canteen managers for a variety of reasons (Drummond, 2004). For example, when volunteers were not available to assist in the canteen, time constraints on the canteen manager meant that pre-packaged, pre-cooked foods were utilised. In many cases the pre-packaged foods did not comply with the nutrition guidelines (Drummond, 2004).

There is a serious risk of malnutrition in aged-care facilities. Undernutrition can go unnoticed as being a normal part of ageing (Burge and Gazibarich, 1999). Being underweight appears to be a major health concern among the elderly in aged-care institutions, and is a major contribution to morbidity and mortality (Lipski, 1995). Elderly people require diets high in calcium and vitamin D, combined with sun exposure, all of which are important in reducing osteoporosis and therefore potential fractures (Montero-Odasso and Duque, 2005; Venning, 2005). In addition some individuals may have special dietary needs including liquidised meals.

Choice is of great importance to school students and residents alike, as it contributes to social interaction, feelings of satisfaction, support for specific health issues and maintaining and improving wellbeing. Supporting optimum levels of response to these issues of food service and menu choice can increase the cost of care and impinge on the economic viability of a facility.

Optimum nutrition requirements for school students, compared with aged-care facility residents

Similarities

Food choices for residents of aged-care facilities and students in school canteens are directed by the person managing the facility. Medical services and current conventional wisdom, as it relates to the role of nutrition in food consumption, follow the outcomes of research and the practicalities of changing knowledge and attitudes. This includes the increasing importance and prevalence of food allergies, especially to peanuts, which can induce anaphylactic shock or even death. The role of food in enhancing quality of life can be overlooked as facilities strive to meet all the demands placed on them – efficiency, economy and nutritional excellence. Hence some schools and aged-care facilities may serve foods that meet costs and

efficiency needs rather than delivering a variety of foods. Alongside these issues is that of food hygiene. Care has to be taken in all settings in which food is handled, prepared, cooked and eaten, to ensure that contamination of foods does not occur. Strict food and safety guidelines exist but need to be monitored so that optimum hygiene is adhered to at all times (NHMRC, 1999, 2003b).

The enjoyment of food is an important aspect of quality, however 'quality' is determined (Sheppard, 2003), and is influenced by the location in which it is eaten. Edwards *et al* (2003) prepared an identical food dish, chicken à la king and rice, for aged-care facilities and boarding schools and a four-star restaurant. Participants in aged-care facilities and boarding schools were less accepting of the dish than those who ate in the restaurant. This study supported earlier research by Cardello and colleagues (1996) in finding that acceptability ratings for the expectations of institutional food are lower than those for non-institutional settings. Food in aged-care facilities and school canteens should be appealing, wholesome and nutritious for all meals, snacks and beverages. Part of making food appealing requires knowledge of cultural traditions (Sheppard and Landorf, 2005). This can mean, for example, re-labelling dishes to fit the cultural context of the group; 'casserole' rather than 'cajun chicken'.

Differences

Residents of aged-care facilities

The proportion of Australians over the age of 65 years is on the increase (Burge and Gazibarich, 1999). Nutritional wellbeing is recognised as an important factor in improving longevity, and evidence suggests that the elderly are at a disproportionate risk of malnutrition (Kerstetter *et al*, 1992). Furthermore, nutritional risk, food insecurity and decreased enjoyment of food are negatively associated with quality of life (Bacon, 1999). Food also plays a central role in aged-care facilities for several reasons. First, residents may lack the physical or mental capacity to seek food from outside sources, and even if this is not the case, shops and restaurants may be too far away. Second, food is important in terms of the socialisation of residents, providing time to interact with staff who have prepared and served the food. This can be the same person (Sheppard and Landorf, 2004). The location of the dining room forms an important part of incidental exercise for residents, and provides a reason to leave the possible isolation or solace of their rooms (Sheppard and Landorf, 2004, 2005). A central dining room which serves the whole aged-care facility is vital for particular cultures that seek larger groups and a sense of activity (Sheppard and Landorf, 2005). The layout and décor of the dining room can be a factor in inviting participation.

Clients of school canteens

Positive interaction between children and role models, that is peers and staff, during meals can create a supportive eating environment (Sangster *et al*, 2004). Moreover, the school canteen can be an ideal platform to improve the nutrition of school children and develop their healthy eating habits. Children learn about food and nutrition from many areas, a primary source being through their school and school canteen (Liggett, 1998; Kellett and Schmerlaib, 2000). Although school canteens should provide a practical example of good nutrition by supporting the nutritional education provided in the classroom, many do not achieve this. Nutrition education is an important part of school curricula (Nutbeam and St Leger, 1997; Puts and Mattrow, 2000). Children are taught by example in conjunction with nutrition education carried out in schools. The example of the school canteen becomes important, as it will either reinforce what is being taught or negate it (Gibbons, 2004).

Boarding schools

Although there is little research about food and boarding schools, they are worthy of comment in comparison to aged-care facilities. Dining halls in both are similar. Both require production of large volumes of hot and cold foods at specified times. Unlike the school canteen, but similar to aged-care homes, boarding schools must ensure the availability of a wide variety of foods throughout the day and night. Beattie (2004) argues that school meals pose an excellent opportunity to access appropriate food choices, while providing a unique opportunity to taste new foods and set benchmarks for 'acceptable' food choices. However, some students in boarding schools may exercise autonomy by going off campus to buy food if what is served is not up to their own standard or taste. This has certainly been found to be the case with Asian students in Australian boarding schools (Han *et al*, 2000), for whom sudden exposure to Western foods did not positively contribute to their process of adjustment, with the dissatisfaction of food offered at dining halls remaining a contentious issue with both students and staff.

Dental health and food choice

School students

Puts and Mattrow (2000) claim that more than half of 10 year olds have an average of just under three teeth affected by dental decay. However, it has been argued

that there appears to be a rate of decline in the extent and severity of dental caries among Australian children consistent with the goals set by 'Health for All', a Commonwealth initiative (Nutbeam, 1993). Evidence indicates that improved dental health of children is due to fluoridation of water supplies, the use of fluoride in toothpaste and the availability of school dental services (Dugga and Connolly, 2002; Slack-Smith, 2003). Nevertheless, if school canteens could maintain high nutritional value food choices, they could also have a long-term positive impact on children's dental health (Puts and Mattrow, 2000).

Significant research carried out in the 1970s and 1980s indicated that detrimental effects on teeth occur when sweets are available in primary and secondary school canteens (Roder, 1970, 1973; Evans *et al*, 1983). These studies indicated that canteens sold sweets primarily because they were thought to generate profits for schools. Further, the presence of sweets in schools was thought by canteen operators to provide such a small component of the diet that they did not significantly affect dental health. However, this was not the case for all studies. For example, investigations carried out by Roder (1970, 1973) indicated that a high number of girls-only private schools did not sell sweets at all. This was for a variety of reasons. Reference was made to private schools generally having 'better' canteen menus than public schools. One possibility is that this is due in part to the canteens being administered by the school and not the parents' association, as was the case in many government schools. Furthermore, the absence of sweets in private schools appeared to be for reasons founded on appearance and health. It was noted that parents in private schools considered the excessive consumption of sweets to cause tooth decay, obesity and skin blemishes (Roder, 1970).

Older adults

High levels of oral disease occur in both children and older adults. For the aged, higher levels of oral disease can be related to functional dependence, physical frailty, cognitive impairment and reliance on carers, rather than diet alone. In older adults, concerns with oral diseases can have a social impact on their quality of life, particularly with regard to such aspects as comfort when eating, gum and teeth pain, and appearance, especially in relation to dentate status. Chalmers (2003) maintains that the aged need to be able to eat and talk comfortably, feel happy with their appearance, stay pain free, maintain self-esteem, and maintain the overall habits/standards of hygiene and care that they have had throughout their lives. Furthermore, the state of oral hygiene affects possible food choices, and in turn affects an individual's quality of life if choices are reduced. Dental care in the elderly now reflects 'a change in emphasis from sugar intake to overall nutrition, swallowing problems and oral adverse medication effects' (Chalmers, 2003, p.6).

Challenges facing suppliers of large-volume food services

Volunteers' role in food preparation

Some issues concern only school canteens. For example, the role of the accreditation bodies in aged care and the commercial nature of most aged-care facilities mean that volunteers are not relied upon to prepare food, and the foods available are not expected to generate income, although containing costs is important. In contrast, the majority of school food services rely on volunteers to help in all facets of their day-to-day running. Walsh *et al* (1992), in a significant study of the complex interaction of those working within school food services, assert that volunteers are the backbone of most school canteens. Without their commitment, many schools may have difficulty in providing a nutritious and profitable food service. However, recruiting and retaining volunteers is difficult, and consequently the school canteen menu is inadvertently affected. Pech and Chartier's (1990) study of school canteens, which was repeated by Drummond and Sheppard in 2004, discovered that the volunteer contribution was seen as both an important and problematic issue, especially when introducing nutritious foods onto the canteen menu. The importance of volunteers affected the school canteen in a variety of ways. Both the 1990 and 2003 studies showed that the introduction of nutritional items to the menu was directly linked to the preparation time and the availability of volunteers (Pech and Chartier, 1990; Drummond and Sheppard 2004). In the absence of volunteers, respondents in the studies claimed that it was easier to sell 'ready-to-eat', pre-packaged food that was time efficient, rather than a fresh 'healthy' alternative.

Challenges for food preparation

School canteens may offer a variety of foods that do not conform to good nutrition practices, especially if the canteens are under financial pressure to provide a monetary return to the school (McVeagh, 2000). In many cases the most popular foods are the high-fat, high-salt and high-sugar choices. However, several authors agree that food sold in school canteens should reflect national nutritional guidelines (Kellett and Schmerlaib, 2000; Sutherland *et al*, 2004). Wholegrain breads and cereals, products containing calcium and iron, foods with low salt and fat content, and fruit and

vegetables are rated highly for inclusion in school canteen menus. Making these products popular amongst the student clientele, however, appears challenging.

School canteens have a difficult time trying to introduce fruit and vegetables into the canteen menu. The 1990 and 2003 school canteen studies identified a high percentage of school canteens which had unsuccessfully tried to introduce fruit, fresh, canned or dried, and salad, including salad plates or individual salad items such as carrot sticks, into the menu (Pech and Chartier, 1990; Drummond and Sheppard, 2004). The fruit available, seasonal change and subsequent expense incurred by the canteen, were also cited as reasons for exclusion. Furthermore, respondents from Pech and Chartier's 1990 study claimed that students were very particular about fruit quality and would not purchase it if it was bruised or marked. Hence, further costs were accumulated through wastage. Similarly, Drummond and Sheppard's (2004) research indicated that canteens found selling fruit, legumes, and vegetables extremely difficult. The complexities of fruit and vegetable consumption in school canteens are supported by a study carried out by the Australian Horticultural Corporation (AHC, 1996) which showed that, over a 24-hour period, approximately 40% of primary school-aged children ate no fruit, and 27% of school-aged children ate neither fruit nor vegetables. This contrasts with the recommended fruit and vegetable intake for children of five or more servings a day (McVeagh, 2000), and seven servings a day for adults. If children develop good eating habits early, they are more likely to carry the daily intake into adulthood.

A different picture emerges from some aged-care facilities, however. Gard and O'Kane (1999) indicated that although the nutritional status of the elderly living in aged care was poor in consumption of milk, milk products, dairy alternatives and the breads and cereals food group, the intake of fruit and vegetables was relatively good. The authors maintained that the reason for this was twofold: the shortcomings of their methodology and the diligence of institutions concerned in their provision of fruit and vegetables to their clients.

Liggett (1998) claims that it is hard to teach children about healthy food choices if they are available in the canteen but not promoted as 'cool' foods to eat. Additionally, the cost of healthier choices is sometimes much higher than the less healthy alternatives. However, one way to combat this is to make healthy food and drink choices more attractive, prominently displayed, fresh, and well priced (Mallios *et al*, 2001). Increasing the profit margin on less healthy choices available and selling healthier food options at a reduced rate may balance income from sales, in addition to providing 'taste-tests' of new products and incentives such as 'buy one, get one free' to encourage product sale (Bromley, 1998; Mallios *et al*, 2001).

Support for menu planning

Strategies to support healthy menu selections by food service caterers are increasingly being implemented. Regional and international programmes such as the 'Heartbeat Catering Program' (HCP) and 'Low Fat Eating for America Now' (LEAN) (Warm *et al*, 1997; Glanz and Hoelscher 2004; Young *et al*, 2004) are being utilised in order to improve dietary patterns, in particular in relation to reductions of fat, salt and sugar in food products, and consumption of fruit and vegetables. The HCP works in partnership with the food industry to improve the availability and formulation of foods to consumers in ways that are consistent with the Heart Foundation and national nutrition guidelines, while project LEAN works directly with chefs, empowering them to make menu changes to include healthy food items (Glanz and Hoelscher, 2004; Young *et al*, 2004). The evaluations of both programmes cited numerous positive improvements within catering services, notably decreasing fat intake by:

> cutting the fat off meat and using lower fat milk, use of baking paper instead of fat, use of the microwave to cook fish and chicken, and fresh fruit and cheese platters being provided at the meal's completion instead of cakes and cream-based deserts' (Young *et al*, 2004, p. 231).

These improvements are also in line with the Heart Foundation's recommendations. Furthermore, food demonstrations provided by the Heart Foundation in the HCP were described by many caterers as a source of new and practical ideas that could be incorporated into existing menus. However, in a wider evaluation of local catering intervention programmes for food services, James (1996) argued that a number of issues such as research and the development of competitive, healthy food products, and a lack of knowledge about nutrition among caterers need to be addressed. Programmes need to aim for small changes to behaviour, include all key stakeholders and ensure commitment from senior management (James, 1996).

Key findings

In both school canteens and aged-care facilities where food dependence exists for clients, there are existing NHMRC guidelines, but problems with their implementation still remain and are associated with food preparation, delivery and choice. In the future the role of pre-packaged and pre-made foods may change the nature of food services. There are areas of similarity between aged-care facilities and school canteens (see Box 3).

The aged-care facilities and school canteens vary in the challenges of facility management. School canteens

Box 3 Similarities between school canteens and aged-care facilities

- *The importance of food and socialisation*: the consumption of food is a social occasion and has the power to promote feelings of interaction and sociability
- *Food needs*: guidelines exist for both older Australians and students, tailoring food offered to each group's needs. Food should be appealing and culturally appropriate
- *Food choices*: there are many stakeholders influencing food choices in an aged-care facility and school canteens. Meeting the needs of the many stakeholders is difficult. The ability to provide many food choices and on demand is a challenge for any facility
- *Dental health* requires attention in food choices: for school canteens a reduction in sugar, in aged care overall nutrition as well as a reduction of sugar is important in dental health

are reliant on volunteers, and changes to work participation and other social changes mean that volunteers are becoming scarce. Food preparation and menu planning are difficult when nutrition dictates different choices to that a student may prefer. Client choice should always be considered.

To maximise the opportunity for these food services to provide for health promotion, they need to incorporate opportunities for social interaction involving clients in making choices. Social interaction in this context can range from involvement in kitchen gardens, socialisation around food preparation and delivery, and the reinforcement of healthy choices through curriculum and information sharing. Social interaction in turn can provide opportunities for improved quality of life.

The importance of constraints imposed on both school canteens and aged-care facilities cannot be overestimated. The most important of these requiring consideration is the need to retain the economic viability of a facility, which calls for efficiency in financial management. The nutritional needs of school students and the elderly have a vital impact on the health and wellbeing of society.

Conclusion

The literature reviewed indicates a strong and increasing understanding of the relevance of nutrition to the health and wellbeing of both the young and the elderly in the community. Similarities and differences in the role played by institutions in school canteens and aged-care facilities indicate a need for further research relating to best practice and ways to ensure that this is applied in all facilities (see Box 4).

Box 4 Recommendations for further research and development arising from the literature review

- To identify best practice facilities and share this information
- To review guidelines for the management and conduct of both school canteens and aged-care facilities in the light of identified best practice
- To establish the influence of food as a source of enjoyment and a basis for social interaction
- To develop strategies to improve attitudes to food preparation and consumption by school canteens and aged-care facilities, school students and residents of aged-care facilities
- To develop effective educational programmes that can be implemented economically and efficiently to change attitudes

Educational programmes have the potential for long-term improvements, but without strongly enforced guidelines, constraints of time and cost may inhibit the quality of outcomes. Sufficient evidence has been documented by researchers to allow menu planners to improve the nutritional quality of meals supplied by large-scale facilities. The efficacy of enforced guidelines is proven. The benefits are clear. To achieve optimum outcomes, the political will must support implementation of proven strategies with appropriate resources.

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CONFLICTS OF INTEREST

None.

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