

Use of Social Media by Adolescents for Nutrition Intervention: Factors to consider

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Abstract

Adolescents are the largest population using social media in daily life, and their use is influenced by a wide range of factors. Hence, it is applied in nutrition intervention, which improved their health. However, some intervention lacks participation and engagement. This study identifies factors influencing adolescents' social media use for nutrition interventions. An in-depth interview was conducted virtually for 30 to 60 minutes focusing on nutrition-related matters with 15 adolescents. Almost all of them were interested to participate in nutrition interventions on social media. User characteristics, environmental factors, and social media features were identified as the factors impacting them.

Keywords: Adolescents; Social media; Nutrition; Intervention

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1.0 Introduction

Adolescents now primarily use social media (SM) as a means of communication, and it has taken on a significant role in their life. 40% adolescents spent 3 to 4 hours while 36% spent 4 hours and more of their time on SM (Tartari, 2015). Malaysian adolescents utilize SM to discuss political topics, share social lives, click "Like" to express interest, support for remarks and/or organizations and share both positive and negative feedback (Yusop & Sumari, 2013). Their behavior pattern in using SM is primarily caused by various aspects, including their backgrounds, peer pressure, courses taken, and technology access (Goodyear et al., 2021). Because of that, SM has been used widely in health-related field including nutrition intervention. Through improvements in healthy dietary alterations, physical activity (PA) level and positive changes to body composition or weight, SM interventions can affect favourable changes. These effects are due to the primary features of SM interventions including the usage of Facebook, Facebook groups, access to information and interaction, photo sharing and editing, groups and sub-groups, and gamification, as well as Twitter, WeChat, Reddit, and Instagram (Livingstone et al., 2022). Although they may have some benefits for public health interventions, studies typically indicate low participation rates and no appreciable differences in key outcomes between groups (Klassen et al., 2018).

Therefore, this study aims to define the distinctiveness of SM, while determining the personal and environmental influence that affects them in using SM for nutrition intervention including high energy-dense (HED) foods and sugar-sweetened beverages (SSBs). The objectives of this study are: 1) To identify SM features, personal and environmental factors that affect adolescents in using SM for nutrition-related purposes; and 2) To determine whether adolescents would be interested in following nutrition intervention on SM related to HED foods and SSBs. This study will provide important information regarding adolescents' opinions on using SM for nutrition intervention while providing data on how they perceive the information and design elements in the current SM nutrition intervention. It could offer crucial information to Malaysian public health experts, politicians, organizations and healthcare professionals (HCP) for the development of an effective intervention that takes adolescents' perceptions into account.

2.0 Literature Review

Recent years have seen a huge increase in SM users; as of October 2022, there were 4.74 billion of them globally, or 59.3% of the world's population, up from 190 million new users a year earlier (Simon, 2022). Whereas in Malaysia Internet users climbed by 1.3% between 2021 and 2022, reaching 29.55 million in January 2022 (Simon, 2022). SM allows users to engage with others and forge social bonds while exchanging information and knowledge about needs and activities in real life through its interactive platform (Shabir et al., 2014). The usage of SM has spread across a variety of industries, including healthcare, business, marketing, politics, and education. Among all of the SM platform, Facebook has been proven to be the most popular both globally and in Malaysia. Although Facebook is the

most dominant, its use is decreasing while Twitter, Instagram, and YouTube are rising in Malaysia (Chaffey, 2016; MCMC 2020). This is because the most frequent and prolific SM users are adolescents, who utilize it to meet a variety of demands over extended periods on several platforms (Beyens et al., 2020). Their use of SM coincides with the development of their identities, sexualities, physical and moral selves. The change in adolescents' SM usage is just one illustration of how the technological environment for them has evolved since the previous study on their technology use in 2014-2015 (Ahmad, Ismail & Nasir, 2015). More so than ever before, they are more visible online nowadays. Although numerous studies have demonstrated the advantages and consequences of adolescents' use of social media, research on the factors that motivate them to do so is still lacking.

Adolescents were more exposed to foods and beverages that contain excess amount of total fat, saturated fat, trans fat, sodium and free sugars on SM compared to children (Potvin Kent et al., 2019). The common dietary pattern of adolescents is high in energy-dense foods such as free sugars and saturated fatty acids while low in fiber which is associated with higher risks of overweight and obesity (Sharps et al., 2019). Therefore, various nutrition intervention has been done to address this issue. For instance, the use of WeChat in China increases adolescents' consumption of nutritious foods and PA levels (Wang et al., 2021). However, some interventions produced non-significant outcomes. The rationale for non-significant outcomes of certain interventions is that the participation and general usage of SM, researchers' use of SM, or other elements of the treatments may have had an impact on the effectiveness (Klassen et al., 2018). Although numerous studies have demonstrated the functions, advantages and consequences of adolescents' use of SM, the factors that influence them, especially nutrition intervention have not been thoroughly studied up to this point.

3.0 Methodology

3.1 Research Design and Sample

This is a qualitative study, where case study approach was implemented. In-depth interview was conducted to identify the opinion and view on factors influencing adolescents in using SM specifically in nutrition intervention. Purposive sampling was used in choosing the participants. It relies on researcher's judgement in choosing the sample based on anticipated heterogeneity of regions, demographic groupings, places, households, and individuals; it lacks a formula to determine sample size (Clarke, Braun & Hayfield, 2015). Therefore, 15 adolescents aged 14 to 18 years old living in Kuala Lumpur, Selangor and Penang who are able to speak in Malay or English were selected. Other than that, they are smartphone/ laptop/ computer or tablet user, have access to the Internet, have SM account and access to it and willing to participate. Meanwhile, the exclusion criteria were illiteracy. Two teenagers who met the same criteria were also chosen as pilot subjects for the in-depth interview session. They were recruited online through the dissemination of Google Form link where their personal information was filled in there.

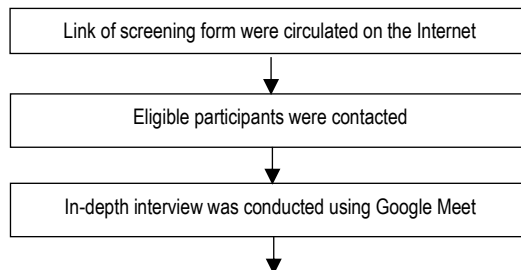
3.2 Research Instrument

Three forms and one set of question were made for the participants. Screening form was filled out by participants to screen their eligibility based on the research criteria, sociodemographic form contains questions on participant's background and consent form were created using Google Form. Semi-structured interview (SSI) questions related to factors that influence adolescents in the use of SM and also nutrition interventions on social media, especially regarding HED foods and SSBs were used during in-depth interview session.

3.3 Data Collection and Analysis

A link to the screening form was circulated on the internet which then closed for responses once the sample size was met. Participants who fulfilled research criteria were contacted via WhatsApp and were given sociodemographic and consent form. In-depth interview was conducted for 30 to 60 minutes using Google Meet where the meeting link was provided prior to the interview using English and Malay language depending on participant's request. The sessions were recorded using an audio recorder and transcribed verbatim with Microsoft Word immediately after the interview ended. The recorded sessions were deleted once transcription process completed.

Thematic analysis method was implemented to explain participant's opinions on the factors influence the use of SM and nutrition interventions on SM, especially regarding HED foods and SSBs as an adolescent. Model of Internet Intervention aims to increase the chance that the effectiveness of treatments depends on replicability of technology features and Social Media Intervention Affordances that serves as a framework for the development and testing of Internet interventions were used for deductive approach of thematic analysis (Moreno & D'Angelo, 2019; Ritterband et al., 2009). The data was finalized when it reached saturation point where it cannot produce new data and no further coding is possible. Primary author analysed the interview transcript using Atlas.ti 9 where the factors were identified and categorized according to the themes and subthemes of the theories chosen. It was then reviewed by another two reviewers independently to ensure the credibility of the data (peer debriefing).



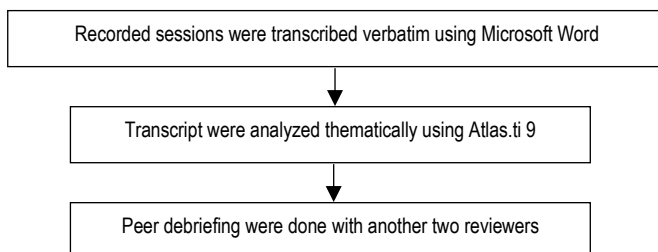


Figure 1: Methodological chart

4.0 Results

4.1 Participant Sociodemographic

Participants consists of 53% female and the remaining are male where 93% are Malay, 7% are other races and no Chinese and Indian. Day school was attended by 60% of them and the rest went to boarding school. Their household income is below RM4850 (53%), between RM4850 and RM10959 (27%), and over RM10960 (20%). Over four people are residing in more than 73% of households, while 27% have fewer than four. Their sociodemographic are shown in Table 1.

Table 1. Participants' Sociodemographic

ID	Age	Gender	Race	School Type	Family Monthly Income	Number of People in Household
001	14	Female	Malay	Day	Less than RM4850	7
002	15	Female	Malay	Day	Less than RM4850	6
003	15	Female	Malay	Day	RM4850 – RM10959	5
004	16	Male	Malay	Day	Less than RM4850	5
005	18	Male	Malay	Boarding	RM10959 and more	6
006	18	Male	Malay	Boarding	Less than RM4850	4
007	18	Female	Malay	Boarding	Less than RM4850	4
008	18	Female	Malay	Boarding	RM4850 – RM10959	8
009	18	Male	Malay	Boarding	RM4850 – RM10959	5
010	18	Female	Malay	Day	Less than RM4850	4
011	15	Female	Malay	Day	RM10959 and more	6
012	18	Male	Malay	Day	Less than RM4850	4
013	18	Male	Malay	Boarding	RM10959 and more	10
014	18	Male	Others	Day	Less than RM4850	5
015	17	Female	Malay	Day	RM4850 – RM10959	7

The analysed findings are divided into a few categories following the themes from Model of Internet Intervention and Social Media Intervention Affordances. They are user characteristics, environmental factors and SM features which are listed in Table 2. We

found that almost all the teenagers interviewed were interested to participate in nutrition interventions including HED foods and SSBs using SM.

Table 2. Factors influencing adolescents in using social media for nutrition intervention

Theme	Subtheme	Category
User characteristics		
Belief and Attitude	Motivation	Self-motivated
		Motivation from surrounding
	Interest	Self-interest
		Interest due to surrounding
	Readiness to change	Starting to get ready for change
	Intention	Changed their diet and habits
Treatment expectations	Intended to be healthy	
Cognitive Factors	Cognitive style	Expecting the outcomes
	Information processing	Visual
	Goal setting & pursuit	Easy to understand
	Decision making	Set goal and pursue
		Lazy
	Judgement	Distracted
		Determine whether they capable of following it
		Determine whether the posts are interesting
Determine whether the posts can be trusted		
Self-efficacy	Determine the suitability of the information	
Knowledge	Consistency	
Demographic	Age	Knowledge for own self
	Gender	Optimum body condition
	Weight & Height	Diet according to gender
		Abnormal weight
	Finance	Expensive food price
Health Condition	Family history of illness	Cheap food price
		Medical expenses
	Abnormal weight	Family
General health	Own body	
Physiological factors	Motor function	Maintaining health
		Craving
		Stress
Skills	Psychological mindedness	Appetite
	Physical skills	Reflection on own self
		Sport skills
	Driving skills	
Environmental Factors		
Relationship	Family	Eat home-cooked foods
		No awareness from parents
		Family member's habit
	Friends	Encouragement from surrounding

		Discouragement from surrounding
Community	Educator	Awareness from teacher or lecturer
	School	Program
		Food availability
	College	Food availability
		Higher-ups' role
	Workplace	Food availability
Societal	Facilities	Gym
	Policy	School program
	Media	Mass media
		Social media
Professional	School student	Time
		Eating habit
	College student	Time
		Eating habit
	Employee	Time
	Healthcare professional	Advices
	Influencer	Popularity
Social media features		
Appearance	Colour	Colourful and bright
		Soft and pastel
		Colour balance
	Graphic (Picture / Text / Caption)	Balance graphics
		Interesting graphics
		Pictures with text
		More picture
		No picture
		Less picture
	Page / Screen Layout / Design	Interesting
		Simple
		Modern
Organization of content	Pictures organized and not cluttered	
Assessment	Personalization	Personalized target group
		Personalized topic
Cognitive and Behaviour	Knowledge	Improves user's knowledge
	Creativity	Creative use of graphics and video editing
	Reallocation	Focusing on certain aspects of the presentation
Burdens and Content	Covering issue of content	Strict content
		Limited time
	Content quality	- Accurate - Clear - Simple - Detail
Delivery	Poster	-
	Slide	-
	Video	-
	Vignettes / Testimonials / Stories	-

Emotional	Express emotion	Like / vote / favourite
	Triggers emotion	Stories or photographs
Functional	Method of transmitted or saved	The content can be "like", "share", "save", "retweet", "reply".
	Searchable	Search using keyword
Identity and Message	Profile or content source	Professional or credible profile Random people but specific profile based on their experience and content delivered
	Style of the content	Specific content
Social and Participation	Testing	Quizzes Questions
	Reinforcements	Rewards
	Interactions	Live Comments
	Groups	Sharing message and motivate group member

4.2 User Characteristics

Six themes related to the characteristics of the user were found namely belief and attitude, cognitive factors, demographics, health condition, physiological factors and skills. Belief and attitude consist of subthemes motivation, interest, readiness to change, intention and treatment expectation. In terms of motivation and interest, they were affected by their own self and their surroundings. Readiness to change were proved when the participants starting to get ready for a change and some already changed their diet and habits. As for intention, one participant intended to be healthy where *"I feel like I want to change myself for the better. Being overweight is not good, it's easy to get sick and then you're always not confident, always tired. So, I want to make myself better, health in general"* [012]. Lastly, treatment expectations are participants expecting a good outcome from the social media. The theme cognitive factors comprise of nine subthemes which are cognitive style, information processing, goal setting & pursuit, decision making, judgement, self-efficacy, knowledge, developmental stage, self-regulatory strategies. The participants favour visual cognitive style with the examples of different platform: *"Using YouTube, you can watch videos if you want to learn better"* [003]. Participants reported that in terms of information processing, they will only follow the information if it is easy to understand. As for judgement, the participants evaluate and decide what needs to be done for each SM post based on several characteristics whether the posts are interesting, can be trusted, capable and suitable to be followed. Next, a participant questioned her own consistency: *"I'm going to practice it but I don't know how long it will last. It's hard to be consistent"* [012] for self-efficacy. In terms of knowledge, they felt that the information on SM were able to increase their knowledge.

The next theme is demographics including age, weight and height, gender and finances. For age, one of them stated that they need to have an optimum body condition since they are still young. In terms of gender, they thought that men and women have different diet preferences. One said *"Gender maybe a bit because difference of proportions*

or conditions may influence the appropriate diet of a person" [014]. Next is weight and height where their concern is to have a normal Body Mass Index (BMI). Most of them were affected by the food prices while only one participant had an opinion on hospital costs for finances. As for health conditions, the subthemes are family history of illness, their abnormal weight and general health. Their concern is *"Like my family, some have diabetes and high blood pressure. So that kind of risk is there. That's why I think I should take care of my diet from now on"* [007]. Next theme is physiological factors where they were mainly affected by cravings, stress and appetite. One stated that *"Personally, it's craving. It's like some food is delicious but not healthy. Sometimes too tempted"* [005]. They as students will occasionally feel stressed out that they confessed: *"Sometimes it's because of stress too, if you're stressed, then food is the comfort zone"* [012]. The last theme is skill of the participants such as psychological mindedness and physical skills. Psychological mindedness is the ability to examine and reflect on oneself, for introspection, and to get personal understanding: *"Maybe if I look at myself, my lifestyle is not healthy, I'm being very complacent then I will follow"* [004]. Physical skills include sports and driving skills.

4.3 Environmental Factors

According to the participants, four themes were related to their environment such as relationship, community, societal and professional. The subthemes for relationship such as family, friends and educator are the people in a person's closest social circle. Most of them stated that they often eat home-cooked foods when they are at home which makes it easier to eat healthily compared to school and college and some followed their family member's habit such as *"My brother always goes to the gym to exercise. After that, when he returned home, he eats lesser. I see how determined he is to gain ideal weight, so sometimes I follow the way he eats"* [008]. Meanwhile friends being the biggest influencer in college and school: *"For example, some of my classmates invite me go eat outside so maybe I have consumed a lot more than my diet supposed to be allocated for. But my other friend group help me to plan a better diet together"* [014]. As for educators, they said that teachers and lecturers also gave advice for them to take care of their health. Next, community is where social interactions take place like school, college, workplace and facilities around them which act as the subthemes. Majority of the participants argues that there is lack of healthy food options. Participant 006 said *"At campus, I don't eat healthily, I just eat chicken. It's just that if you go at the store, there are less vegetables available"*. Other than that, health programs in schools also have a positive impact on students that make them want to be healthier. The facilities around them like gym also makes they feel that it is easier to live healthily if it is provided.

Next theme is societal that consist of policy and media. In terms of policy, there are school programs implemented to help the issue of obesity among students but it is not emphasized and paid full attention. As for media, almost all participants prefer to use SM where participant 013 said that *"I think it's better for SM because from my experience it's more interesting on SM than in the real world. That's for the younger generation because we use SM more than interacting face-to-face"*. Lastly, professional includes the subthemes

of being a student, employee, HCP and influencer. Time plays a major role for school and college students in daily routine following their class schedule to the extent that *"There's a certain time if the schedule is too packed, you might only eat once a day, you don't have time to eat"* [012]. The same goes for being an employee. Apart from that, a participant stated that advices from HCP helped him to better understand nutrition. As adolescents, they see a lot of popular influencers on SM who might influence them. However, they have contrary opinions: *"If it's from an influencer, it's more interesting because they are famous person, so we know them"* [010] and *"I don't trust influencers or celebrities, because they want to find popularity in my opinion"* [013].

4.4 Social Media Features

Features of SM are able to attract or reject the interest of users to engage with it. Nine themes were described such as appearance, assessment, cognitive and behavior, burdens and content, delivery, emotional, identity and message, functional, social and participation. The subthemes for appearance are colour, graphic, page/ screen layout/ design and content organization. Participants preferred colourful and bright post like one said *"I prefer colourful, not just black and white. Later, people will get bored watching"* [004]. Graphics should consists of picture, text and caption where they are more captivated with interesting and balanced amount pictures and text. As for page/ screen layout/ design, they stated that the design and layout should be simple and attractive is the most important while the content should be organized. Next, assessment refers to the capacity to assess user needs, customize the interface, and offer recommendations and material that are specifically suited to them. The content on SM should personalized to the topic and target group: *"The target must be teenagers so the topic must involve the lifestyle of teenagers. For example, nowadays teenagers eat whatever they want so need to triggers them. If they like to eat ramen, so tell them the danger of ramen"* [006]. Based on the theory, cognitive and behavioral includes knowledge earned by the user, creative use of graphics and enhanced video editing by creators and cognitive resources reallocation referring to focus on certain aspects of the presentation such as listening and watching where participant 007 said with an example that *"TikTok is interesting because people like to tell stories while there are moving visuals"*.

Burdens and content describe the issue and quality of the content. Participant 001 reported that *"If possible, I want it to look simple. When people read it, they can quickly understand as it is not compact. It is simple but easy to understand"* in terms of quality of the content. Meanwhile, the covering issues of the content includes burdens particular to the program's content. Next theme is delivery which means the ways of delivering the content where most of them, *"I prefer video. If it's in text form, I might feel lazy to read it"* [002]. Theme emotional refers to the emotion that can be instilled by the creator to the users using real stories instead of theories. Whereas expressing emotion can be done by the users using "like", "vote" and "favourite" button when the posts left an impact on them. The theme functional explains on the ways of transmitting or saving the posts on social media. Participant 004 said that *"I like to be able to save. You can also share if you like. Because*

later we might can help people to get that diet. If you save it, you can watch it anytime". Other than that, a participant said the ability to search for specific content using keywords is another useful feature of social media. Next theme, identity and message refers to the content source (profile) and style. Most participants prefer a professional and credible creator as they *"This means that if they talk about health, I will follow those who have a health background such as doctors, health officers. If the random people tell the story, I don't really go along with it"* [006]. However, some of them would prefer people with real experience. They also favour specific content as well. The last theme is social and participation feature that involves interaction with other SM users. *"If there are many people in the group, everyone can share their opinion. Maybe they got information from other places so they can share it in the group later"* [001]. SM users can also participate in certain content by tests (quiz and questions), reinforcements (rewards) and interactions (Live and comments) to improve the content's appeal and comprehension.

5.0 Discussion

According to the results, there are a number of factors influencing how adolescents use SM for purposes related to nutrition. Some studies identify the user's characteristics; however, the majority just pay attention to their demographics (Park et al., 2018). While in fact, these factors shared by the adolescents plays an important role in their SM use as well. Beliefs and attitudes can encourage or discourage someone from utilising SM in line with previous research that it was even included in a behaviour model for the adoption of new technology (Rauniar et al., 2014). The adolescents were driven by their own motivation to live healthily and inspired by others around them. When they believe their lifestyle is unhealthy, they intend and are willing to change it, even if they do so gradually by following nutrition information on social media. As a result, they anticipated that the advices would provide positive results, such as a better mental and physical health. Cognitive style is favoured methods of information processing such as visual and verbal style. However, they only prefer visual methods of information processing, such as Instagram for photo posts, which is mainly regarded as fitting the needs of young people in terms of SM and cyberpsychology (Huang, 2018). Additionally, they choose nutrition information that is easy to understand and process because adolescents who majority are students usually have limited information processing capacity which refers to the execution of numerous activities at once (Lau, 2017). They were quite selective about what they follow on SM where the posts need to be interesting, trustworthy depending on their situation either living at home or college. Despite the fact that they frequently browse SM and wanting to follow the nutrition advices that they saw, most people choose not to do so because they are lazy and preoccupied. A study indicated that adolescents generally lazy to engage in physical activity and prepare food, such as chopping vegetables, also made reference to this laziness (Hayba, Shi & Allman-Farinelli, 2021). Next, as supported by the literature, SM are being used by the adolescents as it can increase their knowledge in health when they are exposed to information online (Plaisime et al., 2020).

Demographics are the characteristics of the population where some may be more inclined to utilise specific SM sites than others (Fardouly & Vartanian, 2016). For nutrition-related matters, female was thought and proved to be more focused on diet and losing weight consistent with previous research that said female often associated with diet suggested on SM and eating disorder as they were influenced by online images that are said to be beautiful for women (Wilksch et al., 2020). Finance is the most often talked about by them as they depend on their pocket money given by their parents who are the main source of household income where majority of them came from B40 family with four or five people in a household. Apart from that, health condition of themselves and family members such as obesity and diabetes are the reason they are interested in following nutrition advice on social media. Because of that, various nutrition intervention has been conducted among adolescents through SM platforms which resulted in improved nutrition-related behavioural and clinical outcomes (Chau, Burgermaster & Mamykina, 2018). Physiological factors are related to motor function of an individual that includes craving, stress and appetite. These factors were found to cause individuals overeat as they encourage erratic eating habits that might lead to obesity (Reents & Pedersen, 2021). Lastly, skills of the adolescents consist of psychological mindedness where the reflection of their own unhealthy lifestyle makes them want to follow health posts, and physical skills including sports skills where they mentioned the necessity to abide by certain dietary recommendations while they were athletes, as well as driving skills, where they described being unable to go out and get the groceries they needed since they did not yet have a driver's licence. Even though there hasn't been much prior research on the component, it is identified in the model of internet intervention and also the opinion of adolescents.

Environmental factors pertain to things in their surrounding that may have influenced their decision to use SM for nutrition-related purposes. It makes sense to look at the connection between adolescents' use of SM and their health habits given the importance of environmental influences on health behaviours (Vaterlaus et al., 2015). Friendship, family and student-teacher relationship plays a role in adolescent's life. The participants depended a lot on family members especially their mother when they were staying at home in terms of meals prepared, groceries shopping and eating habit. It is consistent with a study finding that parents continue to be the key determinant of teenagers' intake of fruits and vegetables mainly on their actions (Pedersen, Grønhøj & Thøgersen, 2015). At this age, adolescents are heavily influenced by their peers either positively or negatively. The results of this study proved that adolescents often follow what their friends do consistent in other studies that friends influence each other's physical activities (Garcia et al., 2019). School students usually do not eat or eat simple food such as bread because of the lack of variety of healthy food while college students said that the food available is lacking in vegetables and fruits.

Based on theory chosen, societal influences consist of policy. In meeting the policy goals, school is one of the institutions involved in the implementation but it is less emphasized to the students as health programs is sometimes cancelled according to the participant. Media consisting mass and SM helps to deliver health information to them.

Majority of the participant favour SM as its intense use may be a typical behaviour of adolescents that affects their well-being (Boer et al., 2020). The last factor influencing adolescents is professional. Time and eating habit affect both school and college student. They often have time constraints to follow nutritional advice due to their tight schedule which is consistent with research that resulted in improper meal time and unbalanced meal (Bakar et al., 2019). Additionally, they frequently eat bread and noodles, which is not a healthful eating habit. Previous data also showed that the large majority of students usually ate foods with low nutritional value (Kabir, Miah & Islam, 2018). Not only that, a working participant also felt that they had limited time during their breaks which forced her to eat in a hurry. Lastly, adolescents may or may not be affected by influencers as one said that the information will be more interesting while another said that the influencers only aim to gain popularity. It is partly true because paid or non-paid influencers target on younger audiences by promoting products or sharing information using their expanded social influence which often succeeds in reaching their target (Qutteina et al., 2019).

In terms of SM features, the participants listed a number of variables that perhaps catch their attention. Appearance that may stimulate initial and ongoing use and boost user engagement were described where the posts on SM should be colourful, balanced graphics between text and pictures, use interesting layout and organized content. The look of an infographic following the letter Z layout showing balanced between illustrations and letters, bright colours showing cheerfulness and font of the text that is comfortable to read (Wahab et al., 2019). Next, assessment is a feature that allows personalization and tailoring which are defining characteristics that set internet interventions apart from conventional self-help initiatives which they favours as they can directly relate and apply the information found. For example, personalization positively influences SM users in terms of health intervention aimed to prevent sexually transmissible infection (STI) and advertisements of fashion products that increases purchase intention (Wadham et al., 2019). Cognitive and behavioural features were identified in the chosen models. Adolescents use SM as it increases their knowledge consistent with previous research as a variety of health-related material were accessible and used by them in diverse ways (Goodyear, Armour & Woof, 2019). They often found creative video and infographic in terms of graphics and music used and content introduction. A study reported aspects linked with SM which are ideational behaviour and creative action and accomplishment among individuals who use it for self-education and learning, obtaining information on discussion topics and self-expression (Acar, Neumayer & Burnett, 2021). SM allows reallocation of cognitive resources which is a simpler communication method by focusing on one aspect of a presentation such as Facebook message tool (Moreno & D'Angelo, 2019). Next, burdens referring to complexity of use, insufficient application navigation and long intervention duration and content referring to quality of the information concentrate on the content itself (Ritterband et al., 2009). They will read the post or participate in the program if the information provided is not too complicated or lengthy while also accurate.

Delivery media influence system use based on the user's interest, satisfaction, and pleasure of the program. Majority of them favour videos, in line with Saudi adolescents,

who prefer visual approaches like videos (49.1%) and infographics (28.9%) to learn about nutrition on SM (Tami, 2022). Next, emotional is the ability to instill and express emotion using posts on social media. Content creators are able to generate motivation using stories and photos of their own experiences such as sharing before and after photos of themselves to demonstrate the effectiveness. Whereas the users express their emotional response to media through likes, retweets, and favourites (McCay & Quan-Haase, 2016). Functional feature of SM makes it easy for users to transmit or save the content by using “save” and “share” button which are important for all types of content. Thoughts and opinions can be instantly spread around the globe with a simple post, like, or retweet while images from other websites can be “pinned” by users (Stukus et al., 2019). Besides that, users can search certain information or persons on SM by using a variety of internet tools, like hashtags (Moreno & Uhls, 2019). Identity and message giving crucial details about the content’s creators and the presentation of their work. SM profiles acted as a source for someone’s biography, providing details about the individual’s life and activities (Throuvala et al., 2019). Hence, the participants stated that profiles showing professionalism and credibility for the topic posted are trustworthy. As for the message, they prefer a specific content for the particular topic. For instance, a health intervention using Facebook targeted on overweight and obese students shows positive results such as reduced junk food intake and decreased Body Mass Index (BMI) (Krishnamohan et al., 2017). Lastly, social and participation includes the involvement and engagement of the user such as testing involving evaluation process, reinforcements such as rewarding the users, interactions consist of communicating with the audience either through speech or text and groups gives opportunity to their users with the same experience, passion or religion sharing information and motivation. For example, the research with the most levels of participation and acceptability posted events, polls, and other interesting and interactive content to private Facebook groups where participants could receive health advice and information (Klassen et al., 2018).

6.0 Conclusion

Behaviour is formed and controlled by either environmental stimuli or internal inclinations, has frequently been used to explain human behaviour. Hence, this study identified the factors influencing adolescents as they are the largest population using it for nutrition-related matters as information from SM could be used to support and enhance public health and treatment outcomes, consisting their own characteristics, environmental and SM features. It can be concluded that adolescents are inclined to use SM for nutrition interventions. This study's emphasis on adolescents, whose opinions were gathered from teenagers themselves, was one of its key strengths. Also, they span a variety of ages and demographics. Another strength is that this study used a deductive approach where a few existing framework or theory act as a guideline in analyzing the findings. Meanwhile, the limitation of this study is the small sample size and focused on certain states in Malaysia which may not represent the entire adolescent population. As for the implications of this

study, the findings can help future researchers or organizations in developing SM interventions related to nutrition by taking into account the factors that affect adolescents to ensure high participation and engagement. Future research is recommended to consider a target population with a larger sample size and a more diverse sociodemographic background to ensure representativeness of the adolescent population

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Article Contribution to Related Field of Study

This paper will help in developing a framework for digital or social media interventions for nutrition among adolescents especially HED foods and SSBs.

Authors Declaration

This article is an extended version of the original conference paper published in the E-BPJ, Vol (8), May, 2023, 51-58.

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