



NUTRITION COMMUNICATION STRATEGY

RESEARCH REPORT

HortiFresh
FRUITS & VEGETABLES WEST AFRICA 

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UNIVERSITY & RESEARCH

Hortifresh nutrition communication strategy
Research report

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1 INTRODUCTION

The goal of the Hortifresh project is to contribute to a sustainable and internationally competitive vegetable and fruit sector that contributes to inclusive economic growth, food and nutrition security in Ghana and Ivory Coast. One of the components of the communication plan for 2019 is to increase awareness on the nutritional value of vegetables and fruits (F&V).

This report outlines a research effort conducted to inform the design of the Hortifresh nutrition communication strategy by presenting the results of, inter alia, an investigation into the barriers and drivers of vegetable consumption among urban consumers aged 18-34 in Ghana. In a separate but related document a set of guiding communication principles and five evidence-based communication strategies are described that can be implemented to stimulate vegetable consumption among Ghanaians.

2 BACKGROUND

The World Health Organization (WHO) recommends the daily consumption of fruits and vegetables to amount to at least 400 g (World Health Organization, 2003), which equals at least five servings of 80 g each (FAO, 2003). Eating vegetables often, even in limited quantity is desired because of the beneficial effects on health maintenance and disease prevention (Florkowski, Chinnan, Resurreccion, & Sarpong, 2013).

Sub-Saharan Africa has a growing burden of obesity and NCDs and research attributes this problem partly to poor diets and physical inactivity (Boatemaa, Badasu, & de-Graft Aikins, 2018). In Ghana, the shift in economic activity as a consequence of improving incomes, urbanization and other factors has resulted in lifestyle changes from more intensive physical activity to sedentary activities, the increased use of cars and an explosion in the number of cinemas and fast-food restaurants. These changes have the potential to increase the burden of non-communicable diseases (Amo-Adjei & Kumi-Kyereme, 2015).

Healthy behaviours such as fruit and vegetable consumption are recommended to reduce the chances of onset of chronic diseases (Amo-Adjei & Kumi-Kyereme, 2015). However, in the 2008 Ghana Demographic and Health Survey only 28% of women and 21% of men were reported to consume fruit on a daily basis, while 24% of women and 30% of men consumed vegetables daily (Ghana Statistical Service - GSS, Ghana Health Service - GHS, & ICF Macro, 2009). The 2014 edition of the same report found that, on average, women and men consumed vegetables on four of the seven days previous to the administration of the survey (Ghana Statistical Service - GSS, Ghana Health Service - GHS, & ICF International, 2015). Other studies have found similar low frequencies of vegetable consumption. For example, in a school-based survey among 1195 adolescents (12-18 years) Doku, Koivusilta, Raisamo, and Rimpelä (2011) reported that almost half (48%) consumed vegetables rarely (on three or fewer days a week).

An increase in vegetable consumption among Ghanaians could (1) reduce the risk of NCDs (2), improve nutrient and fibre intake, and (3) strengthen the F&V sector in Ghana by increasing consumer demand. The aim of the present study was therefore to gather knowledge that would act as a base upon which to build the Hortifresh nutrition communication strategy that could contribute to increasing vegetable consumption in Ghana.

2.1 Behaviour change

To contribute to increasing vegetable consumption means to stimulate behaviour change. According to Schmied (2017), development practitioners often assume that the best way to change people's behaviour is to provide them with lot of arguments for why it is good to practice the promoted behaviour. Schmied (2017) argues that although providing information may be important, such overemphasis on improving people's knowledge and insufficient attention to other influential factors were behind the failures of many well-intended interventions. His toolkit recognizes the importance of understanding (instead of assuming) the real reasons why people behave as they do and using these insights to help people adopt behaviours that will make positive differences in their lives.

Because of its practical applicability Schmied's (2017) *PIN Behaviour Change Toolkit* was referred to extensively in the design of this study.

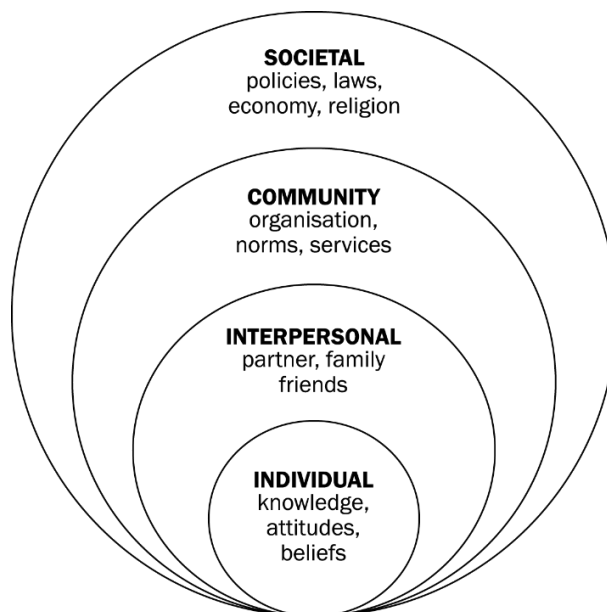
3 THEORETICAL FRAMEWORK

Behaviour change theories can help understand the complexity of human behaviour and provide ways of targeting it to stimulate change. The PIN Behaviour Change Toolkit refers to behaviour change models as a base to design communication activities, which were also applied in the present study.

3.1 Socio-ecological model

The socio-ecological model (SEM) is an ecological model that can be used for nutrition research and interventions. It integrates multiple levels of influence to impact health behaviour and ultimately health outcomes, see Figure 1 (McLeroy, Bibeau, Steckler, & Glanz, 1988; Robinson, 2008). Those levels of influence include intra- and interpersonal factors, community and organisational factors (or institutional), and societal factors. SEM further advances that health promotion programs that focus on behavioural change through educational activities or other intrapersonal level change strategies alone often neglect the social and environmental context in which those behaviours occur and are reinforced. Therefore, improving the health of vulnerable populations requires interventions that target multiple levels of influence, in multiple settings, and utilize multiple intervention strategies (Robinson, 2008).

Figure 1 The socio-ecological model adapted from McLeroy et al. (1988)



Robinson (2008) applied SEM to improve fruit and vegetable intake among low-income African Americans, while Boatemaa et al. (2018) applied SEM to analyse food beliefs and practices in urban poor communities in Accra. Boatemaa et al. (2018) defined each level as follows: "at the interpersonal level food choices could be informed by an individual's knowledge of different foods, preferences, taste, and psychological state. At the interpersonal level the patterns of household food preparation and foods habits of significant others could inform the food choices of individuals. At the community level, food availability and prices could influence the accessibility of food and food choices.

At the structural and public policy levels, food habits and choices could be shaped by broader community food beliefs and norms, food regulations and policy.” (Boatema et al., 2018, p. 2)

3.2 Stages of change model

The stages of change model (also known as the transtheoretical model) suggests that people go through six stages to change their behaviour (Prochaska & Velicer, 1997). To maximise the impact of communication strategies, communication activities need to target the dominant stage of change of a population (Schmied, 2017). For example, if the target population regularly takes action to exercise, but struggles with maintaining this habit, then raising awareness about the consequences of lack of exercises will most likely not have the biggest impact on this population’s stage of change. Instead, efforts will have to be made to ensure there are pre-conditions for sustainability, provide reminders and reinforcement (Schmied, 2017).

Table 1 Stages of change model as adapted from Prochaska and Velicer (1997)

<i>If your target population is largely in this stage of change...</i>	<i>...focus on the following</i>
1 Pre-contemplation: people do not think their behaviour poses a problem and have no intention of, or interest in, changing it	Raising awareness about the problem
2 Contemplation: people are aware of the problem related to their behaviour and consider taking action, weighing the pros and cons	Highlighting a behaviour’s benefits, increasing social pressure, helping people to make plans
3 Preparation: people are motivated to change their behaviour to solve the problem, see the benefits and plan for action	Reducing the barriers that make the behaviour more difficult such as lacking know-how or high costs
4 Action: people started practicing the behaviour, experiencing its benefits as well as costs, such as time, effort, money, opinions of others	Assisting with solving problems, providing feedback on results, facilitating social support
5 Maintenance: people practice the behaviour, requiring some effort to continue in the long-term	Ensuring pre-conditions for sustainability, reminders and reinforcement
6 Termination: people are not tempted to stop practicing the behaviour and are able to maintain it in the long-term	Taking advantage of positive cases to encourage others to follow their example

4 RESEARCH OBJECTIVES AND RESEARCH QUESTIONS

The overall objective of this research is to gather data in order to inform the design of the Hortifresh nutrition communication strategy. Insights from the study may contribute to a better understanding of which communication messages and which communication channels might be most effective to stimulate behaviour change among the target group.

4.1 Research objectives

The data required to inform the design of the Hortifresh nutrition communication strategy can be divided into four objectives.

4.1.1 Barriers and drivers

To make an inventory of the barriers and drivers of vegetable consumption among urban consumers aged 18-34 in Ghana.

Creating an inventory of barriers and drivers will generate insight into whether a communication strategy would be helpful and what the content should focus on. One way to understand the barriers and drivers of a particular population is to perform a Barrier Analysis, which is further explained in section 5.5.

4.1.2 Stage of change

To determine the prevailing stage of change in vegetable consumption among urban consumers aged 18-34 in Ghana.

The *PIN Behaviour Change Toolkit* (Schmied, 2017) and the *COMBI (Communication for Behavioural Impact) toolkit: field workbook for COMBI planning steps in outbreak response* (World Health Organization & UNICEF, 2012) suggest that in order to create an effective nutritional communication strategy it is important to understand at which stage of change the targeted audience is positioned, because each stage of change should be approached differently. For example, encouraging people to progress from taking action to maintaining behaviour involves assisting with solving problems, providing feedback on results, and facilitating social support, while encouraging people to shift from contemplation to preparation requires highlighting a behaviour's benefits, increasing social pressure, and helping people to make plans.

4.1.3 Typical food consumption behaviours

To understand the typical food consumption behaviours among urban consumers aged 18-34 in Ghana.

Documenting the typical food consumption behaviours including when meals are prepared and consumed, who they are prepared by, and what the average meals contain may shed light on how more vegetables can be incorporated into the dietary habits of Ghanaians. Furthermore, uncovering daily food consumption patterns may inform choices related to the suitable content, channel, and timing of communication messages.

4.1.4 Current communication and media initiatives

To explore the current communication and media initiatives aimed at increasing vegetable consumption in Ghana.

It is also of interest to survey the current media campaigns that aim to promote vegetable consumption. Investigating other campaigns helps understand what type of content is commonly used in Ghana, and hints at messages and media channels that might work well. Analysing comments and responses on existing social media pages may reveal existing concerns or questions related vegetable consumption.

Interviewing people involved in the choices behind existing communication strategies may also demonstrate what the perceived barriers and drivers are according to them. Finally, investigating whether and how media and communication initiatives promote vegetable consumption is critical to ensure that any new nutrition communication strategies complement what is already in place and do not stand in the way of existing initiatives or confuse the target group.

4.2 Research questions

The above research objectives were translated into the following research questions:

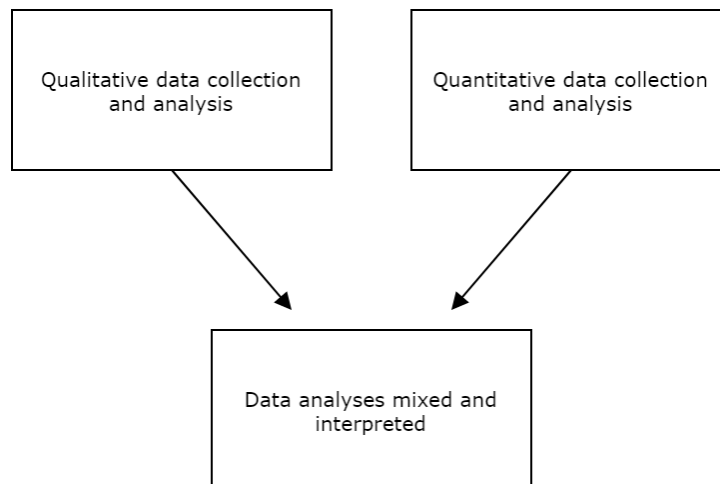
1. What are the barriers and drivers of vegetable consumption among urban consumers aged 18-34 in Ghana?
2. What is the prevailing stage of change in vegetable consumption among urban consumers aged 18-34 in Ghana?
3. What are typical food consumption behaviours among urban consumers aged 18-34 in Ghana?
4. What are the current communication and media initiatives aimed at increasing vegetable consumption in Ghana?

Finally, what do the insights gained from answering each RQ mean for the nutrition communication strategy?

5 METHODOLOGY

To answer each research question a mixed methods approach was applied, using a convergent strategy, see Figure 2. This means that the qualitative and quantitative data were collected and analysed concurrently and independently, and integrated during data interpretation (Fetters, Curry, & Creswell, 2013).

Figure 2 Mixed methods using a convergent strategy



A mixed methods approach has several advantages, Lund (2012) provides four. First, it enables researchers to simultaneously answer a combination of exploratory and confirmatory questions. Secondly, the combination of insights from qualitative and quantitative strategies may provide a more complete picture of the domain under study. Thirdly, the results from qualitative and quantitative strategies converge, the validity of the corresponding inferences and conclusions will increase more than with convergence within each strategy. Finally, if the results from qualitative and quantitative strategies diverge or contradict, this may lead to extra reflection, a revised hypothesis, and a need for further research (Lund, 2012).

The qualitative methods used during this study were: content analysis of literature, content analysis of social media, in-depth interviews, focus group discussion, informal interviews, and observations. The quantitative method used during this study was: survey. All techniques besides the content analysis of the literature were performed in Ghana over a period of 2 months. The content analysis of the literature and the analysis and integration of the data were conducted in The Netherlands.

5.1 Research population

Choosing a research population, or target audience is a critical step in the process of creating an effective nutrition communication strategy. Doing so helps focus the approach in terms of strategy objectives, content (message), and medium. A particular target audience needed to be selected, which would not only help guide the development of the strategy in terms of communication activities, but also provide clarity to the fieldwork.

For this study the research population in focus were young adults (18-34 years), young women in particular, living in urban areas. According to the Ghana Demographic and Health Survey 2014 (Ghana Statistical Service, Ghana Health Service, & International, 2015), women aged 20-34 consumed vegetables between 3.5 and 3.6 days a week, while men aged 20-34 consumed vegetables between 3.7 and 4.1 days a week, generally below the nationwide average of 4 days a week. demonstrating a need to target this age group.

In addition to this, the 18 – 34 age-range is a space in which various life transitions happen, allowing for the development of new habits. Around this time most adults go through several big life transitions such as finding a job, enrolling at university, marrying and / or moving out their parents' house. As Winpenny et al. (2018) comment "Late adolescence to early adulthood is a period of life transition which may allow disruption of an individual's pre-existing habits and allow changes in diet and dietary behaviours" (p. 1).

Next to this, considering that the constrained budget will most likely eliminate the choice for high-budget media channels such as TV, radio, or human capacity-intensive programs such as interpersonal communication, social media remains as a relatively inexpensive and attractive option of which this group is its biggest user. Women between 18-34 represent 75% of the total amount of women (2 million) on social media in Ghana, while men between 18-34 represent 70% of the total amount of men (3.5 million) on social media (We Are Social, 2019).

5.2 Academic literature content analysis

For the content analysis of the literature, the primary database consulted was Google Scholar. Various keyword combinations were used to search for articles related to vegetable consumption in Ghana, for example "vegetable consumption Ghana", "barriers vegetable consumption Ghana", "promoting vegetable consumption Ghana". Next to Google Scholar, a WCDI Dropbox folder was consulted for additional literature. Discovered articles were scanned for relevance. Articles that made it through this filter were read through completely. Data related to the RQs was extracted. Particular attention was applied to data related to current levels of vegetable consumption, and the barriers and drivers of vegetable consumption.

5.3 Social media content analysis

The Facebook and Instagram pages of Ghana Green Label and Hortifresh were analysed to investigate how current initiatives use social media in Ghana. All posts and comments from November 28, 2018 until May 1, 2019 were downloaded from the Ghana Green Label Instagram and Facebook pages on May 2, 2019 for analysis. Attention was paid to the timing and content of the post, the number of reactions (e.g. likes) and comments, and content of the comments. The comments were scanned for patterns and reoccurring themes.

5.4 In-depth interviews

- 7 semi-structured interviews were held with health practitioners; primarily (clinical) nutritionists and dieticians

- 1 unstructured interview was held with a representative of Ghana Green Label, a government-supported food safety certification programme
- 1 unstructured interview was held with a representative of Origin8, a marketing agency responsible for the media presence of Ghana Green Label
- 1 unstructured interview was held with an employee of G4S

The informants were selected either purposefully, or using the chain-referral (snowball) sampling method. Four of the ten in-depth interviews were carried out face-to-face, while the other six were done by phone. Each interview lasted between 15 minutes and 1 hour, with the majority lasting 35-45 mins. Each interview was audio recorded with consent and transcribed, see Appendix 1: in-depth interview transcriptions.

The semi-structured interviews centred around the following key themes, with an emphasis placed on different themes depending on the informant's domain of knowledge:

1. Level and perceptions of vegetable consumption in Ghana
2. Barriers to vegetable consumption in Ghana
3. Overcoming barriers of vegetable consumption in Ghana
4. Current media initiatives promoting vegetable consumption in Ghana
5. Suitable media channels for the promotion of vegetable consumption in Ghana
6. Suitability of target audience for the promotion of vegetable consumption in Ghana
7. Aspirations of youth in Ghana

5.4.1 In-depth interviews data analysis

Each transcription was read through several times, coded and recoded. A code database was created that combined codes gathered from the content analysis of the academic literature (primarily barriers and drivers) and codes that emerged from the transcriptions. Between the first and second stage of coding the codes were refined. Codes were placed as comments in Microsoft Word and extracted into Microsoft Excel for clarity and easy access during the data integration phase.

5.5 Barrier analysis

To uncover the barriers and drivers of a particular behaviour Schmied (2017) recommends the Barrier Analysis (BA) tool. This quantitative / qualitative survey asks people a series of questions aimed at identifying which barrier and drivers have the biggest influence on whether they do (or do not) practice a given behaviour (Schmied, 2017). The BA study used the Doer / Non-Doer methodology that consists of interviewing 45 people who already do the behaviour (Doers) and 45 people who have not yet adopted the behaviour (Non-doers). The difference between the responses of the Doers and Non-doers reveals which barriers / drivers are most important. The focus of the BA is always on the way people perceive things, irrespective of whether we think that is right or wrong (Schmied, 2017).

5.5.1 Sunyani survey

Trained students from the Yamfo College of Health and Nutrition administered a BA survey in Sunyani, the capital of Brong Ahafo region in Ghana. The survey was administered to 121 respondents (all between 18-34 years and living in an urban area), of which 53 were Non-doers and 68 were Doers, classified by frequency of vegetable consumption. If a respondent said to consume vegetables five or more times a week they were classified as Doer, if less than five times a week they were classified as a Non-doer. The students used a convenience sampling method to find respondents. The survey that was administered was based on the example BA survey found in the PIN Behaviour Change Toolkit (Schmied, 2017), modified slightly to relate to the research questions of the present study, and can be found in Appendix 2: Sunyani survey.

The data from the survey was coded and arranged in Doer / Non-doer tables, similar to the table presented in *A practical guide to conducting a barrier analysis* (Kittle, 2013, pp. 138-139) for further analysis.

5.5.2 Structured interviews

The same BA questionnaire that was used for the Sunyani survey was also used in structured interviews with 10 students from the University of Ghana, and 5 students from the Yamfo College of Health and Nutrition. The 5 students from Yamfo were approached through chain-referral sampling and were interviewed by phone, while the students from the University of Ghana were approached by convenience sampling and interviewed face-to-face. Each interview lasted between 10 and 20 mins, and was audio recorded.

5.6 Focus Group Discussion

One focus group discussion was organised to evaluate some of the preliminary communication activity ideas. FGDs can be particularly insightful to explore how a particular population perceives concepts in development. The interaction that takes place between focus group participants, e.g. jokes, anecdotes, teasing, and arguing may shed light on (sub) cultural values or group norms that might not surface in one-to-one interviews (Kitzinger, 1995). Moreover, participants may challenge each other on contradictions between what they say and how they act, adding insight. Kitzinger (1995) suggests the ideal participant size for a focus group is between four and eight and may consist of friends or colleagues that can relate each other's comments to incidents in their shared daily lives.

The FGD was held at the dining table of a house in East Legon, Accra, Ghana. Three men and two women, all between 18 and 34 and living in Accra at the time, participated in the discussion. The participants considered each other to belong to the same friends group which was also evident from their interactions with each other.

During the FGD the media use and aspirations of the participants and their peers was discussed, and the communication activities developed during the research were 'pre-tested'. This was done by pitching the ideas to the group and giving space for their feedback. The FGD lasted one hour and was audio recorded. The recording was transcribed (see: Appendix 3: focus group discussion transcription) and analysed in the same way as the in-depth interviews.

5.7 Informal interviews and observations

To complement the above, various informal interviews and observation were made.

6 RESULTS

This chapter presents the results of this study. The stage of change of the research population is assessed in the discussion section.

6.1 Barriers and drivers

In this section findings related to the barriers and drivers are presented. For each barrier and driver the results from the various methods are described.

In general, informants mentioned the following barriers: availability, perceived food safety concerns, price, seasons, taste preferences, feeling satiated, upbringing, and current nutritional knowledge.

The Sunyani dataset revealed that the top five barriers for Doers were "price (34% of Doers mentioned this barrier)", "perceived food safety concerns (21%)", "no barriers (13%)", "unspecified (12%)", and "don't know (10%)", while the top five barriers for the Non-doers were "no barriers (38%)", "perceived food safety concerns (17%)", "don't know (15%)", "availability (9%)" and "price (8%)".

6.1.1 Price

Literature suggests poor households tend to focus on satisfying hunger with high-energy diets before considering low-energy options of which the health effects are not immediate, but cumulative (Amo-Adjei & Kumi-Kyereme, 2015). For poorer households one can therefore expect price to be a barrier standing in the way of purchase and consumption of vegetables. However, contrary to expectation, Amo-Adjei and Kumi-Kyereme (2015) found that increasing household wealth status did not significantly influence fruit and vegetable consumption in Ghana – there was an inverse relationship with their consumption for both men and women. Amo-Adjei and Kumi-Kyereme (2015) suggest a reason for this could be that F&V availability in Ghana is highly seasonal: during peak season F&V are around and cheap. Then again, other studies performed in Ghana reported results more in line with expectations. For example, Florkowski et al. (2013) saw that income is influential in relation to fruit and vegetable consumption, but especially fruit, and Boatemaa et al. (2018) found that limited personal finances are seen as a barrier to the adoption and practice of healthy lifestyles, including the choice to consume vegetables.

All health and nutrition informants mentioned price as a key barrier for Ghanaians to consume vegetables. However, it is not simply the case that vegetables are generally too expensive. The price of vegetables severely varies depending on the type of vegetable, where it is sold (e.g. market vs supermarket) and if it is in season. Informants consistently emphasised the distinction between 'local' vegetables, 'exotic' vegetables, and even imported vegetables. The vegetables that are perceived to be local (kontomire, okro, garden eggs) seem to be the most affordable, while the vegetables that are perceived as foreign or exotic (lettuce, cabbage, cucumber, cauliflower, beetroot...) are more expensive.

"If it is an exotic vegetable it gets expensive. For example cauliflower, beetroot. You won't find them, maybe at the supermarket but they are expensive." (R5)

From the interviews and the Sunyani survey it is clear that the majority of Ghanaians buy vegetables at the market, where the prices are much lower than in the supermarkets. The seasons (rainy vs dry) heavily affect the price of vegetables. For example, one interviewee said:

"[During the rainy season] a crate of tomatoes is sold for virtually nothing. Then a month or two later the crate is beyond the reach of an ordinary price to buy." (R1)

The Sunyani survey produced some interesting results. 34% of the Doers (consuming vegetables on five or more days a week) mentioned price as a barrier to vegetable consumption while, interestingly, only 8% of the Non-doers (consuming vegetables on four or fewer days a week) mentioned price as a barrier to vegetable consumption.

6.1.2 Taste preferences

In a study carried out by Boatemaa et al. (2018) participants mentioned that healthy meals had to be tasty and delicious. Some expressed worry about some healthy foods (banku with less salt) and avoided such meals (Boatemaa et al., 2018). Other studies in Ghana mention taste preferences as a barrier too: "Several broad socioeconomic factors also shape preferences, for example internalized tastes and preferences" (Amo-Adjei & Kumi-Kyereme, 2015, p. 615), "Barriers such as limited recipes, laziness, dislike for taste of vegetables, and chemical and microbial contamination have also been identified in some studies to reduce vegetable consumption" (Omari, Quorantsen, & Omari, 2017, p. 11647).

Taste preferences also emerged from the interviews as a barrier to vegetable consumption. It seems that Ghanaians enjoy their 'traditional' meals and do not often venture out of their recipe repertoire to try vegetables that they might not have previously had. Various aspects of the taste and sensory effects were mentioned: "Cabbage has virtually no taste", "Some get a burning sensation after eating vegetables", "Another will say that after eating orange their teeth will feel funny the next day", "Some will say they don't like chewing vegetables in their mouth, they prefer something soupy – like banku with palm nut soup."

Some interviewees related this to the lack of knowledge to prepare diverse meals:

"From what I have known for many people, the first time they took that vegetable and didn't actually like it – it is probably from the way it was prepared. And then they just formed this idea for this vegetable, "Ah I don't like it". But if it had been prepared in a different manner, he or she may begin it to eat it because he or she might like it prepared in a different way". (R1)

Competing behaviours also play a role here. Several interviewees shared examples of how Ghanaians tend to choose 'tastier' meals over meals with vegetables. For example, a Ghanaian might prefer to choose kelewele at night because "it is plantain that is fried and it is nice and delicious", despite health practitioners advising them against.

While the literature and in-depth interviews signalled taste preferences as a major barrier, data from the Sunyani survey revealed that only 6% of the Doers and 6% of Non-doers mentioned taste preferences to be a barrier to vegetable consumption.

6.1.3 Food safety

Chemical and microbial contamination has been identified in some studies as a barrier to reduce vegetable consumption (Omari et al., 2017).

Yahaya, Yamoah, and Adams (2015) report that the majority of food producers in Ghana have limited training in food quality and safety standards. According their research, a large part of the consuming public is not aware of food safety risks, and tends to consume food on the market without paying attention to quality and safety implications (Yahaya et al., 2015). Next to this, most urban cities in Ghana have witnessed a growth in vegetable production using wastewater over the past two decades. "The increased use of untreated wastewater for vegetable production in urban areas of the country is driven by high urban population growth and its resultant demand for fresh vegetable for food as well as increased water scarcity and degradation. However, this method of irrigation has huge health implications for consumers since wastewater used is heavily polluted and not appropriate for crop irrigation." (Yahaya et al., 2015, p. 1044)

Research has highlighted the low quality of vegetables sold in urban markets in Ghana, including Kumasi, which are brought and prepared by many street vendors. Of a total of 180 vegetable samples (lettuce, cabbage, and spring onion) from major markets in three major Ghanaian cities, most had pesticide residue levels exceeding the maximum limit for consumption, and all were fecally contaminated. (Rheinländer et al., 2008)

Five of the seven interviewees (71%) mentioned perceived food safety concerns as a major barrier preventing people from consuming vegetables. The concerns are related to the improper application of chemicals such as insecticides and pesticides, and the use of polluted wastewater for the irrigation of crops. Most of the informants argued that farmers cultivate crops purely for financial gains and do not produce crops for their own consumption, are not patient enough to comply with the recommendations of time necessary between the application of chemicals and harvest of crops, and therefore increase the risk of above-recommended quantities of chemical residues remaining in them.

"So for me, from my line of work, the people I have interacted and stuff, one of the major barriers is the perceived safety concerns of the use of chemicals in vegetable production. Because, almost everywhere I have gone and spoken with people about the need to incorporate vegetables into their meals, the reaction that pops up is that: "Oh people are using chemicals" so they are not sure about the safety of their food with the use of chemicals." (R1)

"Some farmers do not process vegetables in a hygienic way. Here, the water and irrigation system is poor. In the dry season when no water is coming how do these farmers water their vegetables? Most of my clients have concerns about the vegetables because of the wastewater that is used. We get most of our vegetables from farmers, and most farmers are

illiterate and are not aware of hygienic water use. Their main goal is to grow vegetables to harvest and sell.” (R3)

The informants said that a way to minimise risk was to carefully wash and prepare vegetables at home. This is often done by scrubbing vegetables for a while under running water, or with a homemade salt and vinegar solution. According to some informants this is a time consuming process if done properly. Therefore, some informants choose not to consume vegetables ‘outside the house’ because of a lack of trust in how they are handled and prepared, as it is assumed street sellers do not take as much care as needed to prepare the vegetables for meals.

In the Doer / Non-doer study 21% of the Doers and 17% of Non-doers mentioned food safety as a barrier to vegetable consumption. 18% of the Doers and 21% of Non-doers perceived food safety risks as a disadvantage of vegetables.

6.1.4 Upbringing and social environment

Various drivers and barriers have been found related to family and social environment. The presence of children in the household is important for fruit consumption frequency while the number of adults influences the vegetable consumption frequency (Florkowski et al., 2013).

Legitimation of culturally accepted diets and stigmatization of diet preferences such as vegetarianism are a barrier to adoption and practice of healthy lifestyles (Boatema et al., 2018). Participants mentioned significant others and community as factors that influence their food consumption behaviour (Boatema et al., 2018). Among the men, the type and content of their food were dependent on their mothers, aunts, sisters and wives who did the cooking. Among peers, food recommendations were also suggested. These were usually processed foods such as savoury snacks, soda and instant noodles (Boatema et al., 2018).

Four of the seven health practitioners mentioned upbringing as a barrier to vegetable consumption. They posited that what children learn to eat during childhood influences their dietary patterns as adults. Children grow up in household where mothers primarily prepare traditional meals such as rice and stew, or fufu, which lack recommended quantities of vegetables. Children grow up accustomed to only a handful of different vegetable and fruit types, which makes adjusting to new flavours at a later age difficult.

“So maybe in the household that you were living, the person that was preparing the meals never incorporated a lot of vegetables into it. If vegetables were never part of your upbringing or your training, and consuming some sort of vegetables may be an acquired taste, you may have to consume it over time to become comfortable with it. When you are not exposed to it early enough it virtually goes: “Me, I don’t like vegetables”. When they are consuming meals where vegetables have been incorporated you see them dragging the vegetables to the side of the plate, [omitting them] and eating the rest”. (R1)

None of the respondents to the Sunyani survey mentioned family members as barriers to vegetable consumption. In fact, 79% of Doers and 91% of Non-doers mentioned family members while naming

people who approved of their vegetable consumption. 43% of Doers and 36% of Non-doers mentioned friends in same list. 62% of Doers and 30% of Non-doers mentioned health practitioners.

6.1.5 Availability

According to the literature seasons and the extent of urbanisation affect availability of vegetables. Amo-Adjei and Kumi-Kyereme (2015) noted that fruit and vegetable availability is highly seasonal with the peak season occurring between June and September. Furthermore, urban settings tend to have better transportation, modern supermarkets and cold storage facilities thereby helping to increase the stock of fruit and vegetables in those areas (Amo-Adjei & Kumi-Kyereme, 2015). By region, those in Eastern and Greater Accra were more likely to consume fruits and vegetables than those in the Volta region (Doku et al., 2011).

A study done in two poor urban communities in Accra revealed that availability was one of the major factor influencing food choice. Participants in the study mentioned that fruits and vegetable stews were simply not available in their community and most food vendors did not sell vegetable-based stews or salads (Boatemaa et al., 2018).

The findings from the in-depth interviews confirm that in Ghana the seasons can heavily affect the availability of vegetables. The nation is lacking innovative techniques to produce crops off-season.

"And so if there can be ways to improve storage or process vegetables slightly, then they can be readily available during the off-season. But right now I don't think we have any very efficient innovations to do that. For I think that's where we should be looking." (R1)

One informant commented that availability and access can be a barriers for those not within close distance to a market.

"Part of the issue is the availability. If you do not live near a market then you have to travel some distance to get it. Especially in the outskirts, in the non-urban areas you would still have to travel a long distance to get to where vegetables are. And then in the urban areas you would have to travel to central Accra to get vegetables." (R5)

3% of the Doers and 9% of the Non-doers mentioned availability as a barrier. 4% of the Doers and 4% of Non-doers mentioned access / distance as a barrier to vegetable consumption.

6.1.6 Nutritional knowledge

In-depth interviews: informants argued that lack of nutritional knowledge is a key barrier preventing people from increasing their vegetable consumption. According to some of the informants, Ghanaians are generally not aware of the importance of including vegetables in their diet:

"Nutritionists and health professionals have not really educated the people about the benefits of fruits and vegetables. People don't know the reasons why they should add fruits and vegetables to their main meal, when they are getting the main starches from the legumes

and the other components. That is another crucial reason why people do not consume fruits and vegetables in our country.” (R3)

Others suggested that Ghanaians are generally aware that consuming vegetables provides health benefits, but do not have the specific knowledge about how various types of vegetables protect the body, while this is key to becoming convinced about the benefits vegetable consumption.

“Because if you tell someone that a particular fruit or vegetable is particularly high in say Vitamin C then it’s going to help you in [...] or a particular vegetable is high in iron so it is good for [...] we have this popular one that is high in iron and we use it to manage people with anaemia. So when you tell people this they go for it, even someone who is not used to taking it or has never taken it before. Once they hear the benefits and realises it’s probably going to help, and probably even knows someone who has taken it and that person can certify it, then they are willing to take it. But if you just leave it at “Oh just take fruits and vegetables” without giving insight into it, people are not ready for it.” (R6)

The results of the survey showed that both the Doers and Non-doers did not mention nutritional knowledge as a barrier to vegetable consumption.

6.1.7 Satiety

One barrier that was regularly mentioned not only by the key informants but in various informal interviews as well was the fact that vegetables are not perceived as filling. Ghanaians value meals that make them feel satiated. When Ghanaians talk about the food they ate they tend to mention the calorie-rich starchy staple food first, for example: “I had rice”, “I took fufu”, “I ate banku”, indicating its importance. Only when prompted did people describe any stews, soups, fish or meat they might have had with it. When confronted with the choice between a meal from a fruit and vegetable stand or a kelewele (fried plantain) stand Ghanaians will typically gather around the kelewele stand according to one informant:

“There was a time I was traveling to Accra, and I saw this fruit and vegetable joint and this kelewele joint. And I saw nobody standing around the fruit and vegetable stand, and about fifteen people were around the kelewele stand around 6.30pm. And I was like “Wow, they do not like consuming fruits and vegetables”. And the reason is because people do not believe they will get enough calories for their night. Eating fruits and vegetables will not give them anything. So they will go for kelewele which will also give me some taste and energy.” (R3)

Likewise, another informant commented:

“So if I know the benefits, and I know that if I eat 3-5 servings of fruits and vegetables a day it’s going to protect me from long term chronic diseases and I am conscious of it, then when I have some extra money it will be easier for me to buy. But if I don’t know the benefits, I am always focused on what will make me full, and I’m not thinking about the benefits that I will get out of it.” (R2)

In the survey both the Doers and Non-doers did not mention feeling satiated as a barrier to vegetable consumption.

6.1.8 Convenience

Lastly, for some Ghanaians, eating vegetables was perceived as inconvenient. This had several reasons. Common stews require a lengthy cooking process and fresh vegetables need to be cleaned extensively considering the perceived food safety concerns. Additionally, the increasing incomes, increasing use of cars, and rapid urbanisation has resulted in an increase of people eating outside the house, and some Ghanaians choose not to eat vegetables outside their home because of distrust towards the handling of produce by roadside sellers.

10% of Doers and 4% of Non-doers found it time consuming to prepare vegetables.

6.2 Food consumption behaviours

A number of things were noted related to food consumption behaviours. The literature, survey and in-depth interviews all demonstrate that vegetable consumption in Ghana is generally below recommended. Of the 121 respondents to the Sunyani survey, 88% said that they can consumed vegetables the day prior. The majority (66%) of respondents had consumed 1-2 servings. 17% had consumed 3-4 servings, while 4% had consumed 5 or more servings of vegetables. When asked about the frequency of vegetable consumption over an average week, 18% said to eat vegetables 1-2 times a week, 26% 3-4 times a week, 5% 5-6 times a week and 51% said to eat vegetables every day.

These findings are in line with comments made by the informants. When prompted about current vegetable consumption in Ghana, the interviewees generally said that while Ghanaians tend to eat vegetables regularly, there was not much diversity in terms of vegetable types, and the portions were below what is recommended. The traditional Ghanaian diet does not incorporate a lot of fresh vegetables. Soups and stews are often consumed usually contain ground and / or cooked onions, tomatoes, garden eggs, okro, pepper.

"Normally, on a healthy plate, half a plate should be vegetables, and the other half some carbohydrates, but you do not see this very often here." (R4)

"For me, I think [vegetable consumption] is average. We haven't got to stage yet where Ghanaians are eating entirely vegetables as a meal. At that stage we can say it is high. [At the same time] there is no Ghanaian meal, complete meal, that does not have vegetables." (R7)

Ghanaians traditionally consume three meals a day and each meal is usually only one course. Breakfast is usually fairly substantial, although this varies per person: from informal interviews it was inferred that some prefer a light breakfast, while others need to have a substantial breakfast to get through the day. People will often eat *banku* or *kenkey* or porridge for breakfast. Dishes served for lunch and dinner are typically very similar. *Fufu*, palm fruit, fish, beans, eggplant, and groundnuts are often eaten alongside a stew or combined with rice, or as ingredients in a stew.

At the weekends, the Ghanaians that can afford to will eat out. All the fast food restaurants at the Accra Mall were packed with well-dressed Ghanaians. Cheaper establishments called “chop houses” or “chop bars” sell local food and are popular among locals. Finally, street stalls sell local dishes for the least amount of money.

Table 2 Sunyani survey: vegetable consumption

Responses	% Doers	% Non-doers
Vegetable consumption: yesterday, did you eat vegetables?		
Yes	90	85
No	10	15
Vegetable consumption: yesterday, how many servings did you have of vegetables?		
0 servings	0	8
1 – 2 servings	63	70
3 – 4 servings	21	13
5 or more servings	7	0
Vegetable consumption: how often do you eat vegetables?		
1 – 2 times a week	0	42
3 – 4 times a week	0	58
5 – 6 times a week	9	0
Every day	91	0

6.3 Communication and media

6.3.1 Media use

6.3.1.1 Results Sunyani survey

The Sunyani survey included a number of questions to investigate media use. The results show that generally there is little difference between doers and non-doers in terms of frequency of media consumption across radio, TV, and social media, as can be seen in Table 3. 72% of Doers and 62% of Non-doers listened radio to some extent. 87% of Doers and 87% of Non-doers watched TV to some extent. 47% of Doers and 60% of Non-doers browsed social media to some extent.

Table 3 Sunyani survey: media consumption

Responses	% Doers	% Non-doers
Media use: do you listen to the radio?		
No	28	38
Yes, but not much	38	38
Yes, quite often	10	8
Yes, every day	24	17
Media use: do you watch TV?		
No	13	13
Yes, but not much	34	47
Yes, quite often	18	17
Yes, every day	35	23
Media use: do you browse social media?		
No	53	40
Yes, but not much	26	26
Yes, quite often	7	11
Yes, every day	13	23

6.3.1.2 GeoPoll TV and radio report

According to a GeoPoll report the top 15 radio stations in Greater Accra had between 23.000 and 111.000 daily listeners in 2017 (Elliot, 2018). The same report found that in Ashanti the top 15 radio stations had between 39.000 and 186.000 daily listeners, and in the Western region the top 15 radio stations had between 13.000 and 57.000 daily listeners in the same year. Ghana's top 15 TV stations had between 68.000 and 662.000 daily viewers in 2017 (Elliot, 2018), see Figure 6.

Figure 3 Number of unique daily listeners Top 15 radio stations Greater Accra

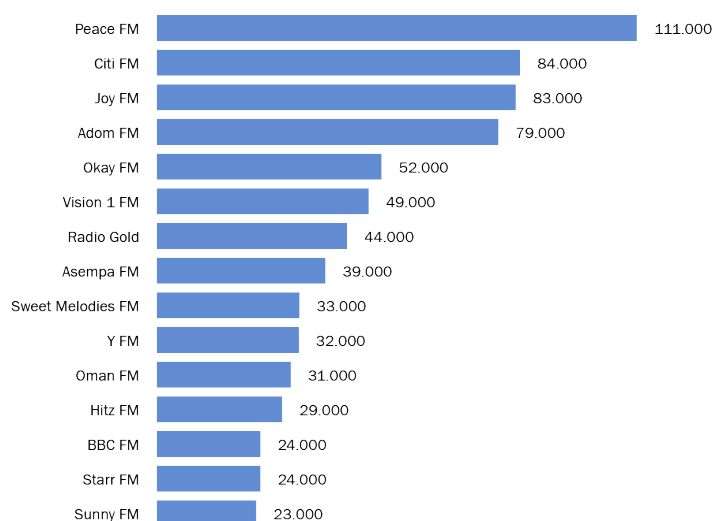


Figure 4 Number of unique daily listeners Top 15 radio stations Ashanti

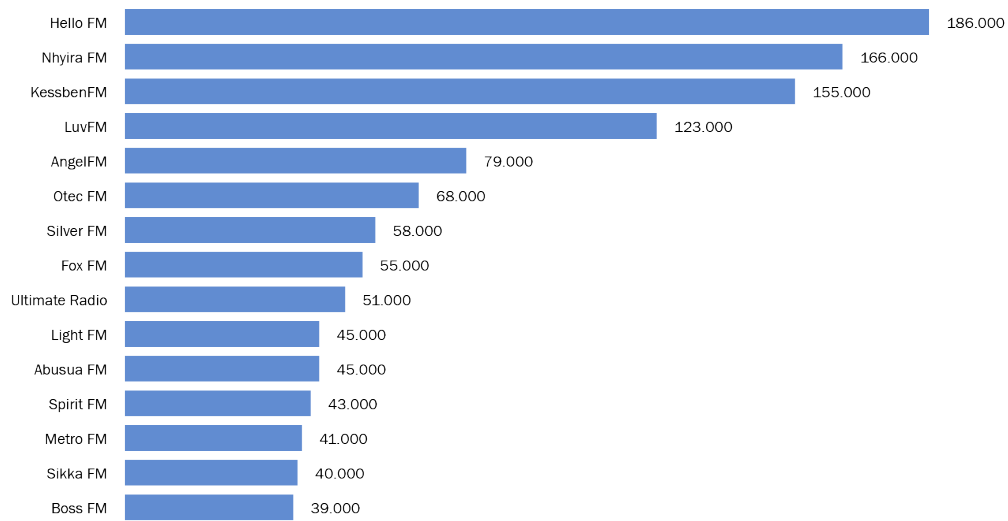


Figure 5 Number of unique daily listeners Top 15 radio stations Western Region

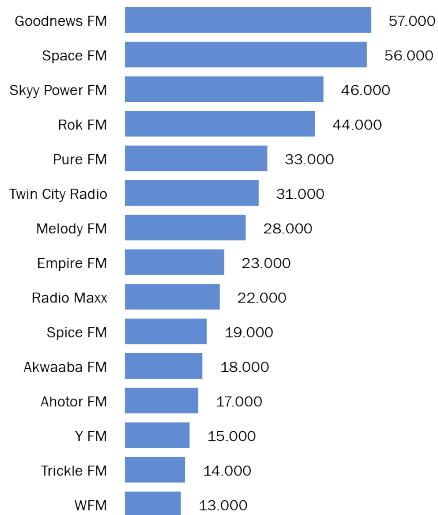
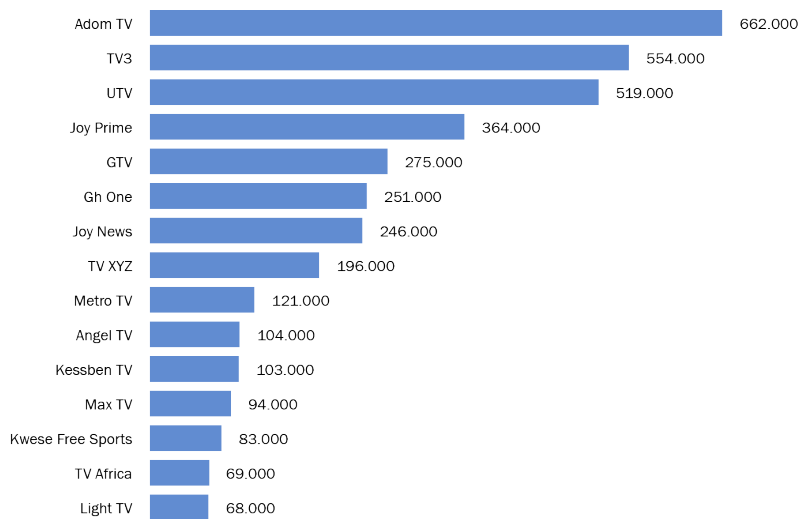


Figure 6 Number of unique daily viewers Top 15 TV stations Ghana

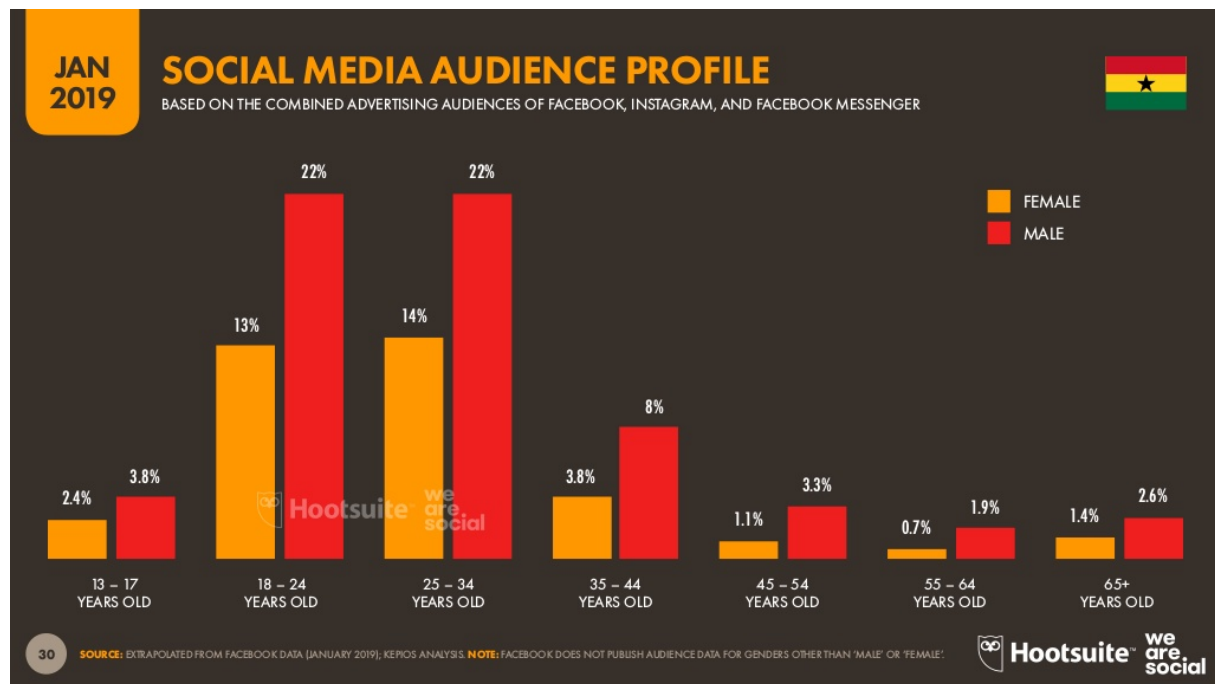


6.3.1.3 Social media

According to We Are Social (2019) in January 2019 Ghana had 5.80 million social media users, amounting to 19% of the total population. Of these, 5.50 million were active on Facebook, 1.40 million used Instagram, and 346.5 thousand used Twitter. The same study reported that the average amount of time people living in Ghana spend using social media was 3h 07m.

71% of total social media users in Ghana were between 18 and 34 years old in January 2019 (We Are Social, 2019). Within this group, 38% was female and 62% was male.

Figure 7 Social media audience profile Ghana 2019



6.3.2 Communication initiatives promoting vegetable consumption

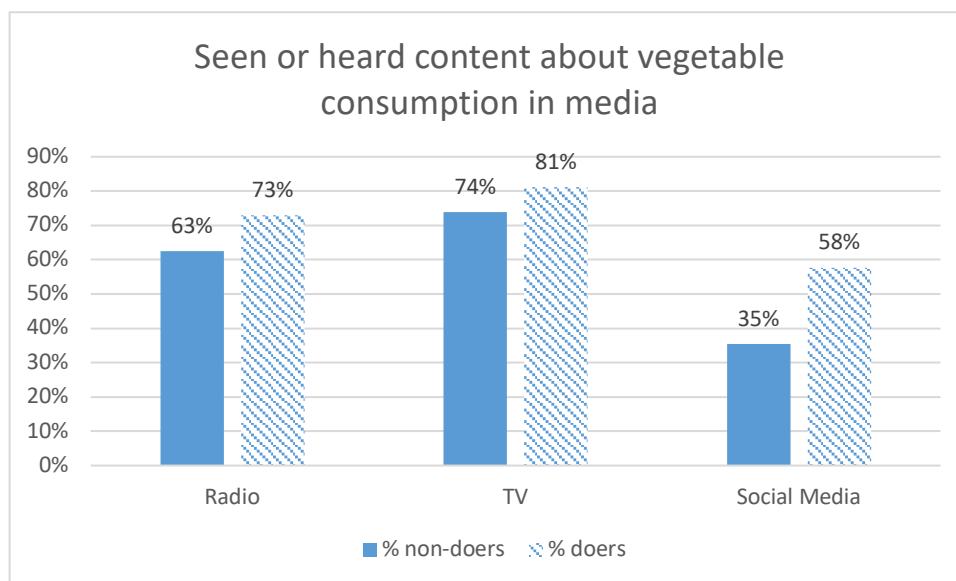
The results from the in-depth interviews suggest that currently there is a lack of communication and media initiatives specifically promoting vegetable consumption. The interviewees were unable to name a specific programme that had this aim.

The shows mentioned were primarily cooking, travel and food programmes, or health shows. The cooking programmes mentioned had the format of a cook show where a host or chef would cook a certain recipe, talk about the ingredients, and interview and involve a guest in the cooking. The health show format usually had one host who would inform the audience about particular topics and interview guests. Titles mentioned: "Asanka's Delight", "Who's Coming for Dinner", "Edziban", "Dining with ..."

At the same time, results from the Sunyani dataset suggest that respondents did regularly hear or see content about vegetable consumption. Within the group of respondents that said to listen to radio to some extent, 73% of Doers and 63% of Non-doers mentioned to have heard content about vegetable consumption. Within those that watched TV, 81% of Doers and 74% said to have seen

content about vegetable production. Within those that browse social media, the percentages were 58% for Doers, and 35% for Non-doers.

Figure 8 Seen or heard content about vegetable consumption in media



6.3.3 Recommendations for communication initiatives

The informants gave various recommendations for potential communication activities that could be incorporated in the nutrition communication strategy.

6.3.3.1 Channel

For the appropriate channel, the informants' suggestions spanned a spectrum from interpersonal communication to print, radio, TV, and social media. TV was explicitly recommended most often (6/7 informants) followed by social media (5/7), radio (4/7) and interpersonal communication (4/7). TV, social media, and print were seen as more applicable to target the urban middle to high income population segment, while interpersonal communication and radio was more commonly suggested to target rural or poorer groups. Most informants proposed a combined approach, involving multiple media channels. Some informants argued that interpersonal communication was most interactive and allowed the target audience to ask questions. Others explained that radio, TV, and particularly social media can be interactive as well, depending on how content was created and whether there were opportunities to phone or comment online to join the discussion. In any case, interactivity, in particular giving space to the audience to ask questions, was proposed as an important factor to take into account for the nutrition communication strategy.

6.3.3.2 Content

Informants approached content recommendations from several angles. Some suggested to focus primarily on the benefits of consuming vegetables. Here, most noted it was particularly important to present specific nutritional content of both local and exotic vegetables (instead of generally promoting the message that vegetables are healthy and good for the body), and to explain how the nutritional content is linked to the prevention of specific diseases.

Communication initiatives should explain that the benefits of vegetables are a result of sustained investment in consuming vegetables. Promises of quick fixes are common sight in Accra. For example, posters that advertised concoctions to help achieve a full grown beard in three weeks were along many of the major roads in the city. Informants explained that there is a mentality of focusing on short-term solutions, therefore care must be taken not to present fruit as a vitamin pill, but as an investment that pays out in the long-term.

Informants mentioned the idea of using popular characters like superman or batman to tell stories about nutrition to children, while social influencers could be used to share stories with adolescents. Others emphasized the importance of using vibrant visuals. "*Seeing is believing*" (R4). Furthermore, the language of the content was recommended to be adjusted to the local language of the region. One informant suggested using content that is in the form of a riddle, triggering respondents to possibly more actively cognitively process content.

6.3.4 Ghana Green Label

During the field study, particular attention was paid to one initiative, Ghana Green Label (GGL). The GGL Certification Scheme is a government-led initiative aiming to improve food safety and environmental sustainability in the production and marketing of fresh fruits and vegetables, and was of a particular interest for this study because of its media presence. GGL is one of the few initiatives heavily active on social media promoting fresh F&V.

GGL works together with Origin8, a marketing and advertising media company, to market F&V. In-depth interviews with both parties revealed that Origin8 is executing the majority of the marketing, which beyond social media has also included point of sale banners, large billboards, and flyers promoting the certified F&V and publications in the *Daily Graphic*, the most widely read newspaper in Ghana.

6.3.4.1 Content strategy

Initially, GGL and Origin8 discussed three approaches to content:

1. Go for Green: emphasises vegetables tagged with the 'Green Label' as a healthier choice.
2. Spot the Difference: emphasises the difference between products grown in a safe / good environment and products grown in unhygienic ways.
3. What we eat... should make us strong: emphasises direct health benefits from eating vegetables and fruits.

The third option was rejected because GGL and Origin8 thought that consumers would believe F&V produced with the GGL certification would have an immediate effect on their health. The GGL representative noted:

"What if I a woman who is sick would think eating these vegetables would make her better instantaneously. Of course, vegetables and fruits are healthy in the long run, but we do not

want consumers to think they are like a wonder food, because consumer might get disappointed” (GGL)

The choice between content approach 1 and 2 was harder to make. To solve this, the GGL representative performed a small sample size test by hanging up posters relating to both versions in his office and asked people who came in to tell him which one appealed more. This test revealed that the ‘Spot the difference’ approach was less straightforward to understand and was therefore rejected, with the ‘Go for Green’ strategy ultimately pulling through as the winner.

6.3.4.2 Social media pages

The Instagram page @ghanagreenlabel has 2606 followers and contains 30 posts (20 pictures and 10 videos), posted roughly once a week, from November 28 2018 until June 5 2019. The average amount of likes per post was 610 on 22 July, 2019. The average amount of comments per post was 4 per post.

The Facebook page /ghanagreenlabel has 1227 likes and 1275 followers. It contains the same 30 posts as the Instagram page, posted at the same times. The average amount of likes per post was 800, and the average amount of comments was 4. However, this includes one post which had more than 14000 likes and 37 comments. Not counting this post, the averages likes per post was 344 and the average amount of comments was 3.

The GGL representative showed screenshots of the difference between boosted posts (whereby small fees are paid to advertise posts to a particular audience) and organic posts. Some boosted Facebook posts had a reach (amount of unique people who saw the post) of more than 500.000. The highest organic reach (not boosted) was 2587.

The posts designed by Origin8 are vibrant pictures and animated videos that almost always (28 out of 30 times) include vegetables or fruit. Most pictures or videos included a short catchphrase (2-10 words) that often included words such as “green”, “healthy”, “fresh”. Other types of posts were designed for national holidays, including Valentine’s day, Independence day, Easter, May Day, and Eid.

6.3.4.3 Comments

Most of the comments from viewers fell under these categories: (1) What does green label mean / are they organic? (2) Where can I get them / when I are they coming to [store name]? (3) Positive response about the initiative (e.g. “wow” “this is a good thing” “we need to support this initiative”) (4) Positive response about the content (e.g. “this looks pretty”).

There was an occasional but rare response from Origin8 or GGL through the Instagram or Facebook profile to these comments. Many questions were left unanswered.

7 DISCUSSION

This study focused on data gathering to inform the Hortifresh nutrition communication strategy. It investigated the (1) barriers and drivers of vegetable consumption, (2) current food consumption behaviour, (3) stages of change of vegetable consumption, and (4) communication and media initiatives promoting vegetable consumption.

This section presents a reflection on the results in light of behaviour change models introduced in the theoretical framework, and discusses whether and how the results are relevant for a nutrition communication strategy.

7.1 Barriers and drivers

Overall, the findings revealed eight barriers that influenced vegetable consumption: price, taste preferences, food safety, upbringing, availability and access, nutritional knowledge, satiety, and convenience. The majority of these barriers aligned with the barriers found in the literature. However, the results from the Sunyani survey did not strongly confirm the barriers mentioned by the informants. One reason for this could be that the respondents to the survey were not probed to provide exhaustive answers, thereby potentially omitting answers that were mentioned by informants or found in the literature. This is possibly shown in the fact that during the informants in the in-depth interviews were able to name and describe around five barriers each, while the respondents of the Sunyani survey named an average of just over one barrier each.

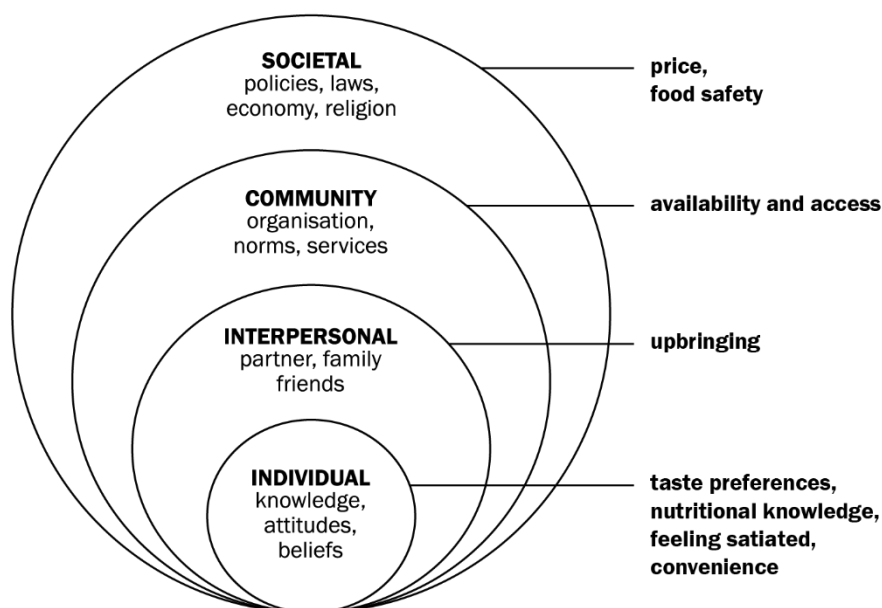
7.1.1 Urban vs rural barriers

Some of the barriers were more applicable to rural areas than urban areas and vice versa. For example, access and availability is less of a problem in large cities that typically have several large markets with many vegetable sellers. Having said that, some of the informants commented that even within cities there are certain areas where vegetables are less accessible. The food safety barrier was more commonly associated with urban areas as people do not have the space to grow their own vegetables and therefore have a lack of control over the manner in which vegetables are cultivated and produced. The convenience barrier was also more often associated with the busy lives and eat-on-the-go mentality of urban dwellers.

7.1.2 Applying the socio-ecological model

The barriers were aligned with the different levels proposed in the socio-ecological model. Taste preferences, nutritional knowledge, and satiety were located at the intrapersonal (individual level), upbringing was categorised at the interpersonal level, availability and access at the community level, and price at the societal level. This categorisation generally aligned with the categorisations provided by Boatemaa et al. (2018) and Robinson (2008). However, Boatemaa et al. (2018) placed price as a factor influencing accessibility at the community level. In the data gathering process of the present study price as a barrier was commonly associated with how it is affected by seasons, therefore it seemed to make sense in this study to put price as a higher level than community.

Figure 9 Barriers placed in the socio-ecological model adopted from McLeroy et al. (1988)



7.1.3 Translating barriers into communication goals

Removing or adjusting the barriers at each sphere to be more favourable increases the likelihood of the target behaviour to happen (Schmied, 2017). While a lot can be achieved with communication, some barriers require strategies outside communication to be minimalised. For example, while consumers can be educated about food safety and efficient ways to handle and prepare vegetables, ultimately the most effective way to minimise food safety concerns might be to target food producers and ensure food safe methods of production are being used.

To tackle the barriers, the following goals were defined and evaluated whether they were best achievable through a nutrition communication strategy or other, see Table 4.

Table 4 Converting barriers into communication goals

Objective	Communication or Other
Price	
Improve cultivation, handling, storage and distribution to lengthen the peak season time and decrease dramatic price fluctuations	Other
Demonstrate how consuming vegetables can save costs in the long run by preventing potential medical expenses	Communication
Taste preferences	
Demonstrate how vegetables can be prepared in an appetizing way	Communication
Food safety	
Train food producers in Ghana about food quality and safety standards and enforce these	Other
Connect consumers with producers that produce food safe vegetables	Communication

Demonstrate easy and efficient ways of cleaning vegetables to reduce chemical and wastewater residues	Communication
Educate the audience about how wastewater and chemicals affect vegetables	Communication
Upbringing	
Motivate mothers to include more vegetables in meals she prepares for family	Communication
Introduce vegetables to children and adolescents	Communication
Availability	
Improve transportation and storage facilities to help increase stock of vegetables in poorer areas	Other
Nutritional knowledge	
Demonstrate specific benefits of vegetables and how these protect from diseases	Communication
Satiety	
Demonstrate how vegetables can be incorporated in meals to provide the feeling of satiety	Communication
Convenience	
Design convenient vegetable products that can be consumed on-the-go	Other
Demonstrate convenient methods of preparing vegetables that can be consumed on-the-go	Communication

These communication goals were translated into a list of communication activities and incorporated into a number of communication strategies that can be found in the strategy document that works in tandem with this research report.

7.2 Food consumption behaviours

The results show that Ghanaians, although consistently including vegetables in their meals, are consuming below what is recommended by the World Health Organization (2003). Moreover, the majority (54%) recommended an intake of less than three servings a day, indicating a lack of awareness of the recommended vegetable serving size.

Next to this, the results further show a lack of diversity in the types of vegetables consumed. Efforts must therefore be made to not only raise awareness about the recommended portion size of vegetables, but also to communicate about the benefits of diversifying the vegetable component in meals.

Finally, the observations of the daily food routines of Ghanaians suggest that communication messages that are related to purchase and preparation of vegetables at home should be shared during week days, as Ghanaians like to eat out during the weekends.

7.3 Stage of change

The results do not show clearly in which stage of change the target group is located. The findings from the Sunyani dataset and the in-depth interviews indicate that Ghanaians are consuming vegetables, but not to the extent that is recommended by the World Health Organization (2003).

While more than 90% of the respondents said they were convinced that vegetable consumption was good, 69% had eaten less than three servings of vegetables the day prior.

Perhaps the objective of increasing vegetable consumption needs to be more specifically defined. Considering less than half (46%) of the respondents to the Sunyani survey recommended to eat three or more servings of vegetables a day, one could argue that if the desired behaviour is defined as 'to consume three or more servings of vegetables a day' then the majority of Ghanaians are not aware of the problem (pre-contemplation stage).

At the same time, it is clear that some people see the benefits of consuming vegetables and would like to consume more (preparation stage), but are concerned with the safety of the produce, believe vegetables do not 'fill them up' and / or may be apprehensive of the taste. An effective behaviour change strategy should aim to eliminate or reduce these barriers such that the perceived benefits of the behaviour outweigh the perceived costs.

7.4 Communication and media

7.4.1 Lack of communication initiatives promoting vegetable consumption

The results suggest there is a lack of communication and media initiatives specifically promoting vegetable consumption in Ghana. Most TV and radio programmes related to food and nutrition are in the form of cook shows and food travel programmes, but none have the specific aim of promoting vegetable consumption. Two nutritionists stated to have a social media page promoting nutrition information, one nutritionist hosted a healthy lifestyle programme. The GGL social media pages provide some insight into what might work well in the Ghanaian context in terms of post content. The comment sections indicated that there is a market for food safe vegetables and that many are not sure where to locate such produce. Overall, the current media landscape in Ghana shows that there is a need and there is ample space for media initiatives to tackle the communication goals described in 7.1.3.

7.4.2 Media use

Considering the low penetration of active social media users in Ghana, it is not surprising that the results from the Sunyani dataset indicate social media to be the least consumed media channel compared to TV and radio. Nevertheless, the percentage of users is more than double the penetration percentage of active social media users in Ghana which is most likely due to the fact that the survey was administered among a young urban population group.

In contrast with the results from Sunyani, in Accra 100% of the people talked with during this study that were between 18-34 were active users of social media, with several commenting that they browsed social media much more than they watched TV or listened to radio. This means that a social media strategy might be particularly effective in Accra, but care must be taken to choose the most applicable channel or combination of channels depending on which area in Ghana is targeted.

7.4.3 Communication initiative recommendations

Not bound to budget or human capacity specifications, informants recommended using a combination of TV, radio, and social media to reach the target audience. According to them, content should focus on emphasising and demonstrating specific nutritional benefits of vegetables and how these link to disease prevention. Any visuals used to promote recipes of vegetable related facts needed to be vibrant, colourful, and engaging.

7.5 Limitations

This study has several limitations.

7.5.1 Sampling

There was limited control over the manner in which the Sunyani survey was conducted. One of the consequences of this was that respondents were not probed to provide exhaustive answers, which might have given significantly different results. Furthermore, a snowball sampling technique was used to find informants. It is possible that they shared the same perspectives on the topic, creating a bias towards a similar opinion. Next to this, media outlets such as TV and radio channels were not directly contacted to find out about existing communication initiatives that promote vegetable consumption. Instead, all data related to making an inventory of these was collected indirectly by interviewing and surveying people.

7.5.2 Timing

The study was conducted during the rainy season. Because of the differences in availability across seasons, it is possible that the responses elicited, in particular in the Sunyani survey, were biased towards the circumstances. To best measure the average consumption of vegetable in Ghana, it is recommended to conduct two surveys under the same population—one during the season in which vegetables are abundant, and one in the season during which vegetables are scarce—and take the average.

7.5.3 Theory

Both models used in this study were helpful in creating communication objectives, however the findings also uncovered some of their had limitations. For example, the socio-ecological model does not include space for environmental factors that might affect behaviour. In this study, availability and price as a result of changing seasons was mentioned several times, yet it was difficult to place these factors in the model. A suggestion could be to add a circle in the socio-ecological model to account for such factors. The stages of change model does not provide a standardised way of interpreting which stage a given population is in. Next to this, the behavioural objective needs to be made very specific, to measure each stage against.

7.5.4 Concept of vegetables

The concept of 'vegetables' was not understood in the same way across all respondents and informants, which might have produced some incorrect results. The fact that there was a difference

between local and exotic vegetables was only noticed after the first interview. In order to minimise confusion, during each interview the definition of vegetables was clarified.

8 CONCLUSION

Overall, this study has indicated that there is a need for a nutrition communication strategy to promote vegetable consumption among Ghanaians. The research population is currently consuming vegetables, but in quantities below what is recommended by the WHO. Eight major barriers to increased vegetable consumption surfaced from the data collection that were translated into ten communication objectives that target all socio-ecological layers in SEM. Different communication channels can be used, however social media is best recommended as it offers comparable reach to TV and radio, but it is more budget-friendly and can be used to directly target the target audience. Additional guiding principles as well as five concrete nutrition communication strategies have been described in an accompanying strategy document.

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10 APPENDICES

10.1 Appendix 1: in-depth interview transcriptions

Date: 15-05-2019

Type of interview: in-depth, semi-structured

Face-to-face or remote: remote, phone call

Interviewer: Stephen

Interviewees(s): R1

Location: Stephen: Accra, Ghana; R1: Tamale, Ghana

R1 trained as a nutritionist, and worked in the health service in the hospital for four years. Now is teaching in the classroom, teaching the new generation of nutrition of officers for the ministry of health. Is more of an academic right now but is still working. He believes the new generation of nutrition officials should be aware of the trends to better work with clients and beyond. R1 is head of department in charge of curriculum and training. Aside from this he has got his own consultancy (pro bono), going round churches schools and communities and providing them with health and nutrition information. Also does screening services and provides one-on-one consultancy with people, attending to their personal needs. R1 believes everyone is in control of their diet. He also takes students along to different trips and schools to do nutritional assessments.

INTERVIEW START

[Interview began with a brief introduction to the project, and a request of consent to the recording]

Stephen

What do you share with the churches and school with regards to vegetables?

R1

We usually talk about healthy, dietary habits. We talk about the essence of consuming vegetables and the benefits that come along. So sometimes we talk about a specific vegetable and then talk about the nutritional components of the vegetable, and then the various ways that it can be prepared and used. Sometimes we talk about it generally, about probably overcooking, what to combine with what, then how they can be used in different forms of meals. But there are the times when you have to demonstrate, because if you are talking to all the people about what and how you are supposed to eat and yet you are not able to show it. If you do this, the first reactions from people are "I have not seen how it can be done" So the element of demonstration is key.

Stephen

What do you think has more impact? Talking about nutrition of vegetables generally or focusing on specific characteristics of certain vegetables?

R1

What happens basically is, when you talk about specifics there is a lot of interest. Generally there is a sense that vegetables have minerals and vitamins. Yet there are some that think that this is vitamin A rich, and people think all it contains is Vitamin A. But when you talk about that it has more than just Vitamin A, that it has other minerals and vitamins then they begin to understand that "Oh okay, this is also for that". So when you begin to talk about it, there's iron in this one, protein in that and so one. So when you talk about the regular and diverse consumption of vegetables. And maybe it is the way we carried information, the idea that carrot is Vitamin A. Then we don't make them understand that besides Vitamin A, carrot has other vitamins and minerals besides vitamin A. And then we talk about the general thing that for example, if carrots have lost their orange colour, then probably they have lost some beta carotene, some vitamin A. Probably in the water used for boiling. And then most of them pour away the water. So you encourage them to eat it rather fresh, in the salads. So it depends on the discussion, what people say, and then you realise ah there is a concern along this line, so you focus on that.

Stephen

Where do you go when you share?

R1

This is in the area. In the centre of Ghana (also close to the Yamfo School of Nutrition). When I used to work as a nutritionist in the hospital I worked in the North, but then I relocated to the school once I started teaching. So I have moved around, I have done this in the upper east region, in the northern regions, in the Brong Ahafo region. So I have talked to people, interacted with them across those regions.

Stephen

Do you see a difference between the regions in how people are aware?

R1

So yes, there is a difference the north and the south in terms of what vegetables are used. All over the land people consume foreign vegetables. In the north they consume a lot more of the leafy vegetables. If you move down south, there are a few of the leafy ones, but a lot of cabbages, carrots, green peppers. Right now because of the market forces, there is a mixing of these vegetables, so even in the south you find vegetables from the north.

Stephen

Difference between rural and urban areas?

R1

So what happens is people in rural areas use vegetables that are in their vicinity, growing around their house. They have easy access to it. But if you move to urban areas, where there is less space for the gardens, they will tend to go to the market to buy the vegetables of foreign origin. The urban tend to eat more of the foreign type, even though intermittently they will use some local types, they will mostly eat the foreign origin (imported or locally produced). In the local/rural areas they produce foreign vegetables to bring to the market for cash, not to eat it themselves. The first instinct is to bring the best vegetables to market for sale, and feed on the ones that are left. So while they are trying to be subsistent, they may not be consuming as required.

Stephen

So you train nutritionists, are they young people?

R1

Yes, student age. So they are studying for their BSc Community Health and Nutrition. They are usually from 25-28.

Stephen

Do they cook their own food, do they live on their own?

R1

In my institution we also prepare food for them as an institution as a package, from the first year until the third year. In their final year they have to move out of campus and field themselves.

Stephen

And what do you think of their diets once they move out?

R1

[Laughs] Once they move out it becomes... they're combining it. Because in the previous three years someone prepares your food so you do not need to bother about taking time off to prepare food. In the last year you need to buy food to prepare it and combine this with school, so it's quite a challenge for some of them, but I think that generally they should be able to prepare their own food adequately. The challenges can be like we're talking about vegetables, the idea of including vegetables in the cooking. Others are not cooking at all, they are just buying straight up, from restaurants or vendors along the way. Especially the guys, they might not even know how to prepare anything proper.

As part of their dietic programme, we try to teach them to prepare for certain diets, but we do not actually teach them how to cook for themselves, that's an acquired skill. So some of them might have skill to cook before they came to school, or they could just pick it up from friends. But I believe it is

also important for institutions like that to begin to conduct cooking demonstrations. For instance, if you want to prepare a particular type of vegetable, that is the way to go about it. It is one thing to know that consuming vegetables has benefits, it is another to show how a particular vegetable can be prepared in many different ways. If you prepare it in just the same way all the time, you may get fed up with it and may not want to go back to it. But if you find out how to skilfully incorporate a particular vegetable into a variety of dishes then you stand to benefit from the nutritional stores of that particular vegetable.

Stephen

So you're saying, making sure that people are aware of the diversity of meals people can prepare with a particular type of vegetable might motivate people to eat more of that vegetable.

R1

Yes [affirms]

Stephen

What do you are the barriers for people to eat vegetables?

R1

So for me, from my line of work, the people I have interacted and stuff, one of the major barriers is the perceived safety concerns of the use of chemicals in vegetable production. Because, almost everywhere I have gone and spoken with people about the need to incorporate vegetables into their meals, the reaction that pops up is that "Ohh people are using chemicals" so they are not sure about the safety of their food with the use of chemicals. So for me it is one of the major put-offs that is not helping people take a decision as to how, whether they should take it in the first place, and the concern of what will happen to them. That is a barrier for most people taking it up. And so if we can assure that the vegetable is produced with internationally accepted standards, or organic, then that concern will have been taken care of.

Stephen

Why does everybody talk about this?

R1

I think it is more of the concerns. There have been a few incidents where people have eaten vegetables or even grains that have been stored with certain chemicals that the outcome has been, their whole families have suffered, tragedy, because of some chemicals. So for instance if you're storing legumes or nuts and stuff, you sometimes use

chemicals to store it against insects, so you would expect that these chemicals would have lost their potency but in between it there may be an incident where the thing gets out and people would have consumed it in. And then people have problems, some have even died, there have been stories of that. And if you heard that some people have consumed something that contained chemicals and have died, then naturally you would be concerned that if I took the chemical, cause see for us, the chemical is much more fast active. Cause even though I might know a vegetable is good for me, the chemicals might cause more harm. So there is a stronger concern for that than there is perceived benefit of eating vegetables. So based on that people might stay away from this.

Stephen

So you suggest the best way to talk to people about this is encouraging people to buy produce with internationally accepted standards.

R1

That's what I think it is. Because if my concern is "Ooh there are chemicals" then if you can assure to me that this vegetable is produced or organically or, even if chemicals are used, they are applied in an internationally accepted way, that is safe, then my concern would have been taken care of.

And then the other would be, why don't you produce your own vegetables. So if you have your own plot of land that you can use. Then you encourage people to cultivate, and then you know that they can cultivate knowing they did not apply chemicals. So when you consume from your own place you have no trust issues with anybody selling it to you, thinking that the person is trying to maximize profit. So the barrier of not trusting the chemicals will not be there anymore because it's you who produces it. And I know that for those who are producing also to consume themselves are careful of how to apply the chemicals, also in the case of irrigation, using the right water. They are careful because they know they are going to ingest it anyway.

Stephen

So for urban places, it might be important for people to establish a connection with producers to build a trust relationship, knowing where the produce has come from.

R1

Absolutely, a connection, I think that's it. You know where it is produced, how it is produced. This will increase your confidence about how something is for you as a consumer, making it more willing for you as a consumer.

Stephen

Are there any other things besides safety that you see is forming a barrier for people to eat vegetables?

R1

Yeah so another issue might be the fact of seasonality. In Ghana there is the rainy season and the dry season. So in the rainy season anybody can produce something, so there are a lot of vegetables available and it is quite cheap. In the off-season a lot more people can no more produce. So very few people can produce, some using irrigation methods. So because the quantity on the market reduces, so the prices shoot. So at that time a lot more people may cut on their vegetable consumption (variety) because they are not there, and also because of the high prices. So if we can assure that the production can be sustained across seasons, then maybe the prices can be controlled and the variety can remain available for people to use.

Stephen

Are there any innovations that people use in their houses to sustain production across seasons, or will those innovations have to come from a larger scale?

R1

I think those innovations will have to come from a larger scale, and then make the households pick them up. Because as it stands now there are virtually no proper ways of storing the vegetables and making them last longer. And so because of this there is a lot of food wastage. The vegetables go to waste during the rainy season. Crate of tomato is sold for virtually nothing, and then a month or two later the crate is almost beyond the reach of an ordinary person to buy. And so if there can be ways to improve storage or processed slightly, then it can be readily available during the off-season. But right now I don't think we have any very efficient innovations to do that. For I think that's where we should be looking. It takes a lot of time and resources for people to produce vegetables. And if people are not getting access to vegetables when they should have access to it, then it doesn't [...] well for us concerned with nutrition and food security issues.

Stephen

Anything besides safety concerns and seasonality that can be considered a barrier?

R1

Yes, I think in the seasonality I have factored in the price, another thing might be the taste preferences. Some people have not been trained to use a lot of vegetables. So maybe in the household that you were living, the person that was

preparing the meals never incorporated a lot of vegetables into it, if vegetables were never part of your upbringing or your training, and consuming some sort of vegetables may be an acquired taste, you may have to consume it over time to become comfortable with it. So when you are not exposed to it early enough it virtually goes "Me, I don't eat vegetables" I've literally heard people "Me, I don't like vegetables". When they are consuming meals where vegetables have been incorporated, you see them dragging the vegetables to the side of the plate, and eating what is left. [laughs]

Stephen

Also, the way it is prepared, can influence whether you like it or not. Examples of my own preferences.

R1

Yes, in addition to and in line with what you are saying, if the student or the person has never been exposed to the variety of ways of preparing, and knows just one way of preparing it and the person does not like it or has had a very unpleasant experience with it. From what I have known for many people, the first time they took that vegetable they didn't actually like it, is probably from the way it was prepared. And then they just formed this idea for this vegetable, "Ah I don't like it". But if it had been prepared in a different manner, he or she may begin to eat it because he or she might like it prepared in a different way.

Stephen

And in terms of what motivates people, what would be good ways to motivate people, what has a good impact?

R1

Yeah so I think information, creating awareness, the way someone is being informed. And all of a sudden they think "hey, this vegetable that I did not like to eat, has this and this and this and is good for my health" And then the person may start to make a conscious decision to start incorporating it into their meals, because it has this, that is good for me. Yeah so I think one of the major ways that we should be doing this, is to ensure that the people are being informed. It doesn't initially mean that when they are informed they would choose right, but the one who is properly informed has a greater chance of choosing to do the right thing and to probably eat more of the vegetables for better health reasons than the one who is being informed. So there are some people who are staying away from it generally because they are mistaken or they don't know.

Stephen

So you think there are still a lot of people that don't know about the benefits?

R1

Yes! So it's much more general. So it's eat your vegetables, increase your consumption of fruits and vegetables. We say that a lot, but it does not come to the personal level. What we are saying is very general, but it does not come to the personal level. And I am sincerely of the view that if we can target particular vegetables if we want to enhance its consumption. And then narrow down. Because it is not enough to say there are vitamins in vegetables, per vegetable there needs to be said what you get from it. Because then the person consuming the vegetable will think of "Oh in this I get that, which is good for that, when I take this I will get that." But when we share general information about that it is good for you, then this does not come down to a personal level. So for me, I have done that and I think the best thing we can do is handpick particular vegetables. So the issue is how can we share about particular vegetables. That this one comes with this particular benefit, and the different ways of preparing it, so that there is a retention of adequate quantities of minerals or nutrients in it. Because like we are saying, if you overcook some of the vegetables you are going to lose some of it through the heat, or the water that you are using to cook it. And so if we don't narrow down like that, then it becomes a problem. So also per target group, for example for adolescents, or for expectant mothers. People will hear the general messages but not know how to personalise it.

Stephen

What message would you bring to adolescents to eat more vegetables?

R1

Well, adolescents are growing, so I would focus on the vegetables helping them grow, and also prepare for their future, in their roles as mothers for example. So with all the aspirations of growing up, getting married, having children, it is an inert link to connect the consumption of vegetables with what they want to become in the future.

Stephen

And in terms of which media to use? Radio/TV/Social Media

R1

Yes, I think it should be multi-pronged approach. So some might say radio gets results, there are people that listen to radio almost every time. And then there is another group that

you can target with television, especially around particular times. So you need to think of when you are going to have all these people around their television sets and all of that. But the social media, in the fourth industrial revolution, in the information age, the social media reaches across. So what could happen is that, we could produce short videos and messages and flyers and stuff and put them on social media and share them across. So for example, I have a lot of followers, so if I share it, a lot of people will see it. So social media has a wide, wide scope. But it does not negate TV and other media. And then there is also the face to face. The thing about radio, about TV, about social media, is that people do not get to ask their questions. So you don't get to personalise it. And so after you have probably done the social media, television, radio campaign, we need to also go out there and meet up with the people, and answer their questions, and respond to their fears with all the misunderstandings and myths. So it becomes a challenge.

One of the barriers that exists that I have not mentioned is blood group diets. Yeah so there is a lot of talk about certain things that fit with certain blood groups, while there is no scientific evidence. So that is also one of the questions that I meet every time, everywhere I go. That they thing they should not eat that or that based on their blood group. That form of information needs to be tackled. This kind of information is shared all over the place. That one and the question about safety are the two questions I get almost everywhere where I get to talk. If you are going to be preparing any kind of strategy you should be tackling that too. Because you know when people hear it on television or radio, they take it as a the gospel truth. They will not ask questions.

Stephen

Imagine you had one message to share with people concerning messages, what would be the message.

R1

"You are what you eat" I wrote an article and it titled "Is what you are eating, eating you?" As in what you are eating, are you thinking about your health? Are you thinking about the bottom line? The impact of it on your health? Or you are just thinking I am hungry I need to get filled up, so you fill yourself up with whatever you find. So you are what you it is simply, you are a sum product of all these things that you have eaten over the while, because your body is going through a lot of regeneration. It is the food that is being put in your body that is being used for the build-up of your body. And so if you are putting in foods that you know are not of good quality, over time your body will be of very poor quality. But if you are eating high quality foods, then your body will

be using these high quality foods to build itself, and you become much more resilient and healthier. And so based on that I always say that health is by choice, it is not by chance. You need to choose, and whatever choice you make has consequences. And when you get sick you have to understand that it is because of the choices you made yesterday that are making an impact today.

Your health and your nutrition cannot be left to chance. Whatever you put into your mouth today is going to manifest another day. It is not spontaneous, but it will manifest itself at one point. So as the other nutritionist put it, you can talk about in five years' time, but if you look at the life span of the cell, it does not even take 5 years, but overall you are saying that what you are eating today is going to manifest, so you may end up spending a lot more, in medical bills over time than if you were careful about nutrition. So you may decide today by eating healthy by incorporating health into your diet, or you go for the cheap foods that are available now (junk foods that are available now) and then pay medical bills later.

[Closing remarks, word of thanks]

INTERVIEW END

Date: 19-05-2019

Type of interview: in-depth, semi-structured

Face-to-face or remote: remote, phone call

Interviewer: Stephen

Interviewees(s): R2

Location: Accra, Ghana

INTERVIEW START

[Introductions of the project and consent for recording.]

Stephen

Maybe you can begin by introducing yourself?

R2

I am a nutritionist. I have a nutrition Consultancy. Management of dietary needs, nutrition education. I also have a TV show running on a local TV station GH1TV, on channel 361.

Stephen

What's the show actually called?

R2

It's called the Wow Lifestyle Show. It's about anything related to our health and well-being but because I am a nutritionist it's nutrition biased.

Stephen

Maybe we can start off with what do you think are the main barriers for people in Ghana to eat vegetables. generally the vegetable consumption percentages are quite low in Ghana. Do you know why that would be?

R2

Ok so my conversations with people and with professors who have done some of this work, one thing that people say is that it's related to the cost. For example the cost of an apple is two cedis or one-and-a-half cedis. People buy something that makes them follow something that will make them feel satisfied. I think society is one and socio-economic factors is another. And then we also have culture. We are not used to the way we are now told to consume fruits and vegetables. a typical Ghanaian meal will have some carbohydrates and an overcooked tomato stew on the side and no sign of lot of vegetables.

Most children or people in the villages might consume vegetables a lot, but this is because of the availability, the fact that they have planted some in their garden. It's easier for them to eat, but when it comes to the cities or the urban areas it becomes a difficulty. Even for those who can afford they need to understand the benefits because it requires a conscious effort to eat more vegetables.

Stephen

So for those who can afford it the main barrier is to do with understanding why it's beneficial.

R2

Right, right, the knowledge that I'm supposed to take about 3-5 servings of fruits and vegetables a day. Some people don't know. Others may think that taking an orange a day is enough and that they are done, once they can afford that, they will have that as part of their daily meal.

Stephen

So you're saying that some people are not aware of the recommended portion size.

R2

There is a gap in education about this.

Stephen

That's interesting, so you're mentioning some distinctions between the urban and the rural area. You say that in the urban area it's less accessible and more expensive. So the barrier is price, but for people that can afford it's more about nutrition awareness, and more specific nutrition awareness to do with portion size and what other knowledge are people missing do you think?

R2

I would also say food safety, because we hear that the fruits and vegetables are grown with chemicals, and these come with recommendations about how long after they are sprayed with chemicals the harvest should be done. But I think some farmers don't have the patience to wait. So they start the harvest too early. I had an interview with someone who works with the FDA, the food and drugs authority, and they brought this up. They did a survey and this is one of the key findings that when they went to the farm through some of the observations they made. So when people hear about these things they become sceptical about eating fruits and vegetables. So that is also another barrier that we can look at.

Stephen

So what do you think would be ways to motivate people, knowing that these barriers exist? What are you doing with your show, how do you get rid of these barriers?

R2

Okay so what I think is that for cost we might need a government intervention to find innovative ways to make it

more affordable, for people in the urban areas. When it comes to the lack of information, when it comes to the benefits. We have the Ghana Health Service, we have the ministry of health, they can start an active campaign to advocate for the consumption of different vegetables. So for my show, people usually send questions on our social media handles and we use the opportunity on the show to answer questions or inform the public about things they need to know about. We have treated topics like food supplements and functional foods. We talk about detox. We talk about natural ways of detoxing, using our own foods. So there are various topics that we handle, for example food safety and your health. We try to bring topics that will educate the public. One person cannot solve the world's problems or the country's problem, we need stakeholders to come together to advocate for some of these healthy lifestyles. So if I know the benefits, and I know that if I eat 3-5 servings of fruits and vegetables a day it's going to protect me from long term chronic diseases and I am conscious of it, then when I have some extra money it will be easier for me to buy, but I don't know the benefits, I am always focused on what will make me full, and I'm not thinking about the benefits that I will get out of it. In terms of culture, I mean there are some of us who have already, I mean, we weren't brought up that way so we just need to make a conscious effort. Even for people who are on a diet plan where they need to include fruits and vegetables in their diet it's difficult for them, because it's not part of a habit, they need to make a conscious effort to do meal prepping so that it's easier for them to follow the diet plan. So I think it all boils down to education, commitment, to having a healthy lifestyle. And I think the government needs to come on board, people who are in the field of nutrition, food safety etc. People should come together and find innovative ways of improving the consumption of fruits and vegetables.

Stephen

Could you maybe tell a bit about your show? What have you seen in terms of the impacts? What is the idea behind it? What has been the reaction to it?

R2

Okay, it's quite a new show, we are in our second season. When I say we are in our second season this means that we are in our fifth month. We started on 31st December 2018, a season runs for three months, and we are in our second season which will end next month. People send us messages. People are becoming aware of the show. And they send messages to us, they enjoy the topics, they ask questions. For example about the blood type diet. People are becoming conscious about their health, so anything that relates to their health they are curious about it. Most people who call usually want to lose weight. So usually we do have programmes that

we put them through. And we get a lot of feedback on the various topics that we handle. They are learning a lot from the show. For example I was talking about the blood type diet. Some people were not even aware that there is something called the blood type diet. Some people are also doing it, but are not doing it the right way. Most people, in Ghana here people have less recognition for nutrition so even if they come to you to manage their nutritional needs, they expect you to do it for free or without charge. They don't really value it. You are what you eat, so when you don't eat the right thing you stand the risk of chronic diseases. So I think so far the feedback has been good, we just have to make people aware of the show, because it is quite new. It's just one station and it's once per week so we are still working on having the awareness, and possibly having it on another station, which might help catch more viewership.

Stephen

And do you know if there are many other shows like yours?

R2

No, no, no, there are no nutrition related shows. There is another health show on the local station, but it's not related to nutrition.

Stephen

Okay, so there's not much on TV that raises awareness?

R2

No, no, nutrition no.

Stephen

And do you know if there is anything on the radio about this?

R2

Radio, well usually they do health, but nutrition, nutrition is now coming up. People are now becoming aware of nutrition, but in terms of publicity I would say we haven't gone too far.

Stephen

What do you think of the potential of social media, for communicating nutrition?

R2

I think social media has a very great potential. Unfortunately when they are doing something like this you don't get so much support. So for example, I have been trying to look for sponsors for my TV show. And companies are looking for benefits, because they have limited budget. They are looking to sponsor programmes that have high viewership. So for example in Ghana, programmes that have high viewership are the Indian movies, the series that are running, so

companies would rather put their money in programmes like that, that put their money in your show which is more impactful, the sponsors are not willing to go that extra mile with you. I believe if we have the right offers and plans in place I believe we can make headway as far as nutrition is concerned.

Stephen

So if there was one sentence that you could share with people, if you would limit yourself to one sentence, what would it be?

Stephen

If you would want to stimulate vegetable consumption, and you had a number of people in front of you, and you had to limit yourself to one sentence, what would you say? What's your main message?

R2

I think what I would say would be: Fruits and vegetables are essential to keeping you away from the doctor and chronic diseases.

Stephen

Okay, so the focus on preventing diseases and keeping healthy. Do you think people make that link? Do you think it's a missing link between understanding that eating vegetables prevents from diseases?

R2

I don't think people have that information, I don't think people think about fruits and vegetables in that way.

Stephen

One last thing would be what kind of age group would you target, or are you targeting with your show? What kind of age group is important to target concerning fruit and vegetable consumption?

R2

Well nutrition in infancy, in childhood, translates into adulthood. So I believe we have to start with the children, and we have to make their parents understand as well. So for example my show can be understood by adults, and children in primary and secondary school, but if we really want to be effective in promoting the consumption of fruits and vegetables and we are thinking about long-term we are thinking about the future we need to start with school children. I am even planning a school talk where we will be educating the school children about good nutrition, the importance of good nutrition. I am just in the process of getting some sponsors and some partners so that I can do this.

[Closing remarks, word of thanks]

INTERVIEW END

Date: 18-05-2019

Type of interview: in-depth, semi-structured

Face-to-face or remote: remote, phone call

Interviewer: Stephen

Interviewees(s): R3

Location: Accra, Ghana

INTERVIEW START

[Introductions of the project and consent for recording.]

Introductions including the explanation of the project and questions about consent.

Stephen

What do you actually do?

R3

I have a background in nutrition and dietetics, and I am interning at the university hospital, and I also do health talks on nutrition to the public.

Stephen

Are you enjoying the topic and the work?

R3

Yes, I am enjoying this topic. I want to promote nutrition in Ghana in the near future because our eating patterns are questionable. So promotion needs to be done on this topic to prevent NCDs in this country. That has been my focus and has motivated me to do the masters in human nutrition and dietetics. I am looking forward to doing a PhD so that I can be an expert in this topic. I want to help develop policies so that I can improve the nutrition of our country. That is the focus for my career.

Stephen

Nice to hear, really nice goals. I've been talking to some nutritionists and past week and I like the enthusiasm that people have and I've also heard that it's really necessary to share a lot about nutrition, because as you said the diet is questionable.

Stephen

So maybe we can start with that, why do you think the diet here is questionable?

R3

I would say nutrition has not gone down well with most Ghanaians. Most Ghanaians don't really understand why they should include nutrition in the way they are eating. Most Ghanaians think the way their parents or grandparents taught them how to cook, the traditional dishes, is the way they should go about it. If there are any current trends or

eating habits, they don't really understand the need for nutrition.

If you tell a Ghanaian that it is not healthy to eat fried rice with egg at 9pm, a Ghanaian will say this is something I have been eating since my childhood, and it doesn't cost anything. They will say that they have been eating this at night and haven't felt anything so that is how Ghanaians think. And most Ghanaians, especially with fruit and vegetables, they think as long as I have my carbohydrates and my proteins, then I am okay for the day. And then if you take something like cabbage, it has no calories and virtually no taste, so why should I add it to the Waakye that I am eating, or the rice that I am eating. That is the main concern about Ghanaians. It is about changing their attitudes and understanding that nutrition is a lifestyle that we can adopt. That's the mindset. So if I say it's not good to be eating kelewele in the night, then a person will say "oh but kelewele is plantain that is fried and it is nice and delicious". So I think they think about it, but there are these strong habits and preferences. Ghanaians don't usually relate what they are eating to the increased likelihoods of getting an NCD.

Stephen

Ah, they don't see the link?

R3

Yes they don't relate to previous diet. For example, if it is related to an infectious diseases like malaria then it's easier for them to realise that it's connected to something that they did, for example sleeping in certain place and there was a mosquito in the room and they got bitten. So because it works differently with NCDs, they are not able to relate the junk food that they are eating to hypertension etc.

Stephen

So far you have actually already mentioned three reasons why people do not eat vegetables, the way people are brought up, the link between eating healthy and diseases, and then also the expense of vegetables. So that's already quite a few reasons. What is the main reason why people are not eating fruits and vegetables? What is the primary reason?

R3

I think the primary reason is that people are not taught to eat fruits and vegetables at home. At home no one cares about whether you are going to have fruit as part of your meal. So if the mother is preparing food, fruit is not part of the menu list. The mother will wake up early in the morning and tell the child that she will prepare rice and stew. And the person will eat this rice and stew growing up from nursery to

adolescence, then the person will become an adult, so all the person's life, the person has not been used to eating fruit with their meal. And then one day a nutritionist will give a particular diet, recommending to add fruit to it. And then the person will question why to add fruit to their rice with lunch or supper because they have done so and nothing happened, and they are not used to it. So the main reason, people grow up eating something in the past, and then want to eat the same in the future or the present, that's the main reason.

The second reason is that most of the clients that I have met have doubts about most of these fruit and vegetables, thinking that these have been poisoned by chemicals, as such they fear to take some of these chemicals. They won't even go to take fruits and vegetables. That's also another reason. Then the third reason will be the taste and preferences. Someone will say that if they eat they will have some burning sensation and will not like it. Another will say that after eating orange they might say their teeth will feel funny the next day. Some others will say they don't like chewing the vegetables in their mouth, they might like something that is soupy, like banku with palm nut soup.

The fourth thing I will also say is that nutritionists and health professionals have not really educated the people about the benefits of fruits and vegetables. People don't know the reasons why they should add fruits and vegetables to their main meal, when they are getting the main starches from the legumes and the other components. That is another crucial reason why people do not consume fruits and vegetables in our country. Even though we do grow them in this country. Sometimes I am worried. There was a time I was traveling to Accra, and I saw this fruit and vegetable joint, and this kelewele joint. And I saw nobody standing around the fruit and vegetable stands, and about fifteen people were around the kelewele stand around 6.30pm. And I was like "wow, they do not like consuming fruits and vegetables". And the reason is because people do not believe they will get enough calories for their night. Eating fruits and vegetables will not give them anything. So I will go for kelewele which will also give me some taste and energy. Kelewele (fried rice and plantain).

Stephen

So that's competing behaviours in a sense, because if there is an option between two things, then people will generally go for something that will fill them up with calories. So what do you think according to you, would be the best way to encourage people to eat vegetables, since you've mentioned all these barriers, what would be a way to overcome all these obstacles?

R3

To my best of knowledge as a dietician and considering the people that I have counselled. From the first time I meet a person I get to know from the dietary sheet I get to know whether people like fruits and vegetables. And if they don't I usually suggest to eat one fruit snack a day. Then maybe one or two portions of vegetables a day in their meal. And I've seen some results. Some come and say that they enjoy it, and they feel they are looking fine, and their hypertension, high blood pressure is normalised, and they want to include fruits and vegetables as part of their meal. So then I prepare a diet for them, with two portions of fruit a day and three portions of vegetables a day, in total about 400g. So I think it's more about nutrition education to the public. Letting the public know, especially the Ghanaians, know the benefits of fruit and vegetable consumption and how it is able to prevent some of these non-communicable diseases, and even some infectious diseases, because the immune system can help fight these diseases. Nutrition education should be the first thing.

Then another thing is that people can change their lifestyle, their eating pattern. So it's not only about how they grow up, and what they learn to eat, but they can change their lifestyle later on. So the mother who has a child that is under five can start including fruit and vegetable portions in their meals. The child will grow up and see that okay, every time my mum cooks there is a fruit portion and a vegetable portion, so this is the new trend. So I think we can start with the mothers. Saying it to go to the community and educate mothers about the benefits of fruits and vegetables. Then the people also get it. Another thing is to erase the idea that eating fruits and vegetables are poisoned with chemicals. I eat fruits and vegetables and I've not had any diseases or anything. Every day I eat fruit and vegetables, I have to get fruit before the day ends. People complain about the chemicals. So sometimes I advise them about the way of handling with some vegetables. It is about the way you wash the fruit and vegetables, how you prepare them. So I think we should educate people on social media, in the news and the graphic about the preparation of fruits and vegetables. You can use the media and the graphic to target the urban, richer people. And you can use the community and community radio to target the poorer rural communities, and talk in the mosques, the churches and so on. We should educate that consumption of vegetables will serve the benefits. Especially the maternal and the child healthcare, because that's where it all begins. If you include the education at a young age then they will grow with the knowledge that that is good.

Stephen

You say we should target the young children and their mothers. and just double-checking about which people should be best to target. Nice that you say that there are two ways of communicating this. One way through the media and the other way through the community. In terms of media, what ways would you suggest?

R3

Another way could be TV. Maybe a five minute documentary on TV channel. Showing a documentary of how a food or nutritious meal should be on our table might change some people's mindsets about what a good meal is. So I have my carbohydrates my protein and I have some fruits and vegetables. And people can also realise what a full meal can look like. I think Ghanaians might really relate to this. Some people might change their pattern of cooking. When it comes to food Ghanaians are so afraid of diseases. So people are very sensitive to messages about lifestyle changes that can prevent diseases. So for example keto diet and waste management has become very popular on social media. So I think if we do a documentary on vegetables and their benefits for health I think people also jump into a new lifestyle. We have a lot of vegetables around us, and they come in seasons. And that is another challenge, especially fruit and some vegetables will come and seasons. So in the wrong season people not consume because the price will be too high. And then in the rainy season some of it goes to waste because there's too much of it and people will not consume it. So another reason another way of improving vegetable consumption is to make sure that vegetables are produced all year round at a sensible price. If they're available all year round and people are educated and there is promotion then this might trigger more people to consume vegetables.

Stephen

Where do you get your vegetables from since you have no concerns about the safety?

R3

Where we get our vegetables from has also been another topic about why people do not consume vegetables. It's the farmers that grow some of these vegetables. Some farmers do not process vegetables in a hygienic way. Here, the water and irrigation system is poor. In the dry season when no water is coming how do these farmers water their vegetables? Most of my clients have concerns about the vegetables because of the waste water that is used. We get most of our vegetables from farmers, and most farmers are illiterate and are not aware of hygienic water use. Their main goal is to grow vegetables to harvest and sell. Most of these vegetables we get it from the villages, from the rural areas. That's where they do the production and bring it to the

market in the urban markets to sell. This has been a barrier why most urban people do not consume vegetables. The safety of the fruit and vegetables has not gone down well.

Stephen

Imagine you had one sentence to share with Ghanaians about fruit and vegetables and you only had one sentence? In a real scenario you obviously have more space, but if you had one what would you use and what would you say?

R3

I would tell a Ghanaian that eating fruits and vegetables prevents diseases. That will have an impact on the person, because Ghanaians are afraid of diseases and are very conscious about their health so getting people aware and conscious of the link between eating vegetables and being healthy is crucial. So I will tell them that fruits and vegetables can prevent many of the diseases that are around.

Stephen

And you have seen that this message has had an impact in the hospital, when you share this with your clients?

R3

Yes it has had a lot of influence, in fact, let me tell you about one story. I happened to educate or counsel an old woman around 59 years old, she came with a blood pressure of 21.9. And I happened to counsel her at that time, and asked her about her diet history and there was virtually no fruit and vegetable consumption. And even if there were vegetables, it was refined, it was served as a soup, or palm nut soup, or tomato stew. So I told her "Oh mum, I want to introduce fruits and vegetables in your diet to help you with your blood glucose very well". And she said "No I don't like fruits and vegetables because if I eat it I don't like the taste, and even if I take orange then the next day I feel like my teeth ferment and I feel bloated". So then I said "Ok mummy, I just want you to try one vegetable so add some cucumber and I told her to cut some cucumber and add it to her diet". And eat it in the morning and in the evening and come back in one week time. She came and she was excited and her condition had improved. And she was like "Wow!", and then she really began to appreciate how vegetables can help. So now she began to understand the value of it. And so I said "Now I can go ahead and prepare a fruit and vegetable diet for you" and she said "Yes!". And the people I try to encourage them, I tell them it's not only for you, this is a healthy lifestyle that you can share with your family. They can tell their family members if this is the best way of eating. They should cut down on refined carbohydrates, sodium in their food and they should also exercise a lot, and consume fruits and

vegetables. And the go and come back and they have good results! And their blood levels return to normal and they can stay healthy.

Stephen

Wow that's amazing! Really nice stories.

R3

Yes I have many stories that I can share I want to promote nutrition in Ghana, but time will not permit me for now. But this will be my career, this will be my focus. There is one funny thing about Ghanaians. Most Ghanaian women think that if they know how to cook, and by knowing how to cook they think they understand nutrition. So a Ghanaian woman will wake up and will not understand why she should see a nutritionist to help preparing food. They are adding too much sodium and other artificial spices. They should cut down on the sodium and spices, and they should wash and prepare the food properly, under hygienic conditions. They think they understand everything about nutrition because they know how to cook, so by knowing how to cook they understand nutrition, that's how some Ghanaian women think. They think by cooking they understand nutrition. So if a person is preparing jollof rice, preparing the stew and adding the rice to it, then you get your jollof rice. But there is a better way to prepare jollof rice if you want to learn from a nutritionist.

Stephen

So you're saying that they know how to cook but they do not know how to cook nutritious conscious?

R3

Yes this is what I mean. So for example with chicken soup and fufu. [Explains nutritious variation on this dish] 33min 20s Summary – Ghanaian women like to add the chicken fat to the soup, but this increases the fat content severely. Nutritionists suggest to leave as much fat out of the soup, but Ghanaian women think it tastes a lot better with the fat. R3 suggests this is a common theme, where there are various ways of improving traditional recipes but sacrifices might need to be made in terms of taste. Therefore creative ways should be found to find nutritious conscious ways of producing meals with a familiar and delicious taste.

Stephen

So how can you teach new recipes, or change the recipes that currently exist, to include more vegetables? What would be your tips on teaching new recipes?

R3

Changing recipes to add vegetables. Okay let's see someone wants to prepare tomato stew. Most times people use tomatoes, maybe tinned or raw tomatoes, then pepper and other spices. So with my new recipe I would say that okay,

you can get some fresh tomatoes. You can use some tinned tomatoes, but use fresh tomatoes, cut some and use some for the stew, and a few raw ones for the rest as a salad. Then you can get some green pepper. That one you add a bit. And when you are preparing, make sure you add vegetables later to make sure that you don't overcook and waste the vitamins. Prepare the stew for a few minutes getting to cook. So it will come out as a vegetable stew, with some fresh tomatoes, pepper, spring onion. Then have some fruit after, or add more vegetable to the side, in the salad. Another recipe for palm nut soup, that I share with most women with children who are anaemic. In our way, the way we prepare it, we use the palm nut and the other vegetables, we grind them and we make the palm nut soup. So then I say the palm nut soup can be very nice when you cook kontomire, and you add some beans, and add some more vegetables. And you don't blend it, you just have the pieces of vegetables in there. And it's a nice meal, because the kontomire will add some iron. And then after than you can have an orange after an hour after eating, which will help absorb the other part of the iron. Then you have a complete meal. Normally the palm nut soup is very oily, but now you have additional vegetables and fruit, and kontomire for the iron. So these are the small ways that I am trying to do for my clients. So for example also with oil, I ask what kind of oil do you use to cook? And they might say sunflower oil, but sunflower oil is very volatile, so then I tell them not to wait too long for the oil to heat up, to make sure it doesn't burn. So these are the small, small ways that I try to help Ghanaians improve their eating behaviour. And people have changed. They change the way the prepare food, they change their recipes.

Stephen

It's good to know also the recipes that I can incorporate to understand what might help with the media communication. It's been really nice to hear your story. Is there anything else you would like to add?

R3

You say your project is also on fruit and vegetable consumption and you are with a team based in Ghana? I am also a researcher and I would like to find out more about your research and hear from your results. So I can improve my knowledge. So I can understand more about vegetable consumption and the Ghanaian community. I want to request from you the findings of this research. So that in the near future if I come up with communication ideas then I can understand this and use your research for this.

Stephen

I think end of July I'll be up to send the findings. I'm here in Ghana until end of June, and then will continue working on the results in July. So I will be able to share the results end of July. I have your contacts so we can keep in touch. If you have

R3

One other thing, with the recipes. You can target the school children. You can maybe target around five schools in the various regions and also have the nutrition education on fruit and vegetable consumption. I think that one can have an impact, because children what they learn will also go to their parents. Some children can influence their parents in their way of eating. They can also learn and understand. Then another thing is to design a policy with the government. If you could somehow get a policy out of this. Because there is a nutrition policy in Ghana, but implementing in this country has been an issue. So maybe you could try to develop a policy with the government, there might be a way to go about it and implement it in our country. That one would be a very good thing to do.

[Closing remarks, word of thanks]

INTERVIEW END

Date: 11-05-2019, 09.00 – 11.00

Type of interview: in-depth, semi-structured, visit to farmer's market

Face-to-face or remote: face-to-face

Interviewer: Stephen

Interviewees(s): R4

Location: Accra, Ghana

INTERVIEW START

[Interview began with a brief introduction to the project, and a request of consent to the recording]

As a nutritionist working in a clinical setting, R4 sees about 1000 patients a year. Interviews them, tries to pick data from their diet history, their diet condition.

R4

Normally you expect on a healthy plate, half a plate should be vegetables, and the other half some carbohydrates, but you do not see this very often here. Only once the patients are diabetic or hypertensive, once the doctor has diagnosed this, and puts them on a strict diet. Then the patients will start complying.

People have misconceptions about vegetables, and they think they are not filling. They are concerned with where the vegetables come from. It is difficult knowing the source of the vegetables. When you enter the normal commercial market, you cannot tell where the vegetables are coming from. For some people it is about, what has been used to produce the vegetables. Because for some people it is about the food safety, whether there are insecticides in there, residues in there. These are some of the things that will scare people away from consuming the vegetables. However, I would say for about 80%-90% of them it is about the knowledge gap. They are not so much aware of the importance of vegetables in their diet.

Stephen

Ah, okay, that's more than I expected, cause I thought it would be more split in the middle, that a larger amount of people were concerned about the safety.

R4

Yes, but it also depends on the setting, the people in the urban settings are becoming more conscious, more aware of their health. They will go online to read stuff. They are gradually adopting vegetables in their diet. So if you come to the mall and you see salad, you can buy salad to keep, and then you eat it in the morning or you do it in the evening after work because they are really becoming aware that diet related conditions are increasing among the population, and they have to start doing something for themselves. Once you

are sick, you have to start paying the bills, the hospital bills, expenditure goes up.

Stephen

Yes, so then there suddenly is an urgency.

R4

Yes, so in the rural setting it is more about the knowledge. Of course, in the urban centres too it is about the knowledge, because sometimes people, so when you tell people, especially somebody who is trying to lose weight, say let's do less cups and include more vegetables, they say: "Vegetables are expensive, especially the ones that are safe". Because when you come to the mall you are 'assured you are getting safer vegetables to buy' as compared to the open market. So for some people it is about the expenditure.

Stephen

Because it's more expensive in the supermarket?

R4

In the supermarket, if you want the relatively safer ones, sometimes it is expensive. And then when you want to pick other variety like we encourage them to do, like not to have the same vegetable every time, it can be a bit expensive. So for some people it can be the income levels and the expenditure.

Stephen

Can you tell me more about the knowledge gap that exists, it about teaching about vitamins or portion size or?

R4

So the knowledge gap also varies. For some people they may have heard that fruits and vegetables give us some vitamins, but what exactly are they getting from what and sometimes they are totally unaware. So if I take papaya or avocado, what am I getting from that. People don't readily know what they get from that. Unless we tell them. The experts, they get the opportunity to tell them that okay, when you are eating the avocado you are getting the iron, you are getting this vitamin or that vitamin from it.

Stephen

Does that help at all if they know what vitamins they get?

R4

Yes it helps, it helps, because it motivates you to eat.

Stephen

Because I can imagine if you are not aware of what vitamins do to your body, that there still is some knowledge missing.

R4

Yes so once people know that if I eat this portion of this vegetable, or that portion of another vegetable I am likely not to get a skin infection or this, it will kind of push people to want to eat it.

Stephen

So I think, making a comparison to potential diseases that come from it, that is also quite relevant then, because you said when there is a disease that might have a link with a low nutrition diet, then it starts clicking. It's sometimes difficult to make the link between short term and long term.

R4

Yes, indeed. But I think creating awareness is important, because I sometimes get invited to corporate bodies and churches to talk to them about healthy diet. And then once you start talking to them about things like why they need vegetables in their diet, they get to appreciate it. And then they begin changing. Once they get to know that they get this benefit or that benefit, the money does not matter anymore. For me, with nutrition communication and education I talk to them and say: "Okay, let's look at the quality of life, in the next 5 years, in the next 10 years, how do you want your quality of life to be like? Do you want to continue to pay hospital bills? To what end? So once you start putting those things across, then they now appreciate and realise they need to start eating their fruit and vegetables now. Even with school children, when we start talking about it. For instance, with my two boys at home, I use characters like superman and batman to tell them stories about it. And they eat their vegetables. So I think the awareness creation is very key. It's very key. Because once people understand that they are benefiting from it this way or that way certain things wouldn't matter really anymore.

Stephen

Imagine you only had one sentence to communicate to people about eating vegetables. What kind of sentence or words would you use?

I would say that "You are what you eat" If you are feeding your body with the wrong food, you are going to die early, you are going to get weaker and weaker and your health is going to go down. It's the same with vehicles, if you are buying the wrong fuel your vehicle is not going to last. So your vehicle is like your body. If you feed your body with the right things, then definitely you are going to be healthy.

Once you are healthy you can be more productive at work, if you are not healthy it goes towards some days at work, goes against your employer.

Stephen

When you share with people, it's either in the clinic or you go out?

R4

Yes, in the clinic, and when we go out, we go to churches, schools, corporate bodies. Once in a while for example banks will invite us. I also have a Facebook page, where I post different pictures, because people are more convinced when they see pictures. We try to send pictures of food and then write something short about it, and then you see a lot of people liking and reacting to it.

Stephen

And pictures you just use pictures of the food, not pictures of the consequences?

R4

Sometimes, but mostly of the food. If somebody sees something really colourful, and sometimes I use it as a status on WhatsApp. I use pictures of vegetables and fruits looking very fresh and colourful, and someone will send me a message saying "I wish I had this for lunch!" So I realise that pictures also work.

Stephen

Yes, I've seen the same, have you heard about the Ghana Green Label yet, or not?

They've just started out their campaign a few months ago, [explaining the certification scheme].

[Shows the Instagram of GGL]. You can see very colourful pictures [shows picture of the pawpaw on Instagram with comment] "I wish my pawpaw looked like this".

Stephen

So colourful, fruity pictures really work.

R4

[Affirming nod]

Stephen

I've also heard that some people find vegetables difficult, because they do not know how to prepare them.

R4

Yes, that is also a challenge. I do volunteer a lot for this group called Diabetes Youth Group (NGO) that supports young

people with diabetes. Every year we have a meeting with these young people coming together, where they can see that there are other people living with this condition. Because it is a bit depressing for young people to live with diabetes, so we organised this support.

This year, we are having a nutrition camp. We are going to be organising a series of competitions around food, asking them to come up with interesting recipes that can be done at home. So for some people the difficulty is "I'm going to buy vegetables but what I can make from it to make it fun and interesting for everybody in the house. Next month I am volunteering for another event for people with auto-immune disease. We are having a session with a chef to come up with healthy recipes with my input. Just to make the folks aware of what they can do, what they can prepare with what they have. Some people don't know what they can come up with to make a tasty meal that is accepted in the house.

Stephen

Some people say that the way people are preparing the vegetables they are losing the nutritious content by cooking too long, for example for the stews.

R4

Yes, so we try and talk about this as well. I know that when it comes to that people are totally unaware. There are just a few people who are aware that they do not need to overcook it. A lot of them will overcook it. So at every forum we try to talk about how the vegetables should be prepared, including talking about how to clean it. Because a lot of times vegetables are eaten raw. So that is one aspect, people overcook their vegetables. So there should still be awareness creation on that side. I am sure if you would do a survey among 10-15 people right now, you will find that people will overcook their vegetables, so there is a need for raising awareness on that.

And the food waste aspect. That is also very important, because people throw away parts of their food that they do not realise is edible.

Shows a picture of a bowl filled with various vegetables, and a fork next to it.

So I used this picture as my status, and someone sent a message saying "Oh wow! I did not know I could add all these together" So the pictures sometimes do the magic.

Stephen

[Tries to explain difference between pictures at GGL, and the pictures that R4 showed recipes vs pure vegetables/fruit].

R4

[Shows another pictures with a smoothie, and under it are little icons that show what and what to combine. Recipe style]. So when people see this, they are excited! Because they look and didn't know that you can combine pear with banana. Initially it will sound strange, but somebody will go and say "let me see how this tastes".

Stephen

Imagine you could add (maybe not on the same pictures, but if you scroll to another picture or in the description you could add the benefits (e.g. kale contributes to this and this and this). And people might get motivated.

[Small intermezzo to discuss the WCDI courses]

R4

I think food is very important. Food can bring people, food can make a difference. That's why I am passionate about it. Also being in the clinic and seeing how people suffer because of food that could have easily been prevented. Unfortunately I lose some of the patients that come in (some die) and that's sad because I think we could have done something to prevent it. Someway somehow they come in late and there is nothing you can do. [Shows two pictures of patients, one she has lost, the other is still managing]. This one for example, we lost him unfortunately. And this girl, she is still managing.

So one of the strategies I got from the training, in my area, the problem I identified was that it was a mining area, and there were a lot of teenage girls coming in pregnant, malnourished kids. So my project was to start a community garden because access to safe vegetables was an issue. So we have secured the land and we are starting the community garden. The whole idea behind it is to get readily available safe vegetables for the community. It is also a safe climate for the young teenagers around, provides working options. My biggest issue right now is funding. We have secured the land but I need support to start that.

R4

We are using teenagers because they are full of energy. If you don't track them early then they spend their energy elsewhere, so it's a good way to keep them focused. [Shows a picture of the land]. "So that's the land [for the community garden]".

Stephen

So if you had to choose an age group, which segment for this communication campaign, which ones should we target? And

also, would you say focus on the rural areas or the urban areas.

R4

Now population is growing in the urban areas. So if you ask me we should target the urban areas and then scale up to the rural areas as well. Because a lot of people are going to the urban areas because of education and getting employment, access to better social availabilities. So you can target the urban areas.

For me, we should include the school children. Once children are told something new in school, they come and tell me about it. If we want to meet parents, we should target school children as well. Start influencing them from school, and you know children they accept anything they are told from school. Once the teacher says "Okay, you have to eat your vegetables". Then the child goes home and says "My teacher said I need to have vegetables and fruit as my snack or part of my diet". So gradually they are meeting the school children as well as their parents.

Stephen

What age is this, lower or middle school etc.?

R4

So we can start from lower and upper primary. Yes, this is a very important group, because they also form a majority. Of course, the teenagers and the group between 20 and 30 also form a majority. They are the workforce. They should also be targeted. Because productivity comes from that group. So if we have a lot of people coming in sick from that group having stroke, hypertension, then this will definitely affect productivity.

Stephen

How would you target the adolescents? What kind of media would you use? Radio/TV/Social media?

R4

With adolescents, with the age of social media, you can of course use social media, but you can also use the TV. A lot of people watch TV, mostly at the weekends you see families sitting together watching TV together. So you can influence whole families. TV shows will do, I think Radio is also okay, but people respond better when they see something instead of just hearing about it.

Stephen

So really you say the visuals are quite crucial.

R4

Yeah.

Stephen

Because a lot of people listen to the radio, but you say it might be more impactful if people see pictures, videos or shows...

R4

Seeing is believing they say. And when you see you remember.

[Intermezzo WCDI courses]

Stephen

Are there places in Accra that you would recommend to people to get fruits and vegetables?

R4

The farmer's market, if you want we can go after this interview to visit it. Because, sometimes how safe the vegetables are is also an issue. You may talk about it, you may eat it, but if it is not safe, then you are doing more harm than good. Where they are getting the vegetables from. Where they are produced at. The kind of water that is used and so on, that is important.

[Closing remarks, word of thanks, visit to the farmer's market]

INTERVIEW END

Date: 16-05-2019

Type of interview: in-depth, semi-structured

Face-to-face or remote: face-to-face

Interviewer: Stephen

Interviewees(s): R5

Location: Accra, Ghana

INTERVIEW START

[Interview began with a brief introduction to the project, and a request of consent to the recording]

Stephen

What are the vegetables for people to eat vegetables? What would you say would be the main or primary barrier that you see around?

R5

Part of the issue is the availability. If you do not live near a market then you have to travel some distance to get it. And sometimes, it's not all the markets that have all the vegetables you want. So in this place, Accra, in our place it's different. In our place back at where we are it is not common to find a lot of vegetables. In between market days you may not get a lot of vegetables. Brong Ahafo. Especially in the outskirts, in the non-urban areas you would still have to travel a long distance to get to where vegetables are. And then in the urban areas you would have to travel to central Accra to get vegetables.

Stephen

So would people plan a certain day to go to the markets to get vegetables?

R5

Typically you shop on market days because of availability of stuff. And in between market days you make do with what you have or wait until the next market day. If it is close to you, then you can get some from these table top vendors (street sellers) but they tend to be more expensive. And also sometimes, cost is a barrier. Depending on the area you are and the type of vegetable. If it is an exotic vegetable it gets expensive. (Cauliflower, beetroot). You won't find them, maybe at the supermarket but they are expensive.

And then also, somewhat, the kind of diet that we eat. The traditional diets. Our traditional diets don't usually incorporate fresh vegetables. So for example if it's soup the vegetable is like onions, garden eggs, okro, these are the things that you grind or cook, it is not the typical fresh vegetable that you have, like a salad.

When you say traditional diets, it varies. My ethnic region tends to do a lot of green vegetables in their soups. (Near to

the beach, Keta). So we tend to do a lot more okro soup, with a lot of green vegetables, whereas if you go up to for example the Akan area you have fufu, which is the main staple food. They tend to do more of the soups. Typically what we call a light soup, with goat and other things, some vegetables and ginger. Then you would vary it. I mean, coastal people tend to do more vegetables than in the north. I don't know whether it is because of the mix.

Actually a lot of vegetables are produced outside here. Then for example where we are, because of the mining activity, most of the farms have been abandoned for mining activities. So that is why there are not a lot of fruits and vegetables anymore. So people have abandoned the cacao farms because of mining.

Stephen

And what do you think motivates people to eat vegetables?

R5

Well, I think maybe some knowledge about their importance. We eat vegetables almost every day, I have them with the omelette, but I think sometimes it's medical advice, sometimes it's the kind of diet that people change to because of what they are given.

Stephen

So that is because of doctor's advice? And what about people around you?

R5

You know in our cooking, in our setting, the women do a lot of the cooking. So sometimes when they are sharing with other people they learn new recipes and they give each other advice. And then you know obviously when the costs are low, then some people will want to buy the vegetables that they cook. For us it's much cheaper, if you're buying for example green pepper, you can get it for half or even one third of what you can get it for in Accra. In East Legon where you are, things are a bit more pricy even pricier than in Accra, in the central district.

Stephen

Especially if you go to supermarkets or things like that, then it's even more expensive.

R5

Exactly.

Stephen

So people who share advice, especially among the women, would be a motivator according to you?

R5

Exactly, and also medical advice, especially when there is urgency, then they want to get advice.

Stephen

So going in a different direction, have you noticed on TV or the radio if there have been any programs talking about vegetables?

R5

I would have to confess I do not watch TV so much, but they are not common. Very few shows anyway, and then you have a few of them talking about health. So there are a few, should I say adverts on air and on billboards and things like that. But beyond the city there is not much.

Stephen

And I've heard that using a media that incorporates visuals, so not radio, would be the best to communicate vegetables.

R5

I agree, 100%. Aside of the visuals, you have to look at targeting. Various strata of the society. In the cosmopolitan areas like this, visual, audio, everything is fine. But you have to look at language, if you are moving outwards. So for example, doing it in the more Akan areas, so for example doing it on joe.fm, you will never get any mileage. They will listen more to the Akan stations, than they would watch or listen to the English stations. So if you stick to only the English, you may not get much.

Stephen

So being aware of the different cultures and the groups is important. Currently, we're thinking of targeting fairly young people with the project we're trying to

Stephen

When do people move out and start cooking on their own?

R5

Typically when they get work after university, maybe when they are about 25.

R5

So, if you ask me, it depends on what you want to achieve. Is it long-term, is it short-term. So it really depends on what goals you think you want to achieve. If it's long-term, I would say you go further down. Because then if people pick it up early, they grow up with it. They are friends of mine who don't eat a lot of vegetables because they have never been

used to it from childhood. I know of a nurse, she never takes any fruits because if she takes it she will throw up. It's only recently that she started taking pineapple. She has never had it. But probably you can add to the barriers the upbringing. I don't know how you capture it but...

Stephen

I've heard that more often, people are not brought up on fruits and vegetables.

R5

They grow up, having never experienced it. In the same way that you come here, I'm sure it would take a while for you to enjoy some of our local dishes.

Stephen

So look younger perhaps.

R5

So it depends, if your goal is long-term then, I mean, psychologists would say that a lot of behaviours are learned at a younger age. So you would want to target the population where behaviours are still malleable, and this is at a younger age. Because if a child gets used to vegetables and asks the parent saying I want this vegetable otherwise I won't eat it, then the parents will often want to get them that. So if you get the children to get used to it from say the age of 6 or whatever, that better and long term if you ask me than if you target people who have already characters that are formed. Because if I like fufu and that is something that I have been eating all my life, then how am I going to change. That might be difficult. So a different message for that group. More fun, there's a show on TV, Edziban. He goes round the typical chop bar. It's a local restaurant, where they have local dishes. Gradually they becoming modernized.

R5

So he goes round the country sampling food sampling the food, and many people watch and enjoy it. So with this programme, you could slot in an advert there that is maybe in the local language. That should slot in quite easily. The ministry used to also have a project where part of the project is on diet.

Stephen

If you have one sentence that you would have that you could use to convince other people about eating vegetables, what would you say?

R5

[Laughs] Ah that is interesting, it's like a pitch. I'm just thinking about whether it should be in English or a local

language or what. Well, I think it should be something linking vegetables, being a cheaper and healthier alternative.

Stephen

But you say cheaper, while the price is seen as high.

R5

Well, cheaper in the long term, because if I am eating a lot of carbs, and I have diabetes etc. then that becomes more expensive.

I've done a little bit of radio. Have you seen ESPN adverts? Their adverts may not make sense at first glance. It's not confusing, it's intentionally done that way for you to find out more about what is going on. It's designed to trigger the senses.

Stephen

So I've also heard that it is important to keep advertising straightforward, as ads that might be confusing could be misinterpreted (example with carrot).

R5

So that is exactly what I am saying, in the past you have blanket campaigns. But I was telling you, you could run a very good campaign in Accra but it would be useless in Kumasi. Because the [...] are completely different. In the same way, on TV, as I said on an English station you might not get viewership outside Accra or Kumasi, so the campaigns really have to be tailored. And also, multi-faceted. So for example, you can run ads on TV and radio, you can actually do a hands on direct approach where you have various nutritionists going to lower level schools. They are a better off target for a long term strategy, better than 18 and above. Why, because a lot of the schools cook. So if you could get them to incorporate just a salad, then kids will start getting used to vegetable salad. That would be a more hands-on approach. That could be also run from the policy level. Where the government runs a school programme already, and often vegetables are not included. So if it becomes something where you are attacking it on a policy level then it also becomes more of a law.

Stephen

Yes, it would also require a lot of resources.

R5

Well, it depends on what is the impact that you would want to have.

Stephen

What do you think the impact would be of social media?

R5

Social media has become a big thing in Ghana. Again, it is limited to more of the cosmopolitan, the rich. So if you target your message well, and you get the influencers to go along with it, you can make a lot of impact. So let's say we run something of the sort "show your veggies campaign" where people with a big following would actually show a picture of some salad or veggie dish or something they are eating with vegetables in it. It could catch fire depending on the influencers you have. Some musicians, some radio and TV influences. Because then everybody is posting what they have done and it's fun. Because you have to eat it anyway, so show it. And you can learn from other people about what they do. So that has many facets to it. You can educate people, at the same time you can get people to do stuff and at the same time you can share things across.

Stephen

So it can be quite powerful, depending on who you are targeting, etc.

R5

Yes, so again it will be the middle class. But the good thing is now phones are gradually made cheaper, so you get more and more people involved. Facebook and Whatsapp is a bit common.

[Small discussion about the concrete plans. R5 agrees that using social media enables to track engagement with vegetables].

[Closing remarks, word of thanks, visit to the farmer's market]

INTERVIEW END

Date: 17-05-2019

Type of interview: in-depth, semi-structured

Face-to-face or remote: remote

Interviewer: Stephen

Interviewees(s): R6

Location: Accra, Ghana

INTERVIEW START

[Interview began with a brief introduction to the project, and a request of consent to the recording]

R6 does dietary counselling for pregnant women in the ward.

Stephen

How do people view healthy food, how do people view vegetables, is it generally positive, or do people kind of lack in eating vegetables?

R6

Okay, so if I take it let's say from the top, then I would say people consume the local vegetables. So people will consume the local vegetables, so they might take something with okro, something with green leafy vegetables. But if you take it from the perspective of the foreign, or let's say exotic vegetables, that's what gets so many people confused.

Stephen

So that's what gets people confused about what is a vegetable and what isn't?

R6

Ahaa (confirms). So let's say I give advice to someone to consume certain vegetables because I want to increase that person's fibre intake, then their minds are more on the exotic ones. They are thinking about the, the lettuce, the cabbage, the cucumber, that kind of thing. So then they start complaining about cost, how it is handled, the processing and all so they may not be too comfortable with buying it. And then I always remind them that, for instance we have okro, we have green leafy vegetables, those are also, and then even our garden eggs, they always forget them. While I always tell them that those are also vegetables, they can equally take and have benefits, while they always think about the exotic ones.

Stephen

Okay, so this is a generally thing that people forget that local vegetables are also vegetables?

R6

Yes they forget, they focus only on the exotic ones.

Stephen

Okay, and you say there is quite a price difference between the two?

R6

Yes because the exotic ones, while you can get some of them on the open market, what I realise is that some of them are not sure where it's been planted. There is an issue about people not using tap water for watering the vegetables. They use maybe poor sources of water, so for instance sometimes water that has connected into the gutter or the drain. So for instance, personally I would not go to the local market, I am always sceptical because you don't know exactly where it is coming from. When you are talking to the client and giving advice, they counter saying that they are not comfortable because if they buy them they might get something like diarrhoea or some food-borne disease from taking it. So a lot of people are not comfortable with taking it, that's one side about it. And the price is also quite on the high side.

Stephen

And the okro and the garden eggs, they are more comfortable with that?

R6

Yes, when those vegetables are in season, for example at the moment okro is in season, but the garden egg is not in season, so they will be quite expensive. But if you compare the cost to the exotic ones there is still a difference.

Stephen

Is there a difference in the safety of the local ones and the exotic ones?

R6

I don't get people asking questions in that regard, you know that sometimes these are grown in their backyard, or they are being grown in a forest area, so kind of everybody is comfortable, as compared with the exotic ones, where some people might go around to see how they are handling them. So for instance I know someone, he knows a farmer that is having his vegetables growing close to his house. He knows the type of water this farmer is using. For me personally, for the exotic ones, I would rather go to the mall and buy them, because I know for instance a specific company and I am more comfortable buying from them.

Stephen

Do you see more people establishing relationships with farmers or do you not see that happening much? At my Airbnb I know people who have established a relationship with a producer and gets the produce from there.

R6

Well, for instance one of our dieticians, he was in Canada, and has now settled in Ghana. So he knows someone who supplies organic vegetables here in Ghana. This producer might advertise certain crops that are coming in, and then we can place orders. And I know another friend who is training as a dietician and she also knows sources where she gets her vegetables from. But for the regular people, a few may know some people, but the rest don't. Most people judge the vegetables by appearance.

Stephen

So you're saying that safety is one of the barriers of people to buy vegetables, would you say it's the main barrier? Are there any other reasons why many people do not eat vegetables?

R6

The other reason, if I look maybe on the exotic ones, is that a lot of people growing up. For lack of a better word it is not part of their family meal. So for example a child grows up and now they are not used to it. It becomes difficult. Sometimes for the adults you might recommend a particular vegetable or a particular fruit and they may say they have never had it in their life, and I am not so sure I want to try it.

Stephen

So for instance tomatoes, onions, those are things that people will typically consume but besides that not much?

R6

Yes that is something everybody eats because that is something that we typically put in our stews.

Stephen

But beyond that, what kind of vegetables?

R6

So beyond that, even with our local vegetables, let's say because of the whole nutrition transition, so now a lot of the children are doing let's say pasta, they are doing rice, so everyday rice is going together with probably tomato stew. So someone let's say on that front might not take okro or green leafy vegetables, the local ones. For one thing, they are not trained with that, they don't grow up knowing it, it becomes difficult of getting them to get into the habit of eating these vegetables.

Stephen

So it's really something that starts at a young age.

R6

Yes indeed, but now we having a kind of breakdown in the family system. So previously you are living with your grandparents, it's like a family tradition. But now we having more of a nuclear family system. And in the morning everybody is rushing to work, so even having meals prepared at home, it's not likely the trend. So even if someone wants to buy something, outside, some may not go for a typical traditional meal, there are some people who like traditional foods so they will like the traditional food, but a lot of people feel the need to buy something outside, even personally, if I have to, I don't have food on me and I want to buy something outside, I am not likely to buy okro or even the green leafy vegetables, it's something that sometimes, if not handled well, it could have probably [...] so for me something like that, I don't eat it outside home, and I know a few people that have those issues also, they wouldn't eat it outside their home because they are not the ones preparing. So you'd be more comfortable buying probably plain rice, with fish or chicken or egg. Or like a beans with rice, called waakye, I don't know if you have encountered it.

Stephen

So then it would mainly be rice and some sort of protein, but no vegetables?

R6

Even if people are buying rice outside, and then there's vegetables it's either the cost, or they are not sure how it is handled. So has a person washed this with vinegar, washed with salt, that kind of thing, because you are cooking for the mass and you might be rushing, so you wouldn't take your time to do it well. So some people are not comfortable with taking it outside. So they will just buy the rice, the stew and then just have the protein and that's it.

Stephen

So far you've mentioned growing up, the habits, the safety concerns, anything else?

R6

And then the price.

Stephen

And what do you think would be the motivators? How could you get people to eat more vegetables? What would motivate people to eat more vegetables?

R6

If they get more education on its benefits, personally I feel that is the way forward. Because, let me give you an example. I'm managing a client that has [...] fibre is

important in managing that. So when I tell him that, for instance add a local vegetable to your rice, it will bring your glucose levels down. Then they see the benefits and they see the sugars going down. So when I tell them, even those that are not used to it, they gradually make an effort to take it because they want a good outcome for themselves and the baby.

Stephen

Okay, but that's because you tell them, and that's kind of medical advice. It's quite strong advice.

R6

Ahaa, yes that's medical advice. Yes and then we go and give like public education also, about fruits and vegetables. When we say it some will take it and some will be a bit hesitant. But you will have people take once they see the benefits. That's what I realise. Because if you tell someone that a particular fruit or vegetable is particularly high in say Vitamin C then it's going to help you in [...] or a particular vegetable is high in iron so it is good for [...] we have this popular one that is high in iron and we use it to manage people with anaemia. So when you tell people this they go for it, even someone who is not used to taking it or has never taken it before. Once they hear the benefits and realises it's probably going to help, and probably even knows someone who has taken it and that person can certify it, then they are willing to take it. But if you just leave it at "oh just take fruits and vegetables" without giving insight into it, people are not ready for it.

Stephen

Okay so talking about specific benefits really helps, instead of a general message.

R6

Yes it helps. It helps a lot, yes.

Stephen

Okay, and in your case there is usually some urgency involved or a link to hospital bills, because patients know if I eat this then I won't have to come again or it will keep me safe and healthy and I won't have to pay extra.

R6

Yes, but I also tell people outside the hospital so for them it won't be about the hospital bills.

Stephen

And did you say you sometime talk about nutrition with groups?

R6

Okay, so sometimes people invite you to a radio station or TV to give an interview, or sometimes it could be to speak to an organisation. They might ask for advice on health for instance. And then we would go and talk about the fruits and vegetables.

Stephen

And which vegetables do you like to talk about most and why?

R6

Oh I wouldn't say I have a specific one, I would say vegetables and fruits and then provide some examples. Because I have to remember the issue of preference, and it depends on what is readily available, so for instance if there is a vegetable in the north, I cannot mention it down south because not everyone may have access to it. And then the other thing, like I said, cost also comes in, so if I for instance go and get apples, apples are expensive, oranges much cheaper. So I would give them different examples and then say try and have three servings in a day of any of these fruits, even if the person gets access to all why not. So some people, for instance my grandad he will tell you he has never taken banana in his whole life. He is not ready to take it. So the last time he told me he doesn't take fruit at all. And when I asked him I asked him what about coconut? He said "yeah that one I can take". You see ahaa, so you have to give them all the options and then allow them to choose. For me when it comes to the vegetables, because I know they will complain about cost in terms of the exotics, I will tell them they have a lot of vegetables they can consume as well, which is cheaper.

Stephen

And what do you think of the method of preparation, because I hear that there are some methods that might cause lack of nutrition?

R6

So usually what I will do is tell them they can do it straight cut, so if it's lettuce, after washing it with your salt or vinegar you can just cut it up nicely and add with your food, then you are not losing out on your nutrients. But what we realise is that when you fry, that is when you lose a lot of your nutrients. So for me I would encourage either steaming or fresh cut. Or cutting it and adding it to the stew later. And also paying attention to the oil on the fire, because if the oil burns it will not retain its good properties. So rather cut it directly into your stew, steam it or have it fresh cut.

Stephen

So education would be the main motivator.

R6

Yes, for me indeed, and then encouraging people to now also to encourage people, depending on where they are staying, to plant the fruits and vegetables in their back yard. Because in that way it is much cheaper and since you are watering it yourself, in terms of fertiliser you know what is going in, so you definitely make it safe for your own consumption.

Stephen

Nice, so everybody should have a little garden.

R6

The challenge is when you are renting a place. You know sometimes you have to rent an apartment and there is not a lot of space, but for those who have their own home, you plant your fruit or your vegetable. A few people I know do that. So like someone I know told me he has okro from his garden, he has tomatoes, that kind of thing.

Stephen

So what would you suggest for urban people?

R6

So for the urban people I would recommend them to identify maybe particular people who grow vegetables or fruits and then take it from them. Because let's say someone is selling at the open market, and has been growing not even in Accra but outside the region and has been bringing it down. It becomes difficult to know what they are selling. Because the person might tell you that it's organic, just because that is a way to sell her produce. So this person I was talking about, she runs a farmer's garden and invites different people to come to the garden, about once a month. So the people who come and visit the garden can establish a contact with the farmer and the farmer can come and supply the stuff. So I can give another example, if people want wheat bread, a lot of people produce wheat bread, but not in the way that you want it. I know a place that sells quality bread and I can recommend that place to people looking for it. So in that same way, let's say during nutrition recommendation, we can give contacts to authentic or hygienic vegetables that have been grown well. We can let people know in that way. We can let the people know or supply it to them and then at least you are assured of quality. But in the open market this is quite difficult. They may tell you one thing, but it actually not true.

Stephen

Very interesting. So I'm thinking of the communication strategy. There's different ways you can communicate to people, social media, TV, radio, interpersonal. Maybe you can

share a bit on what you think would be a good way to target people about nutrition, especially for people between 18 - 35.

R6

That group I would say social media, and then a lot of them don't do much of radio, it's Facebook mainly. I think they are doing more social media than TV or radio, so social media would be a good avenue. But we have to make sure that the right information is spread and not fake news. And then we can also do TV.

Stephen

What kind of stuff can we do on TV, do you know if there is anything out there now already?

R6

No, I know something, there are some health programmes, there are some where they will invite a dietician to come, like yesterday one of the dieticians was talking about eating disorders. So I mean there are, almost every station has tried to incorporate something about health. So one of the stations like GTV, they like health section at the end of the news. The other thing that I have noticed is that they might have a particular day, maybe once in a week, where they are doing something on health, probably like an hour or an hour-and-a-half. If assuming every station could incorporate maybe a 10 minute session every day of the week the message will go across much faster.

Stephen

So you're saying every day of the week to make it quite regular?

R6

Yes, every day of the week that way if you miss out on a day you can catch up the next.

Stephen

Okay, and what would you include in such a programme, if it was 10 minutes?

R6

Oh then I would have done probably a session where each area, taking a fruit or vegetable and talk about the health benefits. Then we can maybe include studies and talk about the findings. So say we take an orange what does it contain, what kind of vitamins, what kind of health benefits? And then

talk about how much orange you should take. That might send the message across.

And then there was something I forgot to mention, the other thing is to incorporate the education even among children. Because what I realised is that a lot of our clients are the older population onwards, so maybe in their 20s onwards. So what happens to the children, are we waiting for them to get serious conditions before telling them about fruits and vegetables? And they might really struggle with adapting to taking the fruits and vegetables.

[R6 tells a story about when she was in grade 7 or 8 she would have lessons in Life Skills, and Agriculture, and she actually received a plot at school and could learn to grow vegetables in it. So I remember growing okro. Some people grew watermelon. And it was such a joy taking produce from my garden home. So each day you would water your plants, taking care of it, and we were being graded for this.]

Stephen

So you are saying starting young is important?

R6

Yes so even with my son, one day he went with his school somewhere and took fruit and told another person that they should eat that because it helps with this, and all because I had kept telling him about the benefits of eating fruits and vegetables. You see I even thought that what I was saying he did not take seriously, but here he is sharing it with someone, and telling the person take your fruit for your vitamins. Sometimes people say they children are too young to handle all that information, but you just have to make it understandable So you just need to explain it simply, give the child each day a piece of fruit that will go a long way to help out.

Stephen

And do you think schools already do that or is there a lack?

R6

Oh I would say a few already do, but not many. I know some schools, so even I heard that in one school they were told to bring a fruit to school and then at school they cut it up and told them what the fruit was about. So it was fun, imagine even two years that had started something like that. And one of my former courses teachers, she had to do some work on schools, and the school she went to had banned all processed drinks. And they actually inspect it. So a lot of people would follow that line.

Stephen

Okay, imagine you only had one sentence to share with people around you about fruits and vegetables, what would that one sentence be?

R6

I would say: 'Fruits and vegetables will protect you'.

Stephen

And why would you choose that?

R6

I would choose that because fruits and vegetables give the vitamins that reduce the risk of serious conditions. So that is why I would choose this.

[Closing remarks, word of thanks]

INTERVIEW END

Date: 22-05-2019
Type of interview: in-depth, semi-structured
Face-to-face or remote: remote
Interviewer: Stephen
Interviewees(s): R7
Location: Accra, Ghana

INTERVIEW START

[Interview began with a brief introduction to the project, and a request of consent to the recording]

Stephen

How about you, who are you, what do you do?

R7

Okay so I am R7, I am a biology teacher and I am also a physician assistant, doing a bit of clinical work and a lot of classroom teaching work.

Stephen

So where are you based?

R7

I am in Achimota [Google maps finds only the Achimota in Accra], in the Eastern Region

Stephen

Is it a rural area or an urban area?

R7

It is an urban area, with a lot of rural catchment areas surrounding it.

Stephen

To start off, can you say something about the vegetable consumption among Ghanaians? Is it high or low?

R7

For me, I think it is average. I say so because we haven't got to the stage yet where we see a lot of Ghanaians are eating entirely vegetables as a meal. At that stage we can say it is high. Unlike the case of Holland, where there I know there is a cold breakfast and usually with a collection fruits and vegetables. But in Ghana no. The natural Ghanaian man would never go for meal entirely consisting of fruits or vegetables. Unless the person is vegetarian, of which there are about 1-5% of the population. But the critical or main reason why I am saying it is average is because there is no Ghanaian meal, complete meal, that is does not have vegetables. Every meal has some component of vegetables in there. So we have our normal tomatoes, our normal okro, our normal vegetables. Then the exotic ones like cabbage, carrots, you are likely to find some portion of that in there.

Then the reason why I would say it is not low is because you have some components in there.

Stephen

It's interesting that you straight away see that tomatoes and onions and so on are vegetables, because when I talk to people about vegetables they talk about the exotic ones, do you see that as well that people when they think of vegetables they mainly think of the exotic ones?

R7

I think so. A lot of people when you talk about vegetables, and we are not even dealing with fruit, when they think of vegetables they think it does not include fruit of which tomato is one of them. They think about the natural fruits like the oranges, the watermelons, the papaya. That aside, when you're talking about vegetables, the only thing that comes to people's mind is, carrots, spinach, cabbage. We have local crops that are vegetables. So sometimes maybe it's a communication gap. People are not so much informed about this but if people were really informed about this, especially the rural folk, then people might get to know that "Oh, the tomato you are cultivating is a vegetable, the okro you are cultivating is a vegetable, the others they are all vegetables". There are a lot of them, I won't mention all the local names. When we are talking about vegetables do not only spend your attention on the exotic ones but also look at the local ones. The only think you have to know is that we have the exotic ones and the local ones.

Stephen

What would you say are the reasons that people might be eating an average diet in vegetable right now and not a diet high in vegetables?

R7

It could be down to ignorance, number one. People do not just know that the local crops, the tomatoes and so on can equally give you what you need from the exotic ones. That's number one. Number two, it could be related to a lack of education. If people are not educated on the importance of these vegetables then they will not even in the first place eat them. So the second reason I say there is a low level is because of what, education. Not the low level of formal education but education specifically on vegetables. Number three, it could be related to geographical location, not even global, but national. In Ghana we currently have 16 regions, and by basic biology you find plants in certain regions that might not be found in another region. And because of that some people might not know that this plant will give me particular nutrient that this other plant will give me.

As you go from the south to the north. In the south I don't have these leaf which you call *ayoyo*. They use it to prepare a soup, it's a very green soup. In the south you don't see that, so then the reaction is "no, no, no, this is not something that is supposed to be eaten by man". Because of the geographical difference you won't go here for that it will be very difficult for the people in the south to have that kind of soup because they're not used to that kind of vegetable.

Reason number four. It could be down to cultural differences. So apart from geography culture can also play a role in how people eat vegetables. In Ghana we have some common positions, but then there are some slight differences as you move from the north to the south and because of that this will show up in the differences between the diets across the regions. So we might say "we are Akans, we are Gas, we are [...], and because of that we will not eat this". So based on some cultures some people groups you'll be eating different vegetables. So closely related to this, there are certain taboos some laws that people abide to, for example that you're not supposed to eat certain vegetables at a certain time because of seasons and how this is related to battles won and lost by forefathers and ancestors. This is a taboo that's been handed down from generation to generation. So some crops served as a saviour when we were in the wilderness fighting for survival. So it has become a certain item of worship. So for instance let's say the first month or two months of a certain season you are not supposed to eat some, and then from the third month you are allowed to eat these plants. So then if you are not allowed to eat one or two months in the year, then after a while naturally you might not eat the crop all. So the culture and the taboos are also part of the vegetable consumption patterns.

Another thing that plays a role is the economic power the financial aspect. Due to financial background some people may not be able to afford even the local vegetables, let alone the exotic ones. So those are a few reasons I would say account for the average nature of the vegetable consumption in Ghana.

Stephen

That's quite a list of different things I have about six things that you've mentioned. Is this in the order of importance?

R7

Shall I rank them in order of importance? It will be quite difficult to rank, they might all be of the same importance, but maybe, let me see if I can give some classification. So maybe I will put ignorance as one. Lack of education is two. Finance is three. Geographical location is four. And then culture is five. And taboos is six.

Stephen

What do you think of ways to motivate people now that we know what the barriers are?

R7

I think the key way to overcome barriers is by improving education.

Stephen

Okay, in what sense?

R7

The reason why I'm saying let's just improve education is if you look at ignorance, ignorance is high on the list. We have a lot of farmers in Ghana that produce the local crops. And some of them, produce local crops, and they themselves do not eat their crops. Rather they prefer to cultivate it for money, rather than eat it. But if you educate these people on the importance to work on their farm and eat these crops for the micronutrients, then they will save money on food supplements and drugs to support their need for micronutrients.

So the most important thing for me is education. We need to educate the farmers, educate all walks of life, people all around we need to increase the education for people to understand the needs the importance and the benefits of vegetables especially the local ones. Because you don't need money to buy it a lot of the time, you might have a farmer who cultivates it and lives close by you. The farmer might be growing tomatoes and you could have a few of them to make your side dishes. But if people are not aware of this, forget about it, they will not consume it.

Stephen

So what kind of education should it be? When you say education, what kind of education do you see in front of you, what kind of information should be shared?

R7

I wish you could tell me what kind of education which you have. As in is it the formal or non-formal one that I know of?

Stephen

So thinking in terms of media maybe?

R7

So basically yes I am talking about a holistic education involving all institutions. This is not to do with formal education. So, our churches need to be involved, our media need to be involved online, print, online, media. They should talk about food diets. Tell us a lot about their importance, also about the local vegetables. I think if community radios

could make a program about food diets, in fact I don't see a lot of them I just see some of them on TV. I do see some of them on TV, but I think the radio can pick it up because maybe TV penetration might be low especially in the rural areas, but almost every community has a community radio and some communities even have miniature radio stations in the form of what we call information centres. And this thing can be done on them. So that our nurses, our health professionals and our educators and opinion leaders, those who have the knowledge should give us the education.

Stephen

You mentioned a couple of things about what the content would be. You suggested education about healthy diets. I've heard other people that have said too much education focuses on the general message but not enough education is focusing on specifics. I am wondering if you agree that there needs to be more education on the specific benefits instead of the general ideas that vegetables are healthy, what do you think?

R7

I think of course there is a priority there is a list of things. You can create some priorities. I would prefer a general education because one particular item concentrated on, might be specific to a region, but if you choose for a general message you know that all areas are covered.

Stephen

So a holistic approach involving or fronts from policy to media to formal education, in every area there should be more talking about the benefits of vegetables if you want people, and you say that would have an impact?

R7

Sure, that will have an impact. The thing is, even if you give someone the money, do you think the person is going to use the money to buy the vegetables? No. You can give someone the money and if you are not following up to make sure that the person uses the money to buy vegetables then it will not work. Likewise, a person will not move from one area to another because the vegetables in another area are more nutritious. So, where the person is, the kind of vegetables that are there, educate the person about the vegetables in that region. Then, maybe the person might one day move to another location, and you have already related to that person about the vegetables in the different regions that give certain nutritional benefits. The person might then already understand that in another region this kind of vegetable provides the same benefits as the vegetable in another region.

Stephen

You were talking about the different people that you can target, what kind of group has a priority?

R7

Is it about the actors, the implementers or the receivers?

Stephen

The receivers.

R7

Whether it should be school children, or the farmers, the mothers, is that what you mean?

Stephen

Yes, what kind of age, what kind of people?

R7

I think school children should be the first target. The reason I am saying so is because they are from all walks of life, but grouped together in schools. So if you give them some kind of information then they might share this with their parents. The next target group should be Ghanaians in their thirties. Because the thirties are made up of people from different walks of life, students, and when they go back to their families they share with them. Then you go to the community members. Just in that order. So with the community members, they go into the farming communities and talk to the farmers. So they can also serve information to their colleagues. And they end up sharing information and everyone is secured. So for me those are the three target groups.

Stephen

That's interesting, because the target audience that we have in mind is currently around thirty as well. But of course children and community members are very important as well, but we need to factor in other factors as well such as the budget and what media we can use.

We've spoken about quite a lot, we've spoken about the channel, that radio would work everywhere, you also spoke a bit about certain TV shows. Could you describe them for me? What kinds of shows are on, and what do they share?

R7

I couple of them, I have watched. I know 'Asanka's Delight', then also 'Who is Coming for Dinner', and then also 'Edziban' and then 'Dining with ...'

So what do these shows do. It's very simple. All these shows try to invite let's say chefs, let's say notable people in their society. They come and cook, and a lot of the dishes are local

dishes, a local meal. So what they do is try to give information about how the local meal is cooked. During the shows they show all the various items that are being used, and some even explain why each item is being used. For example, why they are using palm oil, why they are using the onions, why they are using the onions, why they are using the okro, sometimes the nutritional content of them. Then some of the sometimes they will give you tips. Cooking tips on some of these items so that you don't end up spoiling the items that you are cooking. So these are the few shows I've monitored and how they go about them. And I think they are helpful because they give information and education, and possibly at the end of the day they will give the information necessary to increase the consumption of vegetables.

Stephen

Okay, so you say there are quite a few shows that are already sharing this information?

R7

Yes, but as I said, all these shows are already on TV. None of these shows are on radio. So that, if you could find a way to create a show for radio, the only thing of course is to describe how the food is being prepared. You could possibly let people follow along with the radio show, prepare the food along with the people on radio, and then let people call in and say they prepared it and share their experiences.

Stephen

I've learned that when you want to do radio, you need to make sure that you adapt your programme to each region to make sure that it is well understood, with local languages and local hosts for credibility.

R7

Sure, that is what I was talking about when I was talking about education. I mentioned the community members. You go to the community and use what they have, the local languages and so on.

Stephen

And what do you think of the social media?

R7

Sure, you can use social media, but the penetration will be low, it will be among the elite. But also, you could have a trickledown effect, if the elite spread the information to the local people.

Stephen

To finish off, if you had only one sentence to share with people around you about vegetable consumption, what would that one sentence be?

R7

One sentence to share about vegetable consumption?

Stephen

Yes, if you had one sentence, what would you say?

R7

For me, I would just make people aware that vegetable consumption increases the amount of micronutrient concentration in them, and prevents deficiency diseases.

Stephen

Yes, so preventing disease.

R7

Yes.

[Closing remarks, word of thanks]

INTERVIEW END

10.2 Appendix 2: Sunyani survey

Sunyani Survey

Start of Block: Default Question Block

What is your name?

What is your email address or mobile phone number?

Are you between 18-34?

Yes (1)

No (2) _____

Which Area of Sunyani do you live?

1. Yesterday, did you eat any vegetables?

Yes (1)

No (2)

Don't know (3)

2. Considering 1 serving to be the size of your fist, please tell me: yesterday, how many servings did you have of vegetables?

- 0 servings (1)
 - 1-2 servings (2)
 - 3-4 servings (3)
 - 5 or more servings (4)
 - Don't know (5)
-

3. How often do you eat vegetables?

- 1-2 times a week (1)
 - 3-4 times a week (2)
 - 5-6 times a week (3)
 - Every day (4)
 - Don't know (5)
-

What kind of vegetables do you eat most often?

4. Has anyone ever told about eating vegetables?

- Yes (1)
- No (2)
- Don't know (3)

5. Who are all the people that told you about eating vegetables? Please name as many as you can. (If no one told you, please skip this question and continue with the next).

6. Do you listen to the radio?

- No (1)
- Yes, but not much (2)
- Yes, quite often (3)
- Yes, every day (4)

7. Have you ever heard anyone on the radio talk about vegetables?

- No (1)
- Yes (2)
- Don't know (3)

8. What did the people on the radio say about vegetables? (If you have not heard anyone on the radio talk about vegetables, skip this question and continue with the next).

9. Do you watch TV?

- No (1)
- Yes, but not much (2)
- Yes, quite often (3)
- Yes, every day (4)

10. Have you ever heard anyone on TV talk about vegetables?

- No (1)
- Yes (2)
- Don't know (3)

11. What did the people on the TV say about vegetables? (If you have not heard anyone on the TV talk about fruits and vegetable, skip this question and continue with the next).

12. Do you spend time on social media (For example, Facebook, Twitter, Instagram)?

- No (1)
 - Yes, but not much (2)
 - Yes, quite often (3)
 - Yes, every day (4)
-

13. Have you ever heard anyone on social media talk about vegetables?

- No (1)
 - Yes (2)
 - Don't know (3)
-

14. What did the people on the social media say about vegetables? (If you have not heard anyone on the social media talk about fruits and vegetable, skip this question and continue with the next).

15. Are you convinced that eating vegetables is a good thing?

- Yes (1)
 - No (2)
 - Don't know (3)
-

16. Why are you convinced or not convinced eating vegetables is a good thing?

17. Considering 1 serving of vegetables is the size of your fist. How many servings do you think it is good to eat each day?

- 0 servings (1)
- 1-2 servings (2)
- 3-4 servings (3)
- 5 or more servings (4)
- Don't know (5)

End of Block: Default Question Block

Start of Block: HortiFresh Survey Ghana 2

18. Do you feel you have the skills/knowledge to prepare meals with vegetables?

- Definitely yes (1)
 - Possibly yes (2)
 - Possibly no (3)
 - Definitely no (4)
-

19. Do you feel you have enough resources/money to prepare meals with vegetables?

- Definitely yes (1)
 - Possibly yes (2)
 - Possibly no (3)
 - Definitely no (4)
-

20. Do you think it is easy or difficult to prepare meals with vegetables?

- Easy (1)
 - Moderately easy (2)
 - Moderately difficult (3)
 - Difficult (4)
-

21. What makes it easy or difficult to prepare meals with vegetables?

22. According to you, what are the advantages of eating vegetables? Please name as many as you can.

23. According to you, what are the disadvantages of eating vegetables? Please name as many as you can.

24. What are the consequences of not eating enough vegetables? Please name all the problems/diseases associated with not eating enough vegetables as part of your diet.

25. Do most people you know think it is good to eat vegetables?

Definitely yes (1)

Mostly yes (2)

Mostly no (3)

Definitely no (4)

26. Who are the people that approve of you eating vegetables? Please name as many as you can.

27. Who are all the people that do not approve of you eating vegetables? Please name as many as you can.

28. How difficult is it for you to get vegetables to prepare meals with vegetables?

- Easy (1)
 - Moderately easy (2)
 - Moderately difficult (3)
 - Difficult (4)
-

29. Where do you get vegetables to prepare vegetable dishes?

30. How difficult is it to remember to eat vegetables every time you do it?

- Easy (1)
 - Moderately easy (2)
 - Moderately difficult (3)
 - Difficult (4)
-

31. What are barriers for you not to eat vegetables?

32. What motivates you to eat vegetables?

End of Block: HortiFresh Survey Ghana 2

10.3 Appendix 3: focus group discussion transcription

Date: 22-06-2019

Type of interview: in-depth, focus group discussion

Face-to-face or remote: face-to-face

Interviewer: Stephen

Interviewees(s): B, I, K2, K1, N

Location: Accra, Ghana

INTERVIEW START

[Interview began with a brief introduction to the project, and a request of consent to the recording]

Stephen

If you think of TV, radio and social media, which one do you use most and why?

N

Social media

Stephen

Okay, so you say social media, why?

N

Uhm, social media because it's much more convenient for me [others agree vocally] I have it in my palm

K1

It's easy, accessible

N

TV, I mean, it's stationary and it's much more

B

The stations are limited. With this [holds smartphone] you can go anywhere you want anytime. You get to everything, Facebook, YouTube, Instagram, and the other pages too, I mean you can chip in into everything, BBC and all that

K1

Lately, even the TV channels broadcast whatever they show live on Facebook or, you know

N

Yeah! They actually show on social media too as well

K1

They have realised there are more people there so... they want to broadcast there

B

And it's more convenient.

Stephen

So in terms of daily activity you absolutely use social media more than TV, and what about radio?

N

Rarely

K2

Radio and TV have more limiting factors too. When it rains, you can't use it well down here, so when it rains the channels become more unstable, whereas the mobile phone, social media, you can use it anytime, so yes, convenience

Stephen

Okay, and what are the top two platforms? What you primarily use?

B

Instagram, YouTube

N

Twitter, Instagram

K2

Instagram, Facebook

K1

Instagram, YouTube

Stephen

Okay, and why not Facebook?

K1

I think people have realised now that Facebook has a lot of unnecessary stuff

B

It's cluttered

K1

It's very difficult for people, but with Instagram it limits to just the people you follow, so everything comes from just the people you follow, so you get what you want to see

B

It doesn't limit to just the people you follow, news comes in everywhere, sometimes it comes as ads

K1

The sponsors? That you have no control over, but it's better than Facebook. It's way better than Facebook

B

But wait we are talking about Facebook right?

K1

No, we are talking about Instagram!

B

Oh okay, Instagram is the best yeah, Facebook is too much.

K1

I like to watch funny videos on Facebook

N

Yeah, entertainment

B

Facebook, the main reason, there is a lot of fake news over there. You get too much of it. You see one post and another person posting the same post with different content. Which one are you going to trust? I mean you see. And it's clustered, you don't even get the chance to follow your friends. I mean you have a lot of friends, but you don't know them personally

Stephen

And what about the people on Instagram that you all follow, are there any social influencers in Ghana, are there people that people generally follow?

K1

Yeah, we have a lot of celebrities, sports stars that we follow. And the good thing is that because you choose to follow them, you know them. So everything that comes from them, you know the kind of integrity that they have. So anything that comes from them is maybe certified or like quality in it.

B

There is this one journalist who is a giant in Ghana. I did not know him very well, but I've heard of his name. And I've heard that he has companies and all that and he has sold his company and this and that. I followed him and I got to know the things he does like what he goes through daily. He's running his own programme on Instagram. It's about journalism. He interviews people on Instagram and posts it and people who follow get to know a lot. So by following him I got to know more about him and more of what he does.

Stephen

What about people who are being followed because of their body or their appearance? [The whole group reacts with a loud positive response, half laughing]

K1

You know that's the fun of it, otherwise it's just work, work, work.

Stephen

N, your face lit up when you heard the question, so you must have some people that you follow?

N

Like, Ghanaian?

B

We've created a group on Instagram. We post and share funny pictures to ourselves.

N

And it could be funny or very incredible, or something that we want to debate about, we post it and debate about it.

B

So when check the picture or video we check the page of the person. If it's nice then we will also follow. [The whole group responds positively again]

N

So I don't know too many Ghanaians, but I follow some swimmers, some top swimmers. And I follow the hashtag salsa community. So I don't follow a particular person but I use the hashtag to search various videos.

Stephen

What do you look for in those searches? What are you expecting to see?

N

Well, because of the music they use, sometimes you can track that music and use it when you want to dance whenever you want to. Sometimes you get to know the kind of people, who like to teach randomly. So I am looking for that because I want to learn more about salsa. And also just good content which is just entertaining and you might be 'wowed' about some of their performances.

B

And sometimes you get to learn about other countries. We have this thing called lifestyle banter. They post funny videos, but sometimes it's very critical. For example, there have been a lot of stabbings in the UK, and they have been posting it daily. So you get to know the things that are going on over there, what the police is doing about it, and what the communities are also doing about it.

Stephen

So it's also a kind of news and that kind of thing.

[Sounds of agreement]

Stephen

Interesting, and so are there certain ideals in terms of health, and other things. I've talked to Uber drivers and some say exercise is on a rise but there are not many people. As a swim coach, you must be aware if there is a trend in people getting more exercise or not, what do you think: is that valued or?

N

Yeah, I mean, before, back here, a lot of people didn't value it in terms of exercising and even dieting, but now the world is becoming a smaller place because you know, you get to hear about what's going on, what's good for you, and so on, and people are beginning to adapt that. It's still not up to standard, but it's still an improvement from years ago. So yeah, it is on the rise.

Stephen

Okay interesting, because I also heard another comment which was: "If you look well-fed that means you are doing well".

N

Oh yes, that perception is still there.

K1

Yeah that is still there.

B

"Port belly"

K1

When you meet a man with port belly, you assume he's rich

N

[Agrees] You assume he's rich.

K1

And especially when they are driving big cars then you know, this dude is like a big man. [Exclaims something like: "Oh yes sir! - out of admiration/respect]

Stephen

So when you're talking about this, and you're thinking about where you want to be in a few years, do you have any goals or dreams of where you want to be? Or are your goals completely different? [Initially question is not understood, but after rephrasing, Ke gives answer]

K2

There are a lot things I want to do, but most of the things I want to do are really expensive so that means I have to work really hard.

Stephen

Can you name a few examples of what's really expensive and you want to achieve?

K2

I want to travel first class, you know that is expensive.

Stephen

Travel first class on a flight to somewhere?

K2

Yes

Stephen

Do you have the same?

N

So I wanted to come in and add. Our generation, like you said, is looking forward to doing big things in the future. And so they are looking for various ways of making money quickly and easily. Look, see they are all agreeing. Nobody wants to go through stress to make money, where you go through like the whole corporate world and all that.

B

I agree

K2

Kissing people's asses

N

Most are doing well, others have not actually grasped the fundamentals of making money. So I am talking generally. I mean, everyone wants to live large and live big in the future. Everyone has dreams. I mean you see random vacations videos pictures and everyone is like: "Wow!"

K2

Summer time, the Bahamas

N

Yeah "someday I am going there with my squad", this is going to be a "squad goal" so everyone needs to work hard to achieve this. We are not looking into staying in the corporate world and being stressed. The youth is not looking forward to being stressed.

K2

Not at all

N

So they are investing into new creative ways of making money. Some are trying hard, starting up creative

businesses. Others are coming up with so many things. Some are going into tourism.

K1

Talents

K2

Sports

Stephen

Music?

Everyone

Yeah a lot

K1

Oh and some are fraudsters. Internet fraud is coming, they are duping people online.

Stephen

And a trend that is happening in Holland, everyone is becoming more conscious of their health and about the environment is that the same in Ghana?

K1

Yeah, I think it's naturally you know, we need to keep our environment clean and all that, but in Ghana especially these ideas come or trigger when there is a lot of flood. Recently there has been a lot of flood and we have realised that oh, we really need to keep our environment clean.

N

When it comes to that, the whole diseases, everyone is waiting for the person to become the first person. Everyone is conscious but no one wants to make a move.

Stephen

So it's kind like, there needs to be some urgency before there is a reaction.

K2

Yeah and also I feel like most of the issues here come at a certain period. Like, when there are the rains, you have people talking about the flood all over the media, how to tackle it, but once it stops raining nobody cares about it.

B

Forget about it

K2

When it's almost summer time, we see girls on social media talking about summer body goals, and then

B

They start jogging

K2

And after that they go back to eating junk. And so everything is about, 'oh right, we are in that time of the year so let's think about it' but once that is over then, we are just chilling.

B

It's like, they talk about all these ideals, but don't follow up.

K2

Yeah, especially our politicians, not going to lie.

Stephen

Okay, so these were some questions to start off with, now I have some things to show you. Because we talked about some of the ideas that we've been thinking of. [Introduction to the barriers. Biggest reaction was to the idea that paying a few GHS for a carb rich meal is more satisfying than paying for vegetables that do not satisfy for more than 30 minutes.]

Stephen

[Presents idea #1]

K1

I think it's a good idea.

Stephen

You think it's a good idea, why do you think so?

K1

Because targeting students to do this is the best. I think youth get convinced when their fellow youth tell them about this. So if we have youth doing this on social media, it's a good idea.

N

The reason why I think it's a good idea is because of the motivational part.

B

That was what I was about to talk about. The motivation is going to push them.

Stephen

Okay, so some sort of prize, the incentive at the end, you could have different rewards, rewards for best post, best engagement with the audience... [N and B reacting positively and enthusiastically to this]

B

Before you know it, this might change their ideas about how they think about these vegetables. And they would also start eating it and make their friends eat it too.

K2

And also I agree with K1 that is a good idea

K1

Because of the impact they will have on the general society

K2

Yeah and also [laughs] you know kids nowadays are becoming really smart, and giving them this opportunity to create their own page will help them think more open about general issues. You know it just helps them to develop themselves, how they feel about everything.

Stephen

And it gives them experience in social media strategy right?

Everyone

[Agreement]

Stephen

[Presents idea #2]

N

In addition to that, they could explain why this specific recipe is filling

Stephen

So that is the recipe competition, what are your thoughts?

[Moment of silence]

K1

So they come up with their own recipes, is that what you mean?

Stephen

Yeah, or they could modify traditional ones, [provides example with palava sauce and avocado]

K1

Okay, good one

Stephen

You're not as convinced as with this one [shows first collage]

B

This one is also good, it will help them learn more about cooking and all that

N

Yeah so with this one they are not just posting, they are actually involved in it

B

You see, there are a lot of junk foods out there, even though there are a lot of good ones, like banku and all. But they doing it themselves, they would want to, day in day out, they would want to try new things by themselves. You see, and taste in and all, inviting people to come try and see, yeah

Stephen

So you see the participatory part, how about you [looking at K2]

K2

I think it's a good idea too because I try to think of the aspect of making people try to think more. And this will help to research more on foods in terms of allergies, and stuff like that. And I also know, I'm not very sure, but I know that certain combinations of foods aren't very good for the body. So with these recipes I would look at how these combinations fit, not just in terms of taste, but you know for the body. So all of these things it helps them to think more about what they are doing.

Stephen

Also feel free to be critical about this.

B

Well, there will be a lot of bad foods coming out of this

N

The combos,

B

Combinations

[Group discusses a combo that has started e.g. fufu with egg, and mention other different combinations as examples]

B

On food network, I've been watching food network, and there was this lady from Ghana, she's now based over there, and she did groundnut, groundnut soup, and added a bit of groundnut to it

Stephen

The real one

B

Yeah the real one, she added, and with a side dish of plantain, and it was very nice, okay I did not taste it, but the

people tasting they said it was very nice, she changed it, for us the traditional groundnut soup is plain without groundnuts in it.

Stephen

[Presents idea #3]

K1

I think it's a good idea

B

Catch them young and they will be yours forever

K1

You know, like let's say you go to the mall, you want to get some vegetables, the normal vegetables no, maybe you want to get some carrots and other things that you know, and then you see a vegetable of which you have no idea what it is. And then you see a banner that says: "did you know that this vegetable gives you so and so" and then you read it and you become enlightened, you say like "oh, so all this while" I'm going to try this. So it's a good idea

N

Well with this banner I think you can use it as like a win-win situation where the business can use this as a form of promotion and also getting people on the vegetable train. So on the one hand you show a certain sale or promotion, and at the same time some information.

K2

I honestly don't know if kids that are influenced by these colours will be walking around such supermarkets trying to buy fruit and vegetables. Cause I don't know, it looks like, nice orange and purple colours, it all looks good but kids who will be moved by such colours, they are not going to supermarkets, to...

B

But the target group is not only kids right?

K2

I guess what I'm trying to say is that, I don't think they'll be buying because the mascot is there

Stephen

You're not sure if the kids have enough power to convince the parents?

B

Oh! The kids definitely have the power to do that

N

Oh that one,

K1

The thing about kids is that, if a kid is attracted to something, it will definitely go to it. And if they are going to it then their parents will also be taking a look.

N

But then imagine a kid who doesn't like veggies and the parents have been trying to convince them and then they come across it, the parents will buy it so it's a good thing.

K2

But it will not work on a large scale in Ghana, because most people buy from markets, not supermarkets

N

For example me, I get the vegetables from the market

[Everyone agrees it's much cheaper from the local market]

K2

And similar quality, honestly. It's just chilled, in the supermarket [laughs]

Stephen

Do you all do the cooking by the way at home?

[Laughing reaction]

N

These guys they buy their food more than they cook

B

I cook! [And K2 and K1 also say they cook]

N

No I am not saying you do not cook, you cook,

Stephen

So what you are saying is it's not convenient

K1

Yeah it's so stressful to go to the market, but we go and we get what we need in bulk.

K2

You know there is also this issue concerning fruits and vegetables. Like most of these big supermarkets like Max Mart and so on, ShopRite and co, they have more of the organic produce, produced without chemicals. But there is the issue that well, it's hard to trust the supermarkets that they do all the testing to check whether the produce is

organic and that there are no chemicals in the food. And then also, people don't trust the system here, and so why risk it. Cause the only way he can trust that it's organic is if he grows it himself and does not use any chemicals, but believing you to say this is organic. And then most people want organic but can't afford it, and so they wouldn't even go into the supermarket in the first place, and just get it from the roadside, which is 100% not organic.

Stephen

So then that is something interesting to consider when thinking of the placement of the banners. If most people do not go to the supermarket, how effective is it to run a campaign focused on banners in supermarkets. So this brings this idea a bit lower in the scale of its usefulness.

K1

[Agrees]

Stephen

[Presents idea #4]

B

I think UTV, they have a segment on vegetables every morning, a lady comes out for a couple of minutes and she explains to her viewers what kind of foods they can prepare from these vegetables.

Stephen

I have a bunch of radio stations here [points at collage] and so...

B

Oh the radio stations can really push you, with their exaggeration and all that

Stephen

But at the same time I've heard that presenting food needs to be done visually..

B

Yes, but the radio presenters know how to make it feel visual, the way they say it, the way they bring it out.

K2

The way they talk about it, the way they put a certain emphasis on some words, makes you intrigued, makes you want to know more.

[I enters the room, Stephen explains the project to I]

Stephen

[Presents idea #4]

B

I think it's a good idea, it will give them a bit of experience and exposure, as long as there will be a bit of funding for them.

Stephen

Okay, so funding in terms of equipment or some incentive or something?

B

Yeah

Stephen

There's a few formats were thinking of: so one is for example, you ask a group of people to take on a health challenge, for example to ask them to take more vegetables than they would normally eat, for a period of a month or two weeks, and then kind of like document their day, how they find it, whether they struggle through it or not, that's one. Another one is to do the opposite, where you document people who don't eat vegetables in their life, and you see what kind of challenges they might be facing. So what do you think of those two?

B

It's a very nice idea. I think I'm going to start it. It's a very nice idea, it gives you that exposure.

K1

Okay [slight pause] this is a good one.

Stephen

Okay, why is it a good one?

K1

Well uhm, for things like that, especially coming up with a reality TV show, considering our country, it would be something new. And I think they will like it.

B

Not even the reality show, it's through social media, we live our daily lives on social media so we're posting all those things on Instagram and all those pages. It will become something like a #vegetablething and we might join in with the challenge.

K2

All you need is a couple of celebrities to help you out..

[Sounds of agreement]

B

It's a very good idea.

K2

I think that, most importantly, from what I know, some people don't, most people eat for sustenance, they eat to get satisfied, they eat for energy. But then we don't talk about that, while some vegetables give energy, vegetables also give other things that do other things to the human body. And most people don't know exactly about what the vegetables do. They eat some vegetables, and then like you said they are hungry again, but if it's fufu then they probably eat again next day. So making them understand that it gives things like free bowels, and vitamins and all those things.

N

It helps their skin...

K2

Yeah.. tell them it helps their skin, it helps them look good, and then they'll start eating it!

Stephen

Yeah so that's what I'm really interested. What are the advantages of vegetables that people find important here in Ghana?

K2

Skin, clear eyes, prevention of disease, boosts your immune system, that's what they want to hear.

K1

You know what I think? If you call a random person, just walking across, and you ask them: between our local foods that fill you up and vegetables, which ones are good for you? They will tell you vegetables. So for the fact that you tell them it does this, it does that, they've heard it a lot of times, trust me, everyone knows that the vegetable helps the body. But the problem is that, they need something that goes with their finances. So this could be a point, another way of enticing people to eat. Vegetables are very expensive for people who need some heavy food to do some heavy jobs. So all this can be good, but the majority of people they know that vegetables are good.

K2

Vegetables are good, that's the point, but I'm trying to say that it's important that people know about what does what. That you know that when you eat apples, you eat cabbage, it does this to you. So the specifics is what is more important. We need to understand that lettuce strengthens your bones, it gives you folic acid...

Stephen

Exactly, I think you are raising an important point here, you can't just provide general information, it needs to be specific.

Also you need to have people participate, and not just provide information.

K2

Like if you see the doctor about poor eye sight, and then you hear from him that you need to eat fruits and vegetables. That's the motivation to get fruits and vegetables to get better, but if you just hear that fruits and vegetables are good, what does it mean?

B

If the doctor speaks in general, I mean what are you going to get? For example, you are making stew, there's tomatoes, onions, yeah vegetables!

K2

People in a shop are eating a lot of vegetables but then in the end they are just eating a few types.

K1

Yeah and it ends up being the same thing

B

Banana, apples

K2

All the time, that is all they eat.

K1

I mean, we eat a lot of indomie (noodles) with a lot of vegetables

B

Aye

K2

But it's only cabbage

Stephen

So how do you do it?

K1

You fry it, you fry it with meat, with vegetables, with cabbage

Stephen

[Presents idea #6]

K1

And this can be challenge, if you have the celebrities join in. For example, if you have a challenge that you only grow pepper, maybe in a little garden somewhere and it's going to be a challenge, trying it out, documenting every stage of the process. And everyone might be doing it, and it could be a

challenge, if we advertise it very well, you know like, so it's a good one.

B

A funny story, my mum had a vegetable garden, but we were always busy. We'd leave home and come back at night. And when the vegetables were ripe and ready to pluck neighbours would come for it, and they would be bugging us, motivating us, "Oh ... let it grow well, let it grow very nicely!" The next day would come, everything is gone. We'd be asking about it so my mum stopped.

Stephen

Because people would be taking it?

B

Yeah we'd still have a little, but most would be taken by the neighbours. So yeah it's a good idea, there's no but, it's a funny story. I mean, even though it did not help us, it did help them.

K2

I think it's a good idea. Except for the fact that here in the urban communities it's a very different story compared to the outskirts suburbs, rural areas, where there is a lot of rainfall, good soil, you know so, some people go into farming and they don't consider the technicalities or the important factors, they just think they have land and they can start planting anything. They don't know about which soil is good for what crop, and then what exactly to do. There are a lot of things that matter than just getting seeds, and planting, they don't even get the seeds from reliable sources. They just cut open the fruits and get the seeds and just plant it. In Accra here there isn't much farming or all of that. And even the soil isn't that good for farming.

Stephen

And there's not much space perhaps.

[Agreement]

I

If you really want to encourage this thing in school then I really think it's going to be the best idea ever in schools because children will love this, so schools is a really good idea. But not for adults or individuals like this. But in schools it will be very competitive among pupils or among students.

K1

I've done it in school before!

N

They should be guided well as well, yeah we did stuff like that

K1

In school, in my junior high we had an agriculture teacher who started a farm, maize farm pepper

I

Yeah we did stuff like this, and we were so eager

N

And we had this, is it a world planting tree day? We planted trees and checked to see if they really grew and all

K1

Yeah, we also had that. And you go back to the school and you see the trees and you think "I was there!" You know, like it's so encouraging. I think kids would love this.

I

So among pupils and students I think it's the best idea, among grown-ups I'm not sure.

K1

Depends where you do it.

Stephen

[Presents idea #7]

[Commotion because participants recognise people in the collage]

Stephen

Well let's just forget who these people exactly are for a second, just the idea of using influencers, does it work in Ghana?

[Everyone agrees]

K1

Yes! Ghanaians follow a lot of influencers,

I

And then this person talks about taking this fruit or vegetable and then you want to do the same

Stephen

Announces that everyone can rank ideas

[Everyone spends time ranking ideas]

K2

1, 5, and 6

Stephen

And can you give some small argumentation why these are the top three for you?

K2

Because I believe in communication, in how you carry messages across to people. And then the 1 which talks about the social media, most people are now on social media, even old people on their phones so everybody will get to see it. But not everybody watches TV now. The number of people who watch TV is far less than the number of people on Instagram, Twitter. So I think that's the best idea. And then documentary and reality show: yes. Like I said, specifics. When you mention what each vegetable does, and not just vegetables are good for your immune system, they cure cancer and so on, but who does what. And then lastly, learning through experience. I mean, everybody should be able to know how to grow food. I think it's one of the most important things in life, being able to grow something. And so, if you are able to grow it, you know it's for your own benefit. The experience is good, because aside the fact that you know how it is done, you know why you are producing it and you know exactly what you want from it.

Stephen

Solid, nice thanks, so who wants to go next?

K1

1, 7, and 6. Well he said almost everything. Six gives experience. You know, apart from the fact that kids are taught in school, how to grow you know. But if they get the practice, and they get the experience, it will help the whole generation. It will change the whole generation. So it's a good one, and then I also think that the stars and the celebrities and influencers. So if they start something like that, it would have a lot of influence. You know, and then 1 social media. It's the place to be!

N

Alright, I would go for 1, 2 and 6. But I believe that actually 7 can help in every aspect of it. 1 because it is a really super idea, nice way of moving things forward, nice way of giving the youth something to do, nice way of pushing it onto social media. #2 because it actually gets people involved in making the food for themselves to eat. I feel that if you know what vegetables are good for you, I feel number two encourages research and makes them actually put things together for them to eat. And six because yes, I mean generally

I

Let me add to the number 2, although I am not choosing number 2. You know when Sarah came in with her

guacamole, I never knew how to even prepare that, so this competition teaches new recipes

N

But I feel number 7 can push every idea

B

I am going with 1, 5, 3. With the banners at number 3, I think it wouldn't do much in the supermarkets, I would focus them on the markets, I would use to educate the market sellers. Then knowing more about the vegetables they are selling, will help them push. And then with five, making a daily reality show about yourself going through the challenge. You know if you keep doing that it will start a trend, and people might follow, and they will also participate and eat vegetables. And with 1

I

1, 6, 5. So let me talk about the reasons why. You know, most people are so health conscious these days so, and I think coming up with reality shows or documentaries or so is going to help a lot of people who need to know which vegetable is helping this particular disease or deficiency, so I think this is okay to go for. Cause most people are of late so health conscious

Stephen

You see that as something that's coming up?

I

Yeah. Most adults, and even kids, they are becoming more health conscious.

Stephen

How do you see that?

I

Uhm, you meet people okay, and they say "no, no, no, I don't want to take this" because when I take this I for sure will develop this kind of disease or, so let me just go for this thing, sometimes that is beneficial for someone like me. I will never take something like this or, because I have become so health conscious these days, because of one or two things that I have experienced, so I would rather go for things that are beneficial for my health instead of going for things that I know will not be healthy for me. Okay, so I would love to listen to more or much information about vegetables, what they do.

[Closing remarks, word of thanks]

INTERVIEW END