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In their own words: A qualitative study exploring influences on the food choices of university students

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“I want to look like that”:

A qualitative study exploring influences on the food choices of university students

Abstract

Issue addressed: University students generally make independent decisions regarding food choices. Current Australian research about the level of nutrition knowledge, sources of that knowledge and influences on food choices for this group is scarce.

Methods: Qualitative data was collected from gender separated focus groups comprising four female (n=31) and four male (n=18) to identify: nutrition knowledge; sources of knowledge; factors that influence food choices; perceived relevant nutrition messages; and how best to deliver them.

Results: Significant gaps in knowledge were identified particularly regarding number of serves and serving size for food groups. Social media was the most commonly reported source of knowledge. Social media was also a major influence on food choice due to its impact on body ideals.

Conclusion: Current health promotion nutrition messages were perceived as irrelevant given the focus on long-term health risks. Health and adhering to the Australian Dietary Guidelines were not identified as significant influences. The desire to look a particular way was identified as the major influence on food choice.

So What? While there is an awareness of Australian Dietary Guidelines, university students did not to adhere to them as health is not a significant influence on food choice. This identifies a significant challenge for developing relevant preventive health messages for this target audience.

Summary

Focus groups were conducted with university students' (18-25yrs) to explore influences on food choice. Currently health promotion nutrition messages were perceived as irrelevant. The major source of nutrition information was social media, which was also reported as the major influence on food choice due to its impact on body ideals.

Key words: university students, food choices, body ideals, social media.

Introduction

Emerging adulthood describes the ages 18-25 years (1), when individuals are establishing independence and taking responsibility for life choices, including health behaviours (2). As such this group is an important target population for health promotion and disease prevention. Previous research indicates that very few emerging adults meet current dietary guidelines, often consuming diets high in saturated fats, sugar and sodium along with decreased vitamin, mineral and fibre intake, all of which are associated with later life obesity and chronic disease (3, 4). The Australian Bureau of Statistics (5) reports that emerging adults are less likely than any other age group to consume recommended amounts of fruit and vegetables. They also typically display erratic eating behaviors and tend to skip meals (3, 4, 6).

While some research has occurred with emerging adults internationally, little research has explored the evolving social influences affecting food preferences of Australian emerging adults (2), and in particular Australian university students. Emerging adulthood is a time when living situation may change and this can influence food intake. Mullan et al. (28) found that as emerging adults leave home and live independently there is a decline in healthy dietary habits. Specific to university students a study of four European countries reported participants who had moved away from their parental home identified a lower consumption of healthy foods, specifically fruit and vegetables (7). The authors speculated that students living at home did not have to pay for their food so financial constraints may not restrict the purchase of healthy food. In addition, meals containing nutritious foods such as vegetables were more likely to be prepared for them when living with parents therefore healthier food was more freely available compared to food options available to the students living away from home. Furthermore, Jackson and Berry (8) reported that those living at home with parents were more likely to bring a packed lunch, which may act as a protective factor against the consumption of fast food during their day at university. Kelly, Mazzeo, and Bean, (27) identified that living with other university students can negatively influence eating behaviors because of a lack of peer support to eat healthily. Devine and Lloyd (9) found that university students in Northern Ireland who lived alone were more likely to eat fresh vegetables and salads regularly compared to students who lived with other students. This peer influence is

further reinforced by McArthur and Pawlak (10) who reported that American university students perceived their peers did not enjoy consuming healthy food and this influenced their own food choices.

While nutrition knowledge is assumed to influence dietary habits and food preferences, Al-Khamees (11) study involving university students from Kuwait enrolled in nutrition and education courses noted that many were genuinely surprised that their diet did not comply with dietary guidelines. Even for this knowledgeable, unique, target group translating dietary guidelines into their food choices was difficult. While not specific to university students, an Australian study by Kothe and Mullan (12) identified that emerging adults also had significant knowledge gaps regarding serving size and quantity of fruit and vegetables recommended by the Australian Dietary Guidelines and appeared to have insufficient knowledge of food preparation and cooking skills. The authors suggested more research is needed to investigate these knowledge gaps and how these gaps might influence food choice in emerging adults (12).

Australian public health campaigns have attempted to increase nutrition knowledge. The *Go for 2 and 5* campaign, primarily targeted parents of children aged up to 17 years with the secondary target group youth aged 13-17 years and aimed to increase fruit and vegetable consumption by increasing knowledge of the importance of consuming these foods (13). Several follow-on campaigns such as *Measure Up* in 2008, *Swap it Don't Stop it* in 2011 and the *Live Lighter* campaign in 2014, linking increased waist measurement with risk of chronic diseases targeted 25-50 year olds and focused on weight reduction messages (14). Emerging working adults however, appear to place little importance on the prevention of chronic disease because they believe this will not affect them until they are much older. Consequently, the consumption of healthy food is not considered a priority as there is no sense of urgency regarding the importance of food choices for health and wellbeing (6, 15). No known research has considered if university students also have this perception.

To date, in Australia there have been no public health campaigns that target emerging adults and specifically university students' nutrition knowledge and food intake. Furthermore, it is unknown if health promotion campaigns delivered via the traditional media (television and radio) would resonate with this population. It is possible however, that they have been exposed to these campaigns along with a variety of other nutrition messages from media including the internet and social

media. It is a reasonable assumption therefore that these sources of nutrition information may impact on their nutrition knowledge. To the author's knowledge this is the first Australian study to investigate this assumption.

Social media is an increasingly popular way for users to be both creators and consumers of health information by providing a platform to share, discuss, create, modify and exchange information with the 'on-line' networks (16). As 18-29 year old social media users are more likely to repost images and video (17) it is potentially an important vehicle to disseminate nutrition information. However, Wong and Merchant (16) cautions that the information they engage with may be inaccurate, misleading or misinterpreted and therefore lead to health risk behaviours (16). Little research has explored if social media would be effective in delivering nutrition messages to university students.

Given the lack of evidence regarding Australian emerging adults' nutrition knowledge and the sources of this knowledge it is important to explore this as a potential influence on eating behaviour. This information can be used to inform the development and best delivery of relevant and targeted nutrition messages as a key element of chronic disease prevention.

Hence the aims of our study were to identify:

1. Nutrition knowledge among university students;
2. Sources of nutrition information and preferred source of information among university students
3. Factors that influence food choice and eating behaviour of university students;
4. Nutrition knowledge relevant to university students and how best to deliver nutrition messages to the target audience.

Methods

A qualitative approach using focus group was chosen to provide participants the opportunity to describe their experiences in their own words thus providing the researcher a clearer understanding of the experiences as seen from the individual's point of view (18, 19). University students aged 18-25 years currently studying at a private university in Australia were invited to participate in focus group discussions. Ethics approval was obtained through the university's Human Research Ethics committee prior to conducting this research (Ref: 015126F). A total of 49 students

aged 18-25 years self-selected to participate from a variety of learning areas including Schools of Medicine, Arts and Sciences, Health Science, Business, and Philosophy and Theology. Gender separated focus groups were conducted consistent with focus group methodology that advises homogeneous groups assist participants to feel equal and to get to know each other more quickly so they feel comfortable to share ideas and information (20). Focus groups were conducted until the research team determined that data saturation had been met. A total of eight focus groups, four female groups (n=31) and four male groups (n=18) were conducted.

Experts in qualitative research and nutrition developed the interview schedule for the focus groups. It was piloted with a small group of university students to ensure the questions elicited appropriate responses. The same interview schedule was used for all focus groups. Each focus group session was allocated 90 minutes. The primary author, experienced in conducting focus groups conducted all focus groups (21). An independent note taker recorded additional notes and non-verbal interactions of participants to augment the audio-recording (22).

Analysis

With consent from participants, the focus groups were taped by the lead author, then transcribed verbatim by an independent contractor, with these transcripts checked by the lead author to ensure accuracy (6, 22). Content was analysed and coded by the lead author to establish categories and identify the frequency by which they occurred (23). These categories were identified across the focus groups and any new themes were categorised as they emerged. Verification checks occurred by co-authors to ensure agreement in identification of categories (22). The data was then re-analysed using NVivo data analysis software v11 (24), validating the categories and sub categories established by the initial content analysis.

Results

Common factors influencing food choice, including those that related to nutrition knowledge were grouped into two major categories: internal and external influences. Two additional categories emerged: nutrition knowledge deemed relevant by emerging adults and preferred delivery method of nutrition knowledge.

Internal influences on food choice

Internal influences sub categories included: level of nutrition knowledge based on the Australian Dietary Guidelines; knowledge of serving size for different food groups; perceived relevance of dietary guidelines; compliance to dietary guidelines; body image, appearance and weight control; and cooking skill and confidence.

Knowledge of Australian Dietary Guidelines

The majority of the participants were aware of the Australian Dietary Guidelines (25) with the most popular recollection being the visual format of the healthy food pyramid.

“Is that the food pyramid stuff?” - [Female Group 2 (FG2)]

There was consensus that fruit and vegetables comprised the bottom *“eat most”* section of the pyramid hence were healthy. Also, there was consensus that sugar was at the top of the pyramid indicating, *“eat least”*. All other details regarding the structure of the pyramid varied. There was some confusion over the positioning of carbohydrates such as bread, pasta and rice, some participants indicated these were *“eat sometimes”* and should not be eaten as frequently as fruit and vegetables, but the majority believed that they were on the same level as fruit and vegetables. The greatest confusion was regarding the correct positioning of meat and dairy products.

Knowledge of serving sizes

When prompted about serving sizes for different food groups there was a high level of disagreement and confusion. The majority agreed that it varied from food to food but they were unsure regarding what constituted a serving size

“In terms of actual (serving size) recommendations, I couldn’t visualise one.” – [Male Group 2 (MG2)].

“A serving size is about the palm of your hand” [FG4],

“I thought it was the size of a deck of cards” [FG2],

“A cup” [MG1],

“It depends who you talk to” [FG4]

While there was a general awareness of the Australian Dietary Guidelines (25), the majority indicated that they did not adhere to the guidelines. Of particular concern not following the dietary guidelines was identified as a choice rather than lack of awareness.

“I think the guidelines are good and I have a fair idea of what they are, but nine times out of ten, I won’t follow them” – [MG1].

“We know we’re not following them. It’s a deliberate choice” [FG2].

The most common reason for not adhering to the guidelines was they lacked importance or relevance due to no sense of urgency. The majority stated that healthy eating and following the guidelines only became relevant as a person grew older or started experiencing ill health or significant weight gain.

“I don’t care enough! ... because of my build I’ve never really had any weight problems. But it may be something that occurs in the future. But at the moment, I don’t have any reason to really change how I’m eating.” [FG3].

“We kind of have the impression that we’re young, we don’t need to worry about it at this point and we’ll cross that bridge when we’re 35 and have high cholesterol.” [MG2].

Body image, appearance and weight control

The majority of participants expressed that food choices, eating and eating behaviours were heavily influenced by body ideals.

“Looking good is the biggest motivator for people our age.” – [FP3]

“It’s much more about looks rather than general health” [MG3].

While the desire to ‘look good’ was expressed in all focus groups, the female groups consistently mentioned weight control and being skinny as the desired appearance. Some added they felt pressure from society to conform to the thin ideal.

“Yes. It’s about appearance more than anything else...in advertising they use very slim attractive people and you think, ‘Oh if I want to look like that then I should eat this’ or ‘I shouldn’t eat this...” [FG1].

“Society pressure, perception that women should look skinny, amazing...and eat nothing” [FG4].

Of particular concern was the general perception among females that being skinny was associated with being healthy.

“People perceive skinny as being healthy” [FG1].

Weight control was mentioned less by male participants and their desire to ‘look good’ had a different focus. Muscle gain and how to best achieve it was mentioned most by the males.

“Guys focus on eating the right sort of portions, so that they can gain the most weight, or muscle mass or fitness... but are those diets really healthy?” [MG2]

“It tends to be more muscle gain for the blokes and weight loss for the girls. It’s the pressure of every guy wanting to be huge and every girl wanting to be stick thin.” [MG3].

Cooking skill and confidence

Cooking skills were identified as important for eating a healthy diet. Cooking skill and confidence was also linked to cost. While these factors strongly influenced food choices for males they were also a consideration for females. However, females generally expressed more confidence in cooking skills than males.

“Cooking skills are also a very big factor – I have very limited cooking skills. If it’s going to take too long to prepare, or it seems a bit too complex, then I’m more likely to just go out and buy something.” – [MP2]

Whether or not you can cook influences your food choice – if you can’t cook then you go and get take away.” [FG1]

Cooking skill and confidence was also linked to cost with many participants concerned about spoiling food and therefore wasting money.

“You might have spent a lot of money on an expensive meal to prepare, and you burn it or stuff it up or something.” [MG2].

External influences on Food Choice

External influence of food choice included: sources of nutrition knowledge; current living situation and peer influence; cost, convenience, time and effort required.

Sources of nutrition knowledge

Social media was the most common source of nutrition knowledge with the majority indicating that they do not search for nutrition information but they are exposed to it constantly.

“I don’t think people really search for it [nutrition information]; if it comes up in social media then maybe people read about it.” – [FG2]

Both males and females commented that the majority of nutrition information on social media was accompanied by images of thin females and muscular males ‘looking fit, healthy and happy’. These images were associated with participants’ knowledge about what contributed to being healthy.

“Slim fit girls are presented on social media as being in their active wear, drinking a smoothie. Fit muscular guys are all about the supplements, how to get large.” [MG4].
“Instagram promotes this ideal that ‘healthiness equals happiness’ and that’s what everyone is striving for” [FG2].

While social media in general was mentioned, there was a notable difference between males and females in the social media platforms used. While Facebook was identified evenly across the male and female groups, Instagram was frequently mentioned by females but rarely by males as a source of nutrition information. The volume of nutrition information on social media were accompanied by images that created the desire to look ‘fit and healthy’ and contributed to body dissatisfaction. Some participants indicated they were aware that the images were unrealistic but were still envious and strived to look like the bodies portrayed in the images.

“On Instagram in particular there are a lot of unrealistic portrayals of particularly girls...the pictures are very colourful and the girls look very happy and skinny, which brings out envy”. [FG2]

Participants all spoke of the high number of celebrities and micro-celebrities (those who have become famous via social media) that promoted diets, supplements and exercise programs.

“You see a lot of links on social media to things like ‘super diets’ or ‘my friend did this and had these results in 12 weeks” [MG3].

“Perfect bodies on the paleo diet. Stuff like that is all over social media.” [FG4].

“The sheer amount of pages on Instagram – all of them are just of girls in their bikini, or of their meal. You can’t go through your (news) feed without seeing them.” [FG4]

Accuracy of the nutrition information on social media was generally not a concern with the majority indicating that the most popular measure of ‘accuracy’ was to ask friendship group if they had tried the diets or supplements and check if any had positive results. When asked to clarify what was meant by ‘a positive result’ the common theme again was appearance.

“I want to look fit and lean.” [MP4]

“Losing weight and looking good” [FG3].

Participants were asked if they could recall any health promotion campaigns as these may have contributed to nutrition knowledge. Recognition of the *Live Lighter* campaign and the *Go for 2 & 5* campaign were high with all female groups and the

majority of male groups. While recognition was high, participants agreed that they were not the target audience with many questioning the relevance of these campaigns to their age group.

"I don't think they target us" [MG3]

"They use middle age people in those commercials...it doesn't feel relevant to us"
[FG1]

While most identified a key message of the *Live Lighter* campaign was to reduce intake of sugary drinks they indicated this message did not motivate behaviour change.

"I probably drink a lot more soft drink than I should, but then I'm still skinny. So you wonder if anything is really going to happen. It makes me think about it, but it doesn't change my behaviour." [MP3].

Furthermore, the health consequences outlined in the campaign felt irrelevant to the participants because health consequences were 'future concerns.

"I can't image my visceral fat being that bad compared to that man. It doesn't feel relevant." [FP4].

"People (our age) don't think the consequences of those ads will happen to them"
[MG3].

Both male and female participants were adamant that focusing on negative consequences associated with food choice had no impact on their eating behaviour.

"Health promotion messages are so negative – like this is what happens to your gut when you drink coke. I know it's supposed to have an impact, but I don't feel like it has a significant impact." [FG3].

"There is as sense that it's not urgent and that it doesn't apply to us" [MG4]

Living situation and peer influence

There was consensus that living at home with parents had a positive influence on food intake because parents stocked the fridge and pantry, which to some extent dictated food choice. Participants also noted the quality and variety of food improved when living at home with parents mainly due to the associated high cost of healthy food.

“When you’re living at home, you can’t really control what your Mum and Dad buy and put in the cupboard, as opposed to when you live independently... you can.” – [FP2].

“If you’re by yourself your main consideration is finances rather than your health. Healthy food is more expensive” [MG2].

Consequently, the majority indicated that living at home made it easier to eat healthy food. Mothers were identified as a positive source of information and influence on food choice

“My Mum always served veggies or salad with meals, and now it’s just become a habit rather than a knowledge of the guidelines.” [MP1].

“It comes back to cost. Last year I was out of home and not eating well at all – I was just eating whatever was on special. Now I’m back home, mainly to save money, Mum and Dad provide much more variety and better food. It makes a big difference” [MG3].

The majority indicated that being with friends, socially and also living with peers increased the likelihood of choosing unhealthy food.

“It depends on who you’re with – if I’m hanging out with friends that are eating junk food, then I’ll eat it with them.” - [FP3]

“If you’re sharing a house with friends, you’re generally influenced by what your friends cook. So if there’s someone cooking, then you might be inclined to cook more, but if someone’s always going out to get crap food, then you’re more inclined to do that as well” [MG3]

Cost, convenience, time and effort required

Regardless of living situation cost, convenience, time and effort required were recurring themes across all focus groups having significant impact on their food choices. There was a very strong perception among participants that university students consumed fast foods because they were cheaper and more convenient even though they acknowledged it was unhealthy.

“You’re normally going for the cheap stuff, which ends up being the bad stuff” [FG3].

While cost and convenience made fast food an attractive option another influencing factor was effort. Many participants identified that healthy eating required more time, effort and preparation than they were prepared to give.

“It’s a lot easier to just go and get take away then it is to actually make something, especially if you’re home late. Because you have to go to the effort of buying it, making it, and cleaning up afterwards.” [MP4]

Nutrition knowledge emerging adults want and how best to deliver it

Weight loss and appearance was again the predominant focus of the type of information participants wanted. Related to weight loss, many identified a need for accurate information particularly regarding serving sizes.

“It’s important to know how big a serving size is, because frequently you think it’s bigger than it actually is [FP2]

“A lot of people don’t realize it’s not just eating healthier, it’s lowering your portion size as well that helps lose weight” [MG2].

Accurate information regarding healthy ways to lose weight quickly was considered important particularly by female participants.

“The quickest way to lose the weight and being healthy as possible” [FG1]

The majority identified that correct information regarding fad diets would also be relevant to ensure more of a balance of food consumed.

“People go on extreme diets where they just focus far too much on eating one type of food, when there needs to be more of a balance” [MG3]

“People our age need information about skipping meals and meal replacements shakes; how they are not effective in actually helping people lose weight” [FG2].

Participants highlighted that nutrition information focusing on body image and appearance rather than health risks would be more relevant.

“The approach needs to be image based - not ‘it’s going to make you ‘feel better’ but ‘it’s going to make you look better’...results that appeal to us might make a difference” [MG1].

Many participants, especially females, indicated they would like to see more of a positive body image focus.

“Promoting what is a realistic amount of weight loss for different body types” [FG4]

“Not using unattainable, un-realistic bodies or celebrities, just use normal people” [FG3].

Participants also identified that nutrition messages need to be more positive and focus on immediate benefits rather than long term health risks.

“It comes down to promoting fun - not ‘don’t eat this, don’t do this’. Finding a way to say ‘hey look what you can do if your actually get out there and do stuff and you eat good food – it’s fun” [FP3].

“Might be more effective if they focus on something that we can see or feel almost immediately” [MG4].

Another important aspect mentioned by participants related to cost of food. It was strongly suggested that healthy food be more cost effective.

“If you made the healthier, more nutritious food cheaper than the less healthy foods that could make some difference” [MP1]

“Cheap places to pick up vegies and maybe healthy cheap meal ideas” [FG2].

Regarding how best to deliver nutrition Information there was consensus it should be online incorporating social media (Figure 1).

“People our age don’t watch TV...it’s got to be online” [MG3].

“Social media because that’s what we’re exposed to the most – but the dietary guidelines aren’t on social media” [FG3].

Discussion

This study provides an Australian context to international evidence regarding influences on dietary behaviour among university students aged 18-25 years (2, 7, 9-11, 26, 27). Findings confirm that the cost of food when living independently influences food choice with a strong perception among participants that healthy food costs significantly more than unhealthy food (7, 8, 28). Also consistent with international studies the participants in this study acknowledged that peers influenced their decision to consume unhealthy foods, while living with parents positively affected this food choice (9, 10, 27). This study also identified that cooking skills and confidence, as well as time and effort required in the preparation of food, were considerations with participants reporting that convenience, confidence and cooking skill often influences food choices. More research needs to be conducted to further explore how significant these influences are on food choice.

Our findings also show similarities with previous research regarding Australian emerging adults’ diets not adhering to recommended dietary guidelines (3, 29, 30). A novel finding of this study is that while emerging adults have some knowledge

regarding the Australian Dietary Guidelines (25) they deliberately choose not to follow them because they do not consider healthy eating a priority or relevant to their age group, and its information is not promoted on social media. While previous health promotion campaigns in Australia have attempted to promote the importance of healthy eating, (13, 31, 32), they have not specifically targeted emerging adults. Although our study supports previous findings that suggest some key messages such as eat more fruit and vegetables and less sugar seem to reach Australian university students (11, 12, 33, 34), these messages do not translate to eating behaviour. For example, participants identified difficulty in translating messages such as *Go for 2&5* in 'real life' food choices due to confusion over what constitutes a serving size. Further, many Australian campaigns have focused on the effects of poor nutrition, such as obesity, visceral fat on vital organs, diabetes, high blood pressure, cancer and heart problems. While participants could recall messages from campaigns such as *Live Lighter* they perceived these messages as irrelevant and reported they had no influence on food choice because the health consequences highlighted generally occur in middle age or even later. Consequently, our study participants were not motivated to change their food choices because there is no sense of urgency (6, 11, 12, 15, 35).

Regarding sources of nutrition knowledge, participants indicated that they do not watch commercial television, which has traditionally been the major medium for communicating public health messages. To the authors knowledge this is the first Australian study that identifies social media as the most commonly used source of nutrition knowledge for emerging adults. Participants in our study were engaged by and frequently shared nutrition information in the form of fad-diets and exercise programs 'posted' by celebrities and micro-celebrities that they 'follow'. They acknowledged they followed these programs, regardless of the nutritional value or efficacy of the exercise programs which is concerning, given all the participants were university students with many studying health related degrees. As the majority of these programs and accompanying messages focus on body ideals this could explain why appearance and body dissatisfaction, generally in the form of weight control, emerged as the largest influence on food choice for the participants in our study. The majority of participants stated that their interest in nutrition information shared on social media was 'sparked' based on the appearance of the person in the 'post'. The majority of the 'posts' contained images of thin, bikini-clad young woman and fit, lean, muscular young men. This adds to the findings of Tiggemann and Miller

(36) in their study of adolescent girls which found girls who spent more time on social media had higher levels of drive for thinness.

Another new finding reported by our study is that social media users do not specifically search for nutrition knowledge rather they have constant access to nutrition information via their 'newsfeed'. Accuracy of this information was not a significant concern to participants, with most simply asking their friends if they have tried the particular diet or supplement 'trending' on social media and what were their 'results'. The majority reported the desired 'results' of these diets and supplements were to look 'fit and lean' and looking this way was associated with being healthy. Given that approximately 89% of online 18-29 years olds are regularly using social media (37) the consumption of 'weight and appearance' focused nutrition information is clearly contributing to the participants' perception that being skinny (for females) and muscular (for males) means that a person is healthy. While all participants identified social media as the major source of nutrition knowledge, female participants specifically identified Instagram as the primary social media platform utilised. Given that Instagram is an image based platform this may be further contributing to the emphasis on weight control and appearance, which may be reinforcing the perception that being thin is ideal and also healthy. Further reinforcing these 'thin ideals' may be the 'weight control' approach to nutrition that has been utilized by Australian health promotion campaigns such as *Live Lighter* (14, 31, 32). Females in our study acknowledged there was societal pressure to conform to the thin ideal. Regardless of gender, this belief that appearance is the main marker of health is concerning as it may further contribute to body dissatisfaction and influence food choices among emerging adults as a way of achieving this thin or buff body. More research focusing with this target group is needed to further understand these associations.

The findings of this study must be considered in light of some limitations. The participants were a convenience sample drawn from one university campus, however replication of some results suggest this group is similar to others university and college based studies reported in the literature. As a select sample of university students, their education level may mean that their nutrition knowledge is higher than other groups of emerging adults therefore, results and associations cannot be generalised to the whole emerging adult community. While the sample may not be fully representative of the emerging adult population, the participants were keen to have their voices heard and provided in depth insights into the influences on their

food choices and implications for communicating nutrition information. A strength of the study was the design that adhered to focus group methodology hence saturation of categories was achieved and the initial content analysis was validated by the content analysis performed through NVivo v11 (24) adding to the rigour of the results.

Conclusion and implications

Given that emerging adults attending university do not consider dietary guidelines or health promotion campaigns relevant, the findings of this investigation have implications for preventive health strategies targeting this age group. Future campaigns should therefore deliver positive nutrition messages and present benefits of healthy eating rather than on future health risks. In addition, accurate information regarding serving sizes was identified as important because participants found it difficult to translate current nutrition messages into actions they could utilise in their daily lives. Participants also indicated that it was necessary for healthy food to be made more affordable to encourage healthy eating. Therefore, future health promotion campaigns could include suggestions for accessing and preparing low cost healthy ingredients and meals, as these may positively influence food choice.

There was also a desire for accurate information regarding current fad-diets as well as healthful strategies for weight loss. This presents a challenge for health promotion to counteract current appearance related perceptions regarding health in a rapidly changing, social media saturated environment that heavily promotes thin or muscular body ideals. There were calls for more realistic body shapes on social media, especially by the female participants. Perhaps this is where health promoters should direct their attention because the insidious nature of the constant appearance comparison ever present on social media makes it unrealistic for many to achieve the current ideal body in a healthful way.

Not only should the nature of messages change but also the mode of delivery. Given the participants in this study do not watch television and identified social media as the preferred source of nutrition information, health professionals need to rethink how to best communicate future public health nutrition messages to this audience. While social media appears to negatively influence perceptions of health and eating behavior it may also provide the potential solution. However more research is needed regarding potential barriers and challenges associated with social media and emerging adults health behaviours (38). Many platforms exist in the social media

space and little is known about which platform would be the most effective for this target group. The results of this study indicate that Instagram could be an avenue for further investigation as female participants identified it as their most commonly utilised social media platform. Clearly, more research in this area is required to confirm the findings of our study so that emerging adults' transition into adulthood with accurate, useful nutrition knowledge that will potentially result in a healthy diet and the accompanying health benefits (2, 12, 26).

References

1. Arnett J. Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*. 2000;**55**(5):469-80.
2. Nelson MC, Story M, Larson NI, Neumark-Sztainer D, Lytle LA. Emerging adulthood and college aged youth: An overlooked age for weight-related behaviour change. *Obesity*. 2008;**16**(10):2205-11.
3. du Plessis K. Diet and nutrition: A literature review of factors influencing blue-collar apprentices. In: Corney T, du Plessis K, editors. Apprentices: Young people in transition. Calton, Victoria: Australian Clearinghouse for Youth Studies; 2011.
4. Lytle LA, Kubik MY, Perry C, Story M, Birnbaum AS, Murray DM. Influencing healthful food choices in school and home environments: Results from the TEENS study. *Preventive Medicine*. 2006;**43**:8-13.
5. Australian Bureau of Statistics. Australian Health Survey: First results 2011-2012 2012 [Available from:
<http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4364.0.55.001Chapter1002011-12>
<http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/D8A0182B96B03DE7CA257AA30014BF34?opendocument>.
6. Neumark-Sztainer D, Story M, Perry C, Casey MA. Factors influencing food choices of adolescents: Finding from focus-group discussions with adolescents. *Journal of the American Dietetic Association*. 1999;**99**(8):929-37.
7. Ansari WE, Stock C, Mikolajczyk RT. Relationship between food consumption and living arrangements among university students in four European countries - A cross-sectional study. *Nutrition Journal*. 2012;**11**(28).

8. Jackson RA, Berry TR, Kennedy MD. The relationship between lifestyle and campus eating behaviours in male and female university students. *College Student Journal* 2009.
9. Devine P, Lloyd K, Gray AM. University student food attitudes and behaviour survey. United Kingdom: Northern Ireland Social and Political Archive (ARK); 2006.
10. McArthur LH, Pawlak R. An exploratory study of compliance with dietary recommendations among college students majoring in health-related disciplines: Application of the transtheoretical model. *Nutrition Research and Practice*. 2011;**5**(6):578-84.
11. Al-Khamees NA. Food habits of university nutrition students: Pilot study. *Nutrition and Food Science*. 2009;**39**(5):469-80.
12. Kothe EJ, Mullan BA. Perception of fruit and vegetable dietary guidelines among Australian young adults. *Nutrition and Dietetics*. 2011;**68**:262-6.
13. Woolcott Research. Evaluation of the National Go for 2&5 Campaign. Sydney, NSW: Australian Government Department of Health and Ageing; 2007.
14. Heart Foundation WA. LiveLighter one year on 2013 [Available from: https://livelighter.com.au/assets/resource/booklet/livelighter_-_one_year_on.pdf].
15. Stewart B, Tinsley A. Importance of food choice influences for working young adults. *Journal of the American Dietetic Association*. 1995;**95**(2):227-30.
16. Wong CA, Merchant RM, Moreno MA. Using social media to engage adolescents and young adults with their health. *Healthcare*. 2014;**2**:220-4.
17. Duggan M. Photo and video sharing grow online. (Pew Research Centre report) 2013 [Available from: <http://www.pewinternet.org/2013/10/28/photo-and-video-sharing-grow-online/>]
18. Fade S. Using interpretative phenomenological analysis for public health nutrition and dietetic research: A practical guide. *Proceeding of the Nutrition Society*. 2004;**63**:647-53.
19. Neergaard MA, Olesen F, Sand Andersen R, Sondergaard J. Qualitative description - the poor cousin of health research? *BMC Medical Research*. 2009;**9**(52).
20. Acocella I. The focus groups in social research: Advantages and disadvantages. Quality & Quantity: *International Journal of Methodology*. 2012;**46**:1125-36.

21. Peterson-Sweeney K. The use of focus groups in pediatric and adolescent research. *Journal of Pediatric Health Care*. 2005;**19**(2):104-10.
22. Liamputtong P. Research methods in health: Foundations for evidence-based practice. second ed. Melbourne: Oxford University Press; 2013.
23. Marks DF, Yardley L. Research methods for clinical and health psychology: SAGE Publications Ltd; 2004.
24. QSR International. NVivo 10 for Windows 1999-2013 [Available from: http://www.qsrinternational.com/products_nvivo.aspx]
25. National Health and Medical Research Council Australia. Dietary guidelines for Australian adults (n33). Canberra: Department of Health and Ageing; 2003.
26. Deshpande S, Basil MD, Basil DZ. Factors influencing healthy eating habits among college students: An application of the health belief model. *Health Marketing Quarterly*. 2009;**26**:145-64.
27. Kelly NR, Mazzeo SE, Bean MK. Systematic review of dietary interventions with college students: Directions for future research and practice. *Journal of Nutrition Education and Behaviour*. 2013;**45**(4):304-13.
28. Mullan Harris K, Gordon-Larsen P, Chantala K, Udry R. Longitudinal trends in race/ethnic disparities in leading health indicators from adolescence to young adulthood. *Arch Pediatric Adolescent Medicine*. 2006;**160**(1):74-81.
29. Driskell J, Kim Y, Goebel K. Few differences found in the typical eating and physical activity habits of lower-level and upper-level university students. *Journal of the American Dietetic Association*. 2005;**105**(5).
30. Racette S, Deusinger S, Strube M, Highstein G, Deusinger R. Weight changes, exercise, and dietary patterns during freshman and sophomore years of college. *Journal of American College Health*. 2005;**53**(6):245-51.
31. Heart Foundation WA. Measure up phase two campaign brief 2011 [Available from: <http://www.swapitwa.com.au/march2011.pdf>].
32. Heart Foundation WA. Swap it don't stop it. October 2012 campaign update 2012 [Available from: <http://www.swapitwa.com.au/Campaign%20Update%20-%20October%202012.pdf>].
33. Hendrie GA, Coveney J, Cox D. Exploring nutrition knowledge and the demographic variation in knowledge level in an Australian community sample. *Public Health and Nutrition*. 2008;**11**(12):1365-71.

34. Keenan DP, AbuSabha R, Robinson NG. Consumers' understanding of the dietary guidelines for Americans: Insights into the future. *Health Education Behaviour*. 2002; (29):1.
35. Richards A, Kattelman KK, Ren C. Motivating 18 to 24 years olds to increase their fruit and vegetable consumption. *Journal of the American Dietetic Association*. 2006;**106**(9):1405-11.
36. Tiggemann M, Miller J. The Internet and adolescent girls' weight satisfaction and drive for thinness. *Sex Roles*. 2010; **63**(1-2):79-90.
37. Sensis Social Media Report 2017. 2017.
38. Vaterlaus J, Patten E, Roche C, Young J. #Gettinghealthy: The perceived influence of social media on young adults health behaviors. *Computers in Human Behaviour*. 2015; **45**:151-7.