

Oral Cancer Screening: What Explains the Patients' Intentions?

Janice Anne Sivasothey

*Faculty of Business, Multimedia University
Jalan Ayer Keroh Lama, Melaka, Malaysia*

Sook Fern Yeo*

*Faculty of Business, Multimedia University
Jalan Ayer Keroh Lama, Melaka, Malaysia.
Department of Business Administration, Daffodil International University,
Dhaka 1207, Bangladesh.
Email: yeo.sook.fern@mmu.edu.my*

Cheng Ling Tan

*Graduate School of Business, Universiti Sains Malaysia,
11800 USM, Pulau Pinang, Malaysia.
Department of Information Technology & Management, Daffodil
International University, Dhaka 1207, Bangladesh.*

** Corresponding Author*

Abstract

Purpose: The main aim of this study is to develop a working framework that represents patients' screening decision for oral cancer based on dental service quality. This is done by evaluating the various dimensions of dental services offered by dental clinics and the impact it has on patient's decision to undergo future oral cancer screenings.

Design/methodology/approach: This paper compiled research articles from the last 10 years using a consistent method from online databases. Only papers cited under the SOR theory were analyzed to identify various elements used in the SOR model. Three commonly used online databases were selected - Emerald, ScienceDirect, and SpringerLink - to identify research articles citing the full name 'Stimulus-Organism-Response Theory' and reviewed to ensure their application of the SOR theory.

Findings: The outcomes of this study will be of great aid for future researchers, dental services providers and the government in understanding how the dimensions of current dental services quality are able to motivate and guide current dental patients in opting for oral cancer screenings in the future which shall subsequently result in reducing the overall oral cancer in Malaysia and even in other parts of the world through early detection and treatment.

Research limitations/implications: The framework may not account for contextual or cultural factors that could impact patients' attitudes and behaviors related to oral cancer screening.

Originality/value: This study complements and aids towards the direction of the 11th Malaysian Plan as well as Malaysia's Sustainable Development Goals (SDGs) which calls for the improvement of good health and well-being of Malaysia and its people.

Keywords: Oral Cancer, Screening Decision, Healthscape, Dentists Concern, Waiting Time, Stimulus Organism Response Theory

Introduction

With its world-class and top-notch healthcare services, Malaysia ranked first among the other 6 countries for the Best Healthcare in the World category of the 2019 International Living Annual Global Retirement Index. Malaysia had scored an impressive score of 95 out of 100 (The Star, 2019). Malaysia comprises of a dyad healthcare system that coexists with one another to provide optimum healthcare for the nation (Malaysian Investment Development Authority, 2020). The two coexisting parties of the dyad healthcare system consists are the government-based systems that provides a universal system of healthcare services to the Malaysians and the private-based healthcare systems that caters to both locals and international patients alike (Malaysian Investment Development Authority, 2020)

Malaysia has always prioritized healthcare of its people. This is supported by a few facts like identifying the wellbeing of the nation as one of its strategic thrust within the Eleventh Malaysian Plan 2016-2020. Within the specific strategic thrust of wellbeing we see “Achieving universal access to quality healthcare” as the very first main strategy (Economic Planning Unit Malaysia, 2015). By the year 2020, Malaysia is set to achieve 2.3 hospitals beds per 1,000 population and a 1:40 do to population ration (Economic Planning Unit Malaysia, 2015). Conjointly in the year 2016, the Malaysian government pumped in RM23billion (US\$5.2billion) into the healthcare sector which made up approximated 10% of the year’s annual budget (Economic Planning Unit Malaysia, 2018). In 2017, the government allocated a grand total of RM536million for the upgrade of hospital facilities which includes cardiology treatment equipment for a few hospitals in selected states, the purchasing of 100 ambulances (Economic Planning Unit Malaysia, 2018). On top of that, in the recent 2020 budget, the government yet again increased its allocation to the Health Ministry to RM30.6billion from Rm28.7billion which was approximately an increase of 6.7% (New Straits Times, 2016). Currently, BRM30.6billion, RM319 million would be set aside for the constructing and upgrading of health and dental clinics (Jaafar, 2019).

With the increasing importance in oral healthcare and the awareness of how good dental hygiene is vital in ensuring the quality of life the Malaysian oral healthcare system caters to the mass public by both the public and private sectors. Primarily in Malaysia, the government provides dental services to locals at low to almost free of charge prices at all government hospitals. All dental prices at government hospitals and clinics have been standardized and strictly follows the Fees Act 1951 – Fees (Medical) Order 1982. Malaysia has a flat rate of RM 1.00 per visit for general outpatient charges at all general hospitals, district hospital and polyclinics (Omar, 2019). The price range for radiological examinations in government hospitals ranges from RM10 to RM 1 per film for dental-Intra-oral and RM70-RM10 per film depending on the service class accordingly (Omar, 2019).

It is of no doubt that Malaysia has carefully ensured that dental services is offered throughout of Malaysia especially in most of the government hospitals. In order to ensure that Malaysians can obtain quality dental care and maintain optimum dental health, the government has also priced its services at affordable ranges. However, based on the attendances it is evident that many still do not visit the dentist for services nor keep up with regular dental check-ups. In order to achieve a developed nation by the year 2020 following Malaysia’s vision of Wawasan 2020, the Oral Health Division of the Ministry of Health commenced the development of the National Oral Health Plan 2011-200(NOHP 2011-2020) in the year 2009 (Oral Health Division, 2011). This was carried out after reviewing and shortlisting 7 goals from the National Oral Health Plan 2010. The main aim of this was to improve the overall health status and the quality of the population in Malaysia. This would be done through lifelong wellness and reducing the levels of morbidity and mortality cause by oral conditions of public

health significance. Examples include, dental caries, periodontal diseases, oral cancer and dental injuries(Oral Health Division, 2011).

Oral Cancer Screening

A recent article on oral cancer taken from the (MyHEALTH, 2014) by the Ministry of Health Malaysia, said that one of the main ways to reducing the risk of oral cancer and detecting abnormalities in the mouth that might signal the presence of cancer cells growth in earlier stages is by going for regular dental check-ups. Dentists are often the first people in the healthcare line to be contacted whenever the oral cavity is involved thus giving them the perfect opportunity to execute screenings for oral cancer for the patient or to thoroughly check for early signs and symptoms that could be present.

Oral cancer screening is defined as an examination that is carried out by dentists in order to identify signs of cancer or precancerous lesions of the oral cavity region. The primary screening for oral cancer consists of two parts, the examination of the extraoral examination and the examination of the intraoral soft tissues. In Malaysia, The Ministry of Healthy (MOH) provides screening services for oral cancer and 3 other types of cancers (breast, cervical and colorectal). These screening services are provided at the public health clinics throughout the country. The government has stepped up in ensuring the early detection of oral cancer to curb the immense increase in new oral cancer cases in Malaysia which would contribute to the detriment of the efforts to build a successful nation.The Oral Health Division (2011) has aim to strengthen the primary prevention and promote early detection for oral lesions in order to achieve a 30% detection rate of oral carcinoma cases within the first stage. To establish higher rates of achieving its goal, the Oral Health Division has set to strengthen oral cancer screening programs and initiate mechanisms in order to increase the compliance levels of patients.

Based on the newly released Malaysia National Cancer Registry Report (MNCRR), the number of late cancer detection (stages III and IV) saw an increase of 58.7per cent to 63.7 per cent. In the year 2017, International Medical University released an article on how early detection can make a huge difference in decreasing the death rates of individuals that have been diagnosed with oral cancer (Healthcare International Medical University, 2017). At the start of 2023, the World Health Organisation (WHO) has called upon countries in Southeast Asia Region to speed up the implementation of the Region’s latest Action Plan for Oral Health 2022-2030. This plan is aimed to guarantee that all individuals within the region are able to attain the best possible oral health status by 2030 (World Health Organization, 2023). In early 2021, it was reported that out of all diagnosed mouth cancer in Malaysia, two thirds of it are only detected in late stages(Star, 2021). This means that approximately 66.9% are detected at stages 3 and 4 which is when treatment becomes more risky and mortality rate increases. If the mortality rate of oral cancer and the number of oral cancer cases can be lowered simply by early detection and diagnosis through oral cancer screenings, thus it is of utmost importance for Malaysia to look into the factors that hinders Malaysians from deciding to opt for oral cancer screenings.

Literature Review

Stimulus-Organism-Response (SOR) Theory

The Stimulus-Organism- Response Theory was introduced in 1974 by Mehrabian and Russell. The SOR model sets forth that environmental stimuli influences the emotional states of consumers thus connotes that the influence of atmosphere (the stimulus) on customer behavior is mediated by the emotions of consumers (Alsaggaf & Althonayan, 2018).

Dentist concern, Healthscape and Waiting time as Stimulus

A recent study proved that the different dimensions that makes up the overall service quality are considered as element of environment cues (Ki & Lau, 2018; Perera & Waller, 2020). Additionally, Famiyeh, Asante - Darko, and Kwarteng (2018) conducted a study using the service quality dimensions as environmental stimuli to justify the relationship with customer loyalty (response). Besides that, another study conducted by Alam and Noor (2020) had used service quality aspects of superstores in Bangladesh as its stimulus and Customer Loyalty as its response. The results of these studies have shown significance in its contribution as a stimuli thus believing that these areas of dental services can be used as a stimulus in a framework grounded by the SOR theory.

Patients' Emotion as an Organism

The SOR Model stipulates that an emotional state will be experienced by an individual upon interaction within an environment. The cognitive decision-making process traces a traditional approach in which consumers follow steps from problem recognition, information search, evaluation of alternatives, to product choice. It has also been said that the process of decision-making of an individual often includes a complex cadre of emotions and rationalizations (Kemp, Borders, Anaza, & Johnston, 2018). Based on the works of Alalwan (2018), two points were made towards the consumer behavior of purchase intention. The first was that the performance expectancy of a consumer has said to have a strong motivation towards their purchase intention while the other was that consumers intention and perception of usefulness were also predicted by the role of perceived relevance (Alalwan, 2018).

Patient's Screening Intentions as Response

There are two kinds of response; internal or external behavior response that an organism would take after a series of psychological and cognitive activities (Hu et al., 2019). In general, the more satisfied a consumer is with the service quality, the more motivation they will have in order to generate positive behavioral intention such as the intention to revisit, to undergo screenings and customer loyalty. According to Jani and Han (2015), environmental stimuli may be used to evoke responses in an organism that leads to a particular behavior (response). By applying this concept, Ki and Lau (2018) examined how dissatisfied patients responded to poor service quality in a hospital in Korea. The study applied the SOR theory in which the response was the subsequent behavior of patients towards the dissatisfaction which was the organism for the study. This included actions such as switching, complaining and negative word of mouth. Based on this, since the stimuli of poor service quality creates patient dissatisfaction which is the organism. The response therefore are the related behavioral reactions towards the dissatisfaction. Thus, for the purpose of this study, the response towards the dental service quality would be the subsequent behavioral reaction towards the organism which would be patients' intentions to undergo oral cancer screenings.

Oral Cancer Screening Intention as a Behavioural Intention of Patient

According to Bettman, Luce, and Payne (1998), states that, consumer intention making is an integral part of purchase behavior. Rahman Muhammad, Mannan, Hossain Md, and Zaman Mahmud (2018) defines behavioral intentions within the healthcare industry as the intention to visit, revisit and to recommend to friends and family. However, in 2006, a study that was conducted on the factors that affected the behavioral intention of going for prostate cancer screening it was found that healthcare providers played a key role in patients' intention to get screened (Ford, Vernon, Havstad, Thomas, & Davis, 2006). From this study, it can be said that

the intention to undergo a screening is a form of behavioral intention of a patient. Behavioral intentions of consumers have been widely studied by many researchers as a means to improve quality of either goods or services provided. This is also the same in respect to the behavioral intentions of patients in the healthcare industry. However, limited exists not only on behavioral intentions represented by patient’s screening intention but also within the dental sector of the healthcare industry.

Reputed hospitals, qualified doctors and trained nurses are often elements of what is preferred by health consumers when opting to receive any healthcare services (Islam, 2018). The reason behind the intention of purchasing a particular goods or services by consumer can be explained by consumer behavior that has adopted a two dimensional approach on consumers attitudes has adopted two-dimensional conceptualization of consumer attitudes (Pillai, Nallavalli, & Immaculate, 2019). The two dimensions are utilitarianism and hedonism. The study carried out by Pillai et al. (2019), found that healthcare seeking behaviors were experiential and involved more hedonistic aspects of a consumer behavior rather than utilitarian. Utilitarianism is the functional benefits that a consumer receives from their products and services while hedonism is the satisfaction that arises from sensory attributes (Pillai et al., 2019). However, it is said that a behavioral intention proves to be a much better predictor of the performance and quality of a service provider as compared to satisfaction (Giovanis, Pierrakos, Rizomyliotis, & Binioris, 2018). Thus, this research aims to identify the impact of the dental service quality on the behavioral intentions of patients which shall be represented by oral cancer screening intentions of patients.

Development of the Conceptual Framework

Based on the literature review, the conceptual framework, Figure 1 was created by evaluating the various dimensions of dental services offered by dental clinics and the impact it has on patient’s decision to undergo future oral cancer screenings. The main aim of this proposed study is to identify what truly motivates and drives Malaysians to go for an oral cancer screening with the mediating role of patients’ emotions.

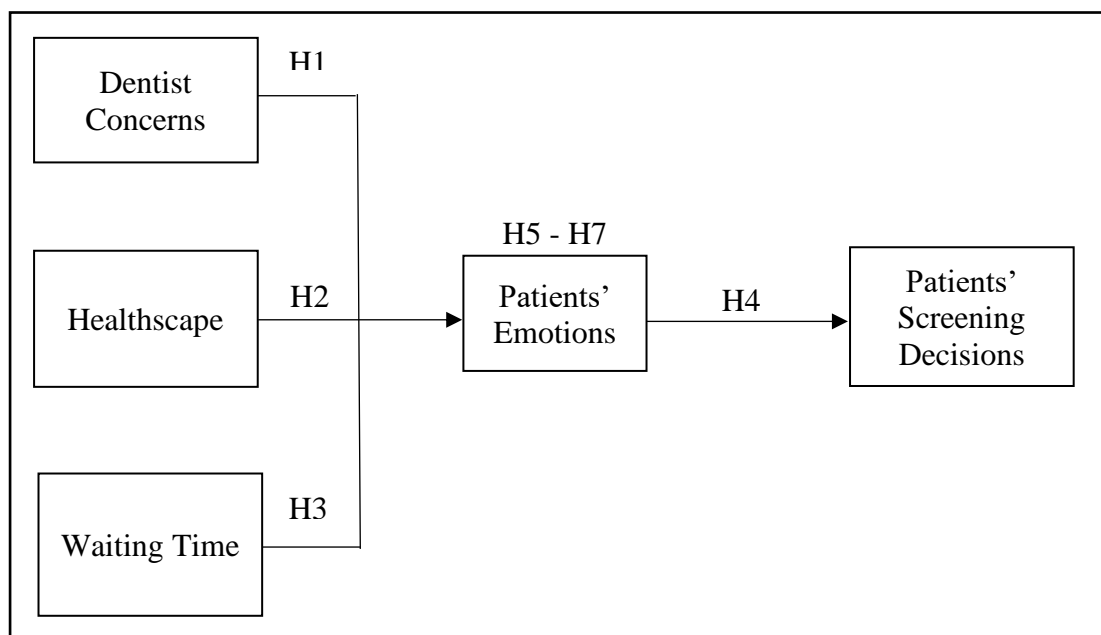


Figure 1: Conceptual Framework

Dentists' Concern

Doctors' concern refers to the competency, skills and professional behavior that a doctor possesses. One of the main emotions that is felt by a patient when visiting the dentist is often dental anxiety and fear. In general, doctors' concern can be seen as the attributes that a doctor should have in order to promote a good patient-doctor relationship that will elevate patient's satisfaction and promote positive behavioral intentions. By providing a stable, receptive, open, and responsive relationship with patients, healthcare service providers can attract new patients and retain old ones. Thus, given in the dental industry whereby the dentists stand in the position of the doctor that delivers the dental service to the patient, it is vital to understand that doctors' concern within the dental context is represented by dentists' concern.

Dang, Westbrook, Njue, and Giordano (2017) states that when the competencies of the practitioner is perceived as low by patients, high levels of anxiety are induced. This study consisting of a total of 253 participants from Sydney, Canada and Brisbane found that majority of the patients place high value when practitioners are competent and are able to meet their emotional needs. According to the respondents, this induces positive emotions like empowerment which leads to future revisits and better adherence (Dang et al., 2017). With the following in mind, 50% of the patients in a study by Caltabiano et al. (2018) cited that perceived interpersonal skills of the dental service provider attributed to a reduction in patients' emotional anxiety levels. While 40.2% of the patients attributed the reduction of anxiety towards the clinical abilities of the dental service provider (Caltabiano et al., 2018). The results obtained from previous studies shows that patients ultimately give heavy priority to the medical skills and performance of physicians concluding that doctors' concern is a crucial element of service quality that affects patient's emotions. Thus, the following hypothesis is formed

H1: Dentists' concern has a significant positive relationship towards patients' emotions.

Healthscape

For organizations and service providers that offer high-contact services, the physical environment of services carries the ability to shape the experiences of customers and their resultant behaviors (Chan & Li, 2020). Medical and healthcare providers fall under this category. Thus, in the case of healthcare services, where patients are the primary customers, the servicescape can also be referred to as the healthscape and it plays a crucial role in shaping patients' experience. According to a study conducted by Lacap and Alfonso (2022), the physical environment plays an important role in patient contentment, which can lead to patient intention to the health care facility. Dcunha, Suresh, and Kumar (2019) states that patients pay a great deal of attention on the physical environment thus by improving on it, hospitals, clinics, and other healthcare providers will be able to generate higher levels of satisfaction which will result in retaining and attracting new patients. A study investigating the impact of service quality on consumer loyalty with emotional brand attachment as a mediator within the hotel industry in the United Kingdom found that the physical environment quality of the hotel, produced a significantly stronger influence towards the emotions of its consumers (Hemsley-Brown & Alnawas, 2016). Thus, based on this study proposes the following hypothesis:

H2: Healthscape has a significant positive relationship towards patients' emotions.

Waiting Time

Within the recent years various studies have been conducted within various industries to examine how waiting time experienced by patients or consumers leads to the generation of various emotions. The study by Nagao et al. (2017), had a total of 154 patients and results from their questionnaire ascertained that long periods of waiting time generated negative emotions such as anxiety, worry and irritation. Results from another study conducted in Italy also showed that waiting time had a significant impact on the emotions experienced by the patients in a day hospital (Corsano, Majorano, Vignola, Guidotti, & Izzi, 2015). Lamba, Niemierko, Martinez, Leland, and Shih (2020) had also conducted a study on cancer patients whom were receiving radiation therapy and had concluded that waiting time played a role in generating certain emotions like anxiety within the patients. Several clinical research came to the conclusion that the length of time a patient had to wait was a significant factor in determining their emotions (Kern et al., 2021).

Moving on towards the dental sector, a study by Fux-Noy et al. (2019) establishes that the longer waiting time a patient experiences in a dental clinic was associated with higher dental anxiety. Anxiety represents a negative emotion that is highly felt and experienced by patients. Despite the fact that the respondents of this study were of age range of 3 to 10 years old, it is still highly relevant that waiting time plays a crucial role in influencing the emotions of a patient. Similarly, another study had examined how the waiting time prior to patients' dental visit played a role in affecting the outcomes of the dental visit such as the emotions felt by the patients and the intentions to revisit the dental clinic (Inglehart, Lee, Koltuniak, Morton, & Wheaton, 2016). Thus, based on the past literature, this study hypothesizes the following:

H3: Waiting time has a significant positive relationship towards patients' emotions

Patients' Emotions and Patients' Screening Intentions

Patients' Emotions has been said to be a crucial factor that of a consumer is vital in determining the continuation of frequenting a service or avoiding it completely in the future. Therefore, many researchers have taken the liberty to investigate the links of it in order to help various industries to enhance and further improve themselves. The impact of patients' positive emotions on their subjective well-being is greater than that of their overall satisfaction with the service they receive (Altinay et al., 2023). A study by Chevers and Spencer (2017) rendered that customers whom experienced positive emotions of delight with technology and service innovation would likely to generate favorable behavioral intentions. Similarly, a 2019 study aimed with investigating the role of consumers' hedonic and utilitarian values to arouse consumer intention to visit food trucks. Hedonic values represent the emotional and affective aspects of a consumption behavior. Based on the data collected from 467 respondents, results of this study found that hedonic values reflected the emotional and affective aspects of consumption behavior (Mannan, Chowdhury, Sarker, & Amir, 2019)

In another study that that involved 770 patients from both private and public hospitals in Italy, it was found that patients that experienced negative emotions during their visit consequently showed negative intentions of returning to the same hospital for future services (Pinna, Chiappa, & Atzeni, 2018). Conversely, patients that experienced positive emotions showed positive intentions. Thus, for this study the following is hypothesized.

H4: Patients' emotions has a significant positive relationship towards patients' screening intention

Patients' Emotions as a mediator

In the past, emotions of a person have been frequently used as a mediating variable in studies of various sectors such as restaurants, performing arts and other service-based sectors. Some prime sectors in which emotions were used as a mediating variable includes; performing arts (opera events); Tubillejas-Andres, Cervera-Taulet, and Calderon Garcia (2020) examined how emotions mediates the relationship between servicescape and post consumption behavioral outcomes such as customer loyalty. Restaurants; Jang and Namkung (2009) used customers' emotions as a mediator following the SOR theory in order to determine the impact of perceived quality of restaurants on customers behavioral outcomes.

However, as we move towards the healthcare sectors there are several other studies that have examined the role of emotions in the healthcare service sector (Helena Vinagre & Neves, 2008; Martin, Palmer, Hubbard, & O'Neill, 2008; Wikstrom & Essen, 2008). Despite a variety of studies that had examined the role of emotions, there are a limited number of studies that examines the mediating role of patients' emotions especially within the dental context. In the year 2015, a study was conducted within the dental service sector in Jakarta to examine the influence of dental atmospherics on patients' behavioral attention. The study by Hermawan and Yusran (2015), had applied the mediating role of patients' emotions and had found to have a significant mediating effect on the relationship between dental atmospherics and patients' behavioral intention. It is also noteworthy that though many past literatures within the healthcare service sector have examined the mediating role of emotional satisfaction rather than the emotions of the patients itself.

Going back to the role of patient emotions as a mediator, a study by Hemsley-Brown and Alnawas (2016), found that the mediating effects of emotions explains consumers perception of service quality such as staff behaviors and the physical settings and will influence their behavioral intention via the creation of deep emotions. Similarly, Foroughi, Shah, Ramayah, and Iranmanesh (2019) using the SOR model had investigated the mediating role of emotions on the relationship between peripheral service quality and behavioral intentions of spectators during a football match. In this study, it was found that the peripheral service quality had an indirect influence on the behavioral intentions of the spectators through spectators' emotions.

Besides that, in the field of tourism, customer emotions were found to partially mediate the relationship of some of the attributes of the physical environment of the airport and customers' satisfaction (Moon, Yoon, & Han, 2016). It is noteworthy that most of the studies are based on the SOR theory in which patients' emotions serves as the organism. According to Su, Swanson, and Chen (2016), using the SOR theory found that customer emotions had mediated the effect of friendliness of staff on customer's behavioral intention which in the study was to buy and word-of-mouth. Thus, this study based on past literature hypothesizes the following for the mediating role of patients' emotions in the relationship between dental service quality and patients' screening intentions.

H5: Patients' emotions mediates the relationship between dentists' concern and patients' screening decision.

H6: Patients' emotions mediates the relationship between healthscape patients' screening decision.

H7: Patients' emotions mediates the relationship between waiting time and patients' screening decision.

Method

The methodology used for this conceptual paper was through the compiling the research articles 10 years dates back from to date was established in order to ensure a consistent method

of compiling past papers from the online databases was done. As this paper aims to determine the various elements and that have been used under the SOR model, only research papers that were cited under the SOR theory were analyzed. Thus, for the purpose of compiling the research papers that are to be reviewed, three online databases that are often used by researchers were selected which are none other than Emerald ScienceDirect and SpingerLink. The research articles that were cited for SOR theory were identified by searching the full name “Stimulus-Organism-Response Theory” through the databases. The results from the search were then noted and the papers from the results were reviewed in order to ensure that the research did indeed apply the SOR theory.

Conclusion

The overall decision of a patient to opt to go for oral cancer screenings is said to depend heavily on the different areas of dental services that are offered by dental clinics. These areas are identified and categorized as dentists’ concern, healthscape, waiting time. Thus, stipulating that when patients’ identifies that these areas are below average, this will then result to lower revisiting intentions, which also includes the decision to go for future oral cancer screenings. With that, it crucial for dental clinics to carefully evaluate these specific areas of their dental services in which they provide in order to ensure that the patients’ that patron their dental clinics for regular dental services will eventually trust them and return or listen to the advices given by the dental clinics to continue or to go for oral cancer screenings. Thus, especially in today’s modern day and age, with clinical oral examinations to oral cancer screenings being readily accessible and available whenever needed, it is critical to identify what truly motivates and drives Malaysians to go for an oral cancer screening. The results of this study shall provide a guideline for maintaining their service quality and to ensure a steady demand for dental services such as dental check-ups and oral cancer screening. As seen above, the dental attendances in Malaysia are relatively low in majority of the states in Malaysia. With the increase in susceptibility of Malaysians being diagnosed with cancer, it is important to understand what is demanded of the people in Malaysia from dental service providers. Besides that, the results of this study shall provide significant contribution towards the existing Stimulus-Organism-Response Theory as there are limited studies that have applied this theory in the dental industry despite being applied countless of times in other industries. No doubt that the SOR Theory is a well established theory that has been vastly used, however yet despite the extensive use of it, a scarcity of research that has applied this within the Dental Industry. It is utmost crucial for us to fill this gap in literature as the dental industry remains an important sector within the healthcare domain, and a lack of attention could result in severe health conditions and high mortality that are a result of Oral Cancer. Similarly, within Malaysia and other parts of Southeast Asia, there is seen to be a scarcity of literature on oral cancer screenings. Most of the studies have been conducted in certain part of the world such as Ghana and Thailand. However, Oral Cancer is a significant public health issues in Malaysia and within its surrounding regions. By conducting research on oral cancer screenings in Malaysia, dental professionals and the Malaysian government can gain a more thorough understanding of what drives Patients’ Screening Decisions. Thus, this paper will help the dental sector in developing more customised approaches and methods to drive the oral cancer screening rates in Malaysia in order to prevent the increase of Oral Cancer in the long run. Moreover, by using patients’ screening decision as the response this provides a new contribution to the SOR theory as most of the response examined mainly revolves around purchase intentions and behavioural intention rather. In addition to that, this conceptual paper will also be inline with the plans of the World Health Organisation (WHO), in which in the year 2023 they wished to collect more detailed information on oral health services as well as through incorporating feedback

mechanisms that will enable dental services to adapt and establish a stronger system (World Health Organization, 2023). We are proposing this conceptual framework that will be able to help dental clinics identify comprehensively on how these areas of dental services, will affect and influence the decision making of patients to undergo future oral cancer screenings.

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