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Persuasive System Design: Social Support Elements to Influence the Malaysian Wellness in Social Media

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Abstract

Obesity is a significant problem in Southeast Asia, especially in Malaysia, where the report by The National Health and Morbidity Survey of 2015 emphasized that the country has the highest proportion of obese and overweight population in the region and it is increasing by the year. Recently, it was observed that the social media could be leveraged for influencing healthier lifestyle. It is believed that, to motivate people to engage with social media or any wellness system, social support is important. However, research indicated that the understanding of social support from the perspectives of system design is still lacking. This study aims to fill these gaps and have better understanding of social support through the Persuasive System Design (PSD). The objectives of this research are (i) to identify the social support elements within the persuasive design elements (ii) to qualitatively verify the social support elements for Malaysian wellness in social media. Qualitative data collection was conducted through social media content observations and focus group interviews with selected respondents. Five PSD elements in social support were identified. They are: social learning, social facilitation, social comparison, recognition and normative influence. The relevancy and significance of these elements towards the health and wellness motivation among Malaysian were also identified.

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1. Introduction

Obesity is a chronic condition that contributes to many diseases and affects more Malaysian each day. The Economist Intelligence Unit (EIU) report 2017 [1] emphasized that the country has the highest proportion of obese and overweight population in the region. Even Malaysian latest statistics showed that the overweight and the obese make up nearly half of the country with 30 million populations. According to the National Health and Morbidity Survey of 2015 [2], obese Malaysian makes up 17.7% of the population while those who are categorized as overweight make up 30%. Based on that statistics, the percentage of obese and overweight person are increasing over the year and seen as alarming as it can lead to various diseases such as heart attack, diabetes and cancer [3]. A study found that there are many factors that influence obesity for example environment factors, culture, exercise and food intake [4]. Obesity do not only effect individual health but also have dire effect on economy [5] and socialization. Weight loss treatments have known to improve the quality life of obese persons [6]. Meanwhile, many studies emphasized the change health behavior is important to prevent obesity from early stage and to achieve individual weight loss target [7, 8].

Level of health among Malaysian is worrying, as some of them have been suffering from various illnesses [9], the future prevention path for individuals and public health are expected. There are various efforts made by the government or non-government organization in improving the health of the population such as promoting outdoor activities, practicing healthy eating, raising awareness about smoking, scheduled health screening improve the quality of healthcare facilities and others. The social media is one of the platforms that could effectively promote all these awareness programs.

Social media is more than just trends. In fact, many different fields have been utilizing the social media such as by the SMEs [10], adolescents' usage [11] in education [12], in e-government [13], and in healthcare [14]. Based on studies in those areas, social media has proven to be powerful platform to improve the way people live, learn, become acquainted with each other and promote the healthy behaviour change for improved life purpose. The sharing information through social media encourage healthy living, supported with current technologies such as mobile applications that help healthcare professionals connect with their patients, social media is now an integral part of the overall care philosophy. Various social media such as Facebook, Instagram, Telegram and blogs are actively promoting healthy living. This paper will focus on these social media as the actively used social media by the chosen social influencer.

Ventola [15] found that, in the past few years social media has been used by the professional in health care as a tool to support and connect with the patients for the purpose of promoting healthy behavior, interacting and educating the patient, providing health information, increasing personal awareness and motivating the patients over professional networks. The issue is how effective the social media in influencing the change health behavior among Malaysian? Fogg [16] proposed to adopt the persuasive system design (PSD) in developing the technology (system). The persuasive elements in technology is important to attract the people to stay longer whereby it is using all interactive elements in order to change the user's behavior [16]. Kamal *et. al* [17] reported that PSD elements in social media influence the behavior of people [17] but the context of social support is still lacking. Thus, this study intends to address the social support PSD elements especially in the context of health maintenance. Therefore, this study will adapt PSD but would only focus on elements that related with social support. The objectives of this research are (i) to identify the social support elements within the persuasive design elements (ii) to qualitatively verify the social support elements for Malaysian wellness in social media.

2. Previous research

2.1. Social support

Social support is defined as any information or reflection from the situation that the persons believe they received from one of the social networks [18]. Zimet, Dahlem, Zimet, & Farley [19] defined the social support as, the exchange of resources by at least two persons to complete each other. Internet has been recognized as a potential mechanism for social support [20]. The study found social support is the mediator of indirect positive relationship between Internet and the subjective health. Social support could be described as an interpersonal exchange that could make a person

feel liked, appreciated, accepted or valued [21]. Several studies agreed with the health benefits obtained through the valuable social support in social media through the emotional and informational support [22, 23]. Some of these supports are not available offline [24]. Social support has been indicated as one of the designs of system qualities in phases of persuasive system development [25]. Therefore, this study intends to explore further on its application within the social media health and wellness context.

2.2. Persuasive technology

Persuasive in technology is defined as the effective design of information technology that use all interactive elements in order to change the user’s behavior [16]. It is important to understand the human psychology to identify what factors influencing the human behavior [16]. Kelders et. al [26] extended Fogg’s [16] work and propose a broader application of the term “persuasive technology” to include both human-computer interaction and computer-mediated communication. Although their review found that social support appear to be neglected, the study suggested that persuasive systems can increase adherence and lower attrition rates in e-health studies [26]. Hamar et.al [27] in their review study found that persuasive technologies indeed seem to persuade people into various behaviors. They also found that most persuasive technologies are implemented especially in contexts wherein people would be willing to undertake the target activities but find it difficult to start or continue working toward them. Among these activities are healthy habits, learning, and ecological behavior [27]. Thus, it is interesting to study how the application of this concept in social media would influence people health and wellness in Malaysian context.

2.3. Appeal Belonging Commitment Framework (ABC)

The ABC framework is one of the frameworks that adapted the PSD elements. The framework relates social networks and motivation to change from current behavior to health behavior. It is significant for researchers to know which techniques, methods and focus elements to promote the health behavior. ABC framework shown in Fig. 1 consist of three dimension of social media which is appeal, belonging and commitment whereby all the elements on those three dimensions may encourage to health behavior change [17]. This framework absorbed the persuasive elements to motivate the people to change health behavior. This framework would be used as the lens to qualitatively collect and analyze data from the respondents.

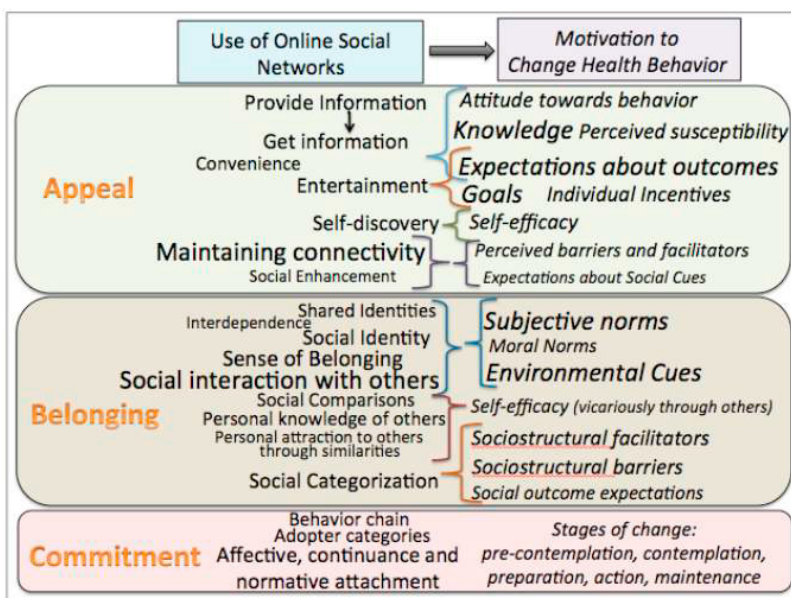


Fig. 1. ABC Framework [17].

2.4. Persuasive system design elements

Persuasive System Design (PSD) is a design practice that focuses on influencing human behaviour through a system's characteristics. It focuses on improve the motivation, increase the ability, and trigger the human's behaviour [16]. It has been used in online business, organizational management, and public health. Many factors may influence the behaviour of people via social media for example the quality and novelty of content and sharing of knowledge by other users. It is important, to create the trustable online communication platform to prevent the spread of incorrect information among users. PSD can influence human behaviour via product's characteristics.

In the context of this study, it is interesting to identify elements that motivate and influence the social media user to remain with their participation in health and wellness communication and continue to contribute to their online community. Based on literature review, there are many PSD relevant elements identified. Further review resulted in 40 most relevant PSD elements. However, after mapping them to social support criteria, only 6 elements were short listed for the study. Description of the chosen elements are shown in Table 1.

Table 1. Description of Selected Social Support Elements.

No	Persuasive Elements	Description
1	Social Comparison	To increase the motivation of user via performance's comparison with the others
2	Social Learning	A person will be more motivated to perform a target behavior if he or she can use a system to observe others performing the behavior.
3	Social Facilitation	System users are more likely to perform target behavior if they discern via the system that others are performing the behavior along with them.
4	Competition	A system can motivate users to adopt a target attitude or behavior by leveraging human beings' natural drive to co-operate.
5	Recognition	By offering public recognition (for an individual or a group), a system can increase the likelihood that a person or group will adopt a target attitude or behavior.
6	Normative Influence	To lead the user to conform to be liked and accepted by a group

3. Methodology

A social media influencer who are known as a wellness coach and followed by thousands of people were being selected as main observation entity. However, the focus was not on him as an influencer but mainly on the social media platform and contents that he used to share wellness information. Qualitative data collection was conducted through social media platforms content observations and focus group interviews with selected participants who are the follower of the coach. The focus group questions were outlined according to the selected social support elements as themes and also the ABC framework. The social media platforms chosen for the observation are Facebook, Instagram, Telegram and blog of the coach. Face-to-face focus group interviews were conducted with 23 selected participants who are active followers of the coach's social media. The participants have diverse backgrounds. Their qualifications range from those with high school educations to master's degree. However, they are generally well verse in using the social media and all have similar intention of getting guidance towards healthier lifestyle.

As this study intends to understand of the reasons, opinions, and motivations of the people towards change health behavior, all the qualitative data were then analyzed using ATLAS.ti version 8. This analysis identified relevant themes through the observation and focus group interviews and map them to the identified elements from the literature review.

4. Findings and discussion

This section will describe and discuss the findings based on the 6 identified social support PSD elements highlighted in the earlier section:

- *Social Comparison.*

The participants felt that Telegram provide more chance for followers to make comparisons with the others compared to in other social media platforms because they have closer communication with each other through this platform.

The participants highlighted that they would usually identify the best performing members in the Telegram group and benchmark and let them to become their point of reference in order to keep healthy lifestyle and to maintain the process of losing weight. The comparison between them are perceived positively whereby they were never upset if the performance of others is better, instead it could increase the self-motivation. It was also found that social comparison strategy being the most persuasive of all among the socially oriented strategies that are perceived as persuasive [28]. Two other identified subthemes within the social comparison are: i) benchmarking and ii) positive comparison

- *Social Learning.*

Social learning can be found in each of social media for example sharing information via picture, text, video or audio from the wellness coach and other followers. A lot of issue being discussed between them in the social media especially via Telegram. Telegram has been looked as the most active medium that currently used by them compared to other medium. There are many discussions, sharing of pictures; video or links within the platform. The communication between members takes place every day to discuss various kinds of topic about the healthy lifestyle.

Meanwhile, the blog has been used by the wellness coach to promote and share his personal view about healthy information by categorizing them by different topics for example menu diet recipes, health tips, beauty tips , the journey and healthy lifestyle. The wellness coach utilizes the blog to share health and wellness information. He designed it with simple and interesting design for his followers. Instagram is another platform that being used by the wellness coach to share the information especially through photo sharing. All the photos and videos sharing by the wellness coach has their own implied information for example a photo about certain meal also include the healthy nutrition that are needed by our body. Facebook also assists with the sharing information also via picture or video sharing, FB live, event invitation and also through comments.

The participant's feedback indicated that social learning elements have given positive contributions to them in order for them to change health behavior. In social learning, individuals are not merely copying others, but also relying on their understanding of where informants got their information from to make decisions [29]. Within the online platform, especially through the social media, the tracing of source of information are as easy as mouse-clicks. Three subthemes further identified. They are: (i) learning through sharing information, (ii) learning via good platform and (iii) easy to understand. Majority of the participants prefer sharing that are being done through Telegram to be used as a main platform to communicate among them. It was a good platform to discuss in any topic besides sharing the picture, video or link from other social media such as blog, Facebook and Instagram. The information delivery from the wellness coach via this platform is also easy to understand.

- *Social Facilitation.*

Most of the social facilitation elements have been identified in Telegram because this platform is based on two-way communication platform whereby, they can interact with each other through group communication. The followers enjoy the active real-time postings between them. The presence of other followers in the group will give them the motivation to perform better.

Meanwhile, the other platforms such as Facebook, Instagram and blog may provide a little social facilitation element because they involved less real-time group interactions compared to Telegram. Research suggests that observers of sport might substantially aid performances through social facilitation with positive verbal encouragement [30]. This is also applicable in the context of this study where social media is being used to provide supportive comments by the participants for each other in keeping healthy lifestyle.

The two subthemes identified in social facilitation are: i) reminder and ii) high motivation. Participants claimed that they tend to perform better in-group when the others always remind them about the healthy lifestyle. The motivation to change is the most important elements within the group. They felt that the motivation from the wellness coach and other participants as booster for consistencies their health maintenance.

- *Social Competition.*

Social media could be the outlet to fulfill the human need to connect and reciprocate and may also be the place for individuals to practice their nature to be to be socially competitive [31]. However, the study found that social competition element was not significant in any of the social media platforms observed. It seems not being much highlighted by the wellness coach and are not also being favored by the participants. Participants claimed that the competition will bring stress to their group and they more prefer the group to focus on sharing knowledge among them. Although they felt that the competition might be interesting, but it will be hard to maintain the healthy lifestyle when competition is over.

- *Recognition.*

All the social media platform provided the icon to make a great impression in the communication between the users. The 'Like' button is one of the features that allows users to show their appreciation, support or recognition. It will motivate others to perform better in what they currently do.

The participants agreed that recognition is one of the important elements in social group. Recognitions make them feel appreciated and they often to feel it by receive the high support from other followers. These are demonstrated through immediate feedback to their positive progress, and the positive icons such as 'likes' and smiley faces to their posts. This result tally with another study which found participants were longing for individual recognition instead of receiving general advice on physical activity [32]. Therefore, the two identified subthemes are: i) appreciation and ii) support

- *Normative Influence.*

Normative influence refers to the situation whereby the person has changed their behavior to be liked and accepted among the group members. Since the participants prefer Telegram as their active communication channel, the elements of normative influence were obviously seen in that platform.

Normative influence is related with the positive relationship among the members whereby he/she conform to what other members are doing so he/she can be accepted in that group. It involves a change in health behavior that is considered necessary in order to fit in with the group. All the participants agreed that, they get the positive influence from the group and it is good for them to change the health behavior and at the same time they feel acceptable in a group when they follow others. This concur with study which found the significance of normative influence and users' opinion seeking, opinion giving and opinion passing while communicating is social network sites [33].

5. Conclusion

Obesity is a chronic condition that contributes to many diseases and affects more Malaysian each day. In fact, the obesity do not only effect individuals' health and lifestyle but also effect the nation economically through the direct and indirect cost incurred in treating the obesity related diseases. Based on previous research, there are many factors that contribute to individual obesity such as environment, culture, genetic, lifestyle and food intake. Meanwhile, to relate this issue with informatics solution, this study found that the social media could be used as a platform to change health behavior among Malaysian. Based on the observation, the change health behavior may spread across social media, suggesting that these networks could be improved and enhanced for the obesity treatment. Hence, to motivate people to be engaged with social media or any wellness system, the element such as persuasive system design could be applied. The research manage to answer its objectives (i) to identify the social support elements within the persuasive design elements through literature mapping and (ii) to qualitatively verify the social support elements for Malaysian wellness in social media through observation and focus groups interviews. It was concluded that out of the 6 PSD social support elements identified from the literature, through the qualitative analysis there are 5 PSD social support elements that are significant in contributing to change health behavior among social media users. The elements are social learning, social facilitation, social comparison, recognition, and normative influence. Social competition was found not significant in the findings as it was perceived having lack of sustaining influence for the purpose of long-term healthy lifestyle. The proposed identified social support elements from PSD could provide useful reference for the government, non-government agency or personal to construct appropriate social support guidelines in persuasive system design to change health behavior among Malaysian.

However, there are some limitations that need to be addressed in this paper that could be considered as point of improvement for future research. Firstly, the findings discussed in this paper is limited and only focused on a particular social influencer in the social media and his followers. Future research could expand the scope to larger number social influencers and followers to get more sample respondents and comparative studies could be conducted with different social influencers. Secondly, the method used in this research is limited to qualitative method. Other methodologies such as quantitative or mixed methods maybe utilized to get more data on user reasons in using social media to change their health behavior and better lifestyle.

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