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Halalan Tomyiban Concept as Religious-Based Intervention for Healthy Diet among Youth

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Abstract

Healthy youth eating habits are crucial for optimal growth and development. It helps build a strong immune system and reduces the risk of chronic diseases. In Islam, there is a focus on maintaining a healthy lifestyle, including a healthy diet, guided by the *Qur'an* and the teachings of Prophet Muhammad (ﷺ). The article uses a narrative review to highlight the potential applicability of the *halalan toyyiban* concept (as a faith-based intervention) to promote a healthy diet among youth. Faith-based intervention involves integrating religious beliefs into the intervention process. To provide context, this article explores the application of interventions such as multimodal nutrition education and digital approaches to improve dietary habits among youth. Various interventions targeting university students' dietary habits yielded mixed results. This highlights the necessity for multifaceted intervention approaches. The article posits combining the *halalan toyyiban* concept with digital technology to enhance university students' healthy dietary practices.

1. Introduction

The intersection of religious principles and dietary practices holds profound significance, particularly within Islam. Embedded in the daily lives of Muslims, the *halalan toyyiban* concept elucidates the holistic approach Islam takes towards food consumption. This comprehensive approach encompasses not only the permissibility (halal) of food but also emphasises its quality, cleanliness, and benefits. Grounded in *Qur'anic* verses, the concept of *toyyib* underscores the importance of consuming not only permissible (halal) but also clean, safe, pure, and health-promoting food. This introduction sets the stage for exploring the *halalan toyyiban* concept to promote a healthy diet among youth. It first discusses the *halalan toyyiban* concept, the emphasis on a healthy diet in Islam, and the integral role of good etiquette in shaping Muslim dietary behaviours.

1.1 Halalan toyyiban concept

Muslims do not confine their religious practices solely to weekends or festive occasions; religion is integral to their daily lives. As a comprehensive religion, Islam has laid out guidelines encompassing all aspects of human life, including food consumption. The *Qur'an* contains numerous verses encouraging believers to take advantage of pure and righteous food. According to Ayatollahi (1992), verses related to food and

beverages in the *Qur'an* can be divided into the following four groups:

- i) The verses that indicate the permissibility principle (see: *Al-Qur'an* 2:168-170; 3:50)
- ii) The verses that forbid some comestibles (see *Al-Qur'an* 2:173; 6:145)
- iii) The verses concerning alcoholic beverages and prohibiting vinosity (see *Al-Qur'an* 2:219, 5: 90-91, 4:43)
- iv) The verses that stipulate the permissibility of some food items, in particular *Al-Qur'an* (see *Al-Qur'an* 6:143-145)

Muslims, in general, are advised to eat permissible (halal), good, and pure things and not indulge in impure, bad, and harmful things, thus following their open enemy, *Satan*:

"O People! Eat of what is lawful and good on the Earth and do not follow the footsteps of Satan, for he is your open enemy." (*Al-Qur'an* 2:168)

The *Qur'an* provides further clarification on the types of food that are prohibited. It explicitly states:

"He (Allah) has only forbidden you (from eating) dead animals, blood, the

flesh of swine, and that (animal) over which the name of other than Allah has been invoked.” (Al-Qur’an 2:173)

“And the cattle, He has created them for you, in them, there is warmth (clothing) and numerous benefits, and of them you eat.” (Al-Qur’an 16:5)

When discussing halal food, it is imperative to invoke the term “*halalan toyyiban*,” rooted in the *Qur’anic* verse:

“O you Messengers! Eat of the clean and pure (*toyyib*) and act righteously” (Al-Qur’an 23: 51).

The concept of halal and *toyyib* has been extensively explored in various publications, including the works of Arif & Ahmad (2011) and Arif & Sidek (2015). A prevailing consensus suggests a close association between “*toyyib*” and food safety, as Neio Demirci, Soon, and Wallace noted in 2016. However, it is important to recognise variations in scholars’ understanding and interpretations of the *toyyib* concept. Imam Malik interprets the term “*toyyib*” as “good.” In contrast, scholars like Arif & Ahmad (2011) take a broader approach, defining “*toyyib*” to encompass concepts such as “clean,” “pure,” and “*Shari’ah*-compliant.” Additionally, Ibn Katheer provides a nuanced explanation, stating that the use of “good” (*toyyib*) in verse 168 of Al-Baqarah signifies something “delicious” for humans. Such food not only gratifies the senses but also refrains from causing harm to the body or mind. Furthermore, *toyyib* can be interpreted as food and drink containing beneficial nutrients for health, avoiding detrimental side effects or harm to the body (Chalil, 2019). These multiple interpretations reflect the multifaceted nature of halal food.

1.2 Halalan toyyiban food and health

Halalan toyyiban encompasses a comprehensive approach to food choices beyond mere permissibility. It encompasses safety, quality, nutritional value, and their impact on wellbeing. Within Islam, adherents are encouraged to make dietary choices that support physical and spiritual health. Scholars, such as those cited by Khattak *et al.*, (2011), have expounded upon the manifold benefits of halal food, particularly its positive implications for health. Islam highlights the significance of good health as a valuable blessing; as Prophet Muhammad (ﷺ) once said:

“There are two blessings that many people are deceived into losing: health and free time.” (*Sahih al-Bukhari* 6412)

Maintaining a balance in dietary habits is emphasised in Islam, cautioning against overeating. In a *hadith* narrated by Jabir (RA), the Prophet Muhammad (ﷺ) advised moderation:

Narrated Abu Huraira (RA): the Prophet Muhammad (ﷺ) said: “The food for two persons is sufficient for three, and the food of two persons is sufficient for four persons.” (*Sahih al-Bukhari* 5392)

Furthermore, this is also mentioned in the *Qur’an*:

“Children of Adam! Take your adornment at every time of Prayer, and eat and drink without going to excesses.

For Allah does not like those who go to excesses.” (Al-Qur’an 7:31)

While it is cautioned against overeating, complete dietary restriction is also discouraged, as it may lead to issues such as starvation and deprivation of essential nutrients. This is based on Islamic teachings’ general principles of preserving life and avoiding harm. Depriving the body of its nutritional needs is considered akin to ingratitude for the gift of the body from Allah (Anonymous, 2023). Islam indirectly prescribes a balanced diet to maintain overall wellbeing in this context.

As defined by Kaushik (2018), a balanced diet comprises various food items such as fats, carbohydrates, proteins, vitamins, and minerals in proper amounts and calories for maintaining health. The well-balanced diet may include meat, fish, fresh milk, cheese, fruits, vegetables, and whole grains. Consuming these nutritious foods provides essential elements that contribute to overall wellbeing and strengthen the immune system. This helps support the body’s natural defences and restore health in illness. Interestingly, direct and indirect references have been made regarding these foods in the *Qur’an* and *hadith*. For example, the benefits of fruits as good nourishment are stated in this *Qur’anic* verse:

“And from the fruits of date palms and grapes, you desire strong drink and a goodly provision” (16:67).

The Prophet Muhammad (ﷺ) also highlighted the significance of milk.

“When one of you eats food, he should say: ‘O God, bless it and give better nourishment.’ When given milk to drink, he should say: ‘O God! Bless it and grant us more, for no food or drink satisfies like milk’” (narrated by *Muslim*, 2052).

In addition to the food mentioned above and drinks, it is noteworthy that certain foods carry special significance in the *Qur’an*, with God emphasising the importance of olives and figs through solemn oaths.

By the fig and the olive (Al-Qur’an 95:1)

The Prophet Muhammad (ﷺ) would sometimes praise certain foods, as exemplified by his statement on vinegar:

“The best of condiments or condiment is vinegar.” (*Sahih Muslim* 2051a).

The references to foods such as dates, olives, figs, milk, and vinegar underscore their value and importance within Islamic teachings on balanced nutrition. During Ramadan, Muslims observe fasting from dawn to sunset, demonstrating control over their energy intake and meal frequency. This practice aligns with the guidance of the Prophet Muhammad (ﷺ) to prioritise well-balanced meals during non-fasting hours, ensuring sufficient energy levels throughout the fasting day. Additionally, the tradition of breaking the fast with dates and water, as advocated by the Prophet Muhammad (ﷺ), reflects the incorporation of nutritious foods into daily practices. Dates, known for their rich nutritional content, serve as an excellent source of sugars, fibre, and essential nutrients, aiding in replenishing energy swiftly and providing various health benefits (Al-Farsi & Lee, 2008).

Consumption of halal food is crucial for various reasons, as it not only impacts personality and individuality development (al-Ghazali, 1989) but also influences the quality of mental development. Individuals are responsible for ensuring that what enters their stomach is obtained from a halal source and is clean, safe, and nutritious. Islam recognises the connection between food and mental performance and discourages the consumption of forbidden (haram) foods and drinks, such as alcohol. Binge drinking and a diet high in calories but low in nutritional value can adversely affect cognitive function, mood, and overall mental performance.

Conversely, a diet consisting of permissible (halal) foods, including a balanced intake of fruits, vegetables, and quality meat, can positively impact mental wellbeing, cognitive function, and behaviours. Verses in the *Qur'an* redirect humanity's focus towards self-reflection, urging individuals to carefully study their body and soul and understand the nature of their mutual relationship. Through self-reflection, individuals recognise that Allah has created humanity and all other beings with a purpose, as mentioned in the *Qur'an*.

“Our Lord! You have not created (all) this without purpose.” (*Al-Qur'an* 3:191)

1.3 Good etiquette an integral part of *Halalan toyyiban* concept

Islamic food etiquette forms an integral component of *halalan toyyiban*. Following Islamic teachings, it guides Muslims in the manners and behaviours associated with eating and drinking. The source of manners and etiquettes associated with eating and drinking in Islam is derived primarily from the *Qur'an* and the authentic traditions of Prophet Muhammad (ﷺ), known as the Sunnah. The *Qur'an* does not provide explicit details on specific food etiquettes, but it emphasises the importance of gratitude. On the other hand, the *hadith* contains numerous narrations that provide specific guidance on food etiquette. The Prophet Muhammad's (ﷺ) practices and teachings on food are perfect guidance for Muslims. The Prophet Muhammad (ﷺ) emphasises the importance of starting with the name of *Allah*, expressing gratitude, observing proper etiquette, and seeking blessings in meals. Table 1 provides a concise overview of the practices and teachings of Prophet Muhammad (ﷺ) regarding food and eating, along with the corresponding *hadith* references.

Considering Islam's wealth of dietary teachings, integrating food interventions that align with Islamic principles can impact individuals' lifestyles and positively promote healthier diets. This article begins by delving into the *halalan toyyiban* concept to establish a contextual foundation for the review. The review then focuses on food interventions - discussing dietary changes and health improvement - emphasising youth, specifically university students, as the target demographic. The applicability of digital and faith-based interventions was then discussed, acknowledging the contemporary tools and methods available to influence behaviour.

2. Methodology

This article employs a narrative literature review, which leverages existing evidence to construct a coherent message. This approach allows various perspectives to be presented in a balanced manner, thereby fostering scholarly discourse. In contrast to systematic reviews, which adhere to detailed and explicit methods, narrative reviews lack established guidelines (Green *et al.*, 2006). While systematic reviews offer a

structured and methodically rigorous evidence synthesis, narrative reviews provide flexibility to contextualise the topic. Narrative reviews also provide a general overview of a topic and set the stage for future research. They allow researchers to provide insights and new ways of thinking (Sukhera, 2022). In employing a narrative review, the article aims to reveal the potential application of faith-based interventions, specifically within the framework of *halalan toyyiban*, in promoting healthier dietary habits among youth.

2.1 Food intervention

Interventions are crucial in improving dietary habits and promoting healthier eating behaviours. Interventions related to food and dietary habits can take various forms, such as mobile-based programs, web-based programs, cooking classes and nutrition education (Brown *et al.*, 2014; Clifford *et al.*, 2009; Schnoll and Zimmerman, 2001). By providing individuals with information, resources, and support, food interventions empower them to make informed choices and adopt healthier eating patterns. They aim to increase the consumption of nutritious foods like fruits, vegetables, whole grains, and lean proteins while reducing the intake of unhealthy options. Successful food interventions have positively impacted dietary outcomes, such as increased fruit and vegetable consumption, improved nutrient intake, enhanced dietary self-efficacy, and better overall eating habits. Food interventions promote better health and wellbeing among individuals and communities by addressing the complex factors influencing food choices and behaviours. Common target groups for healthy diet interventions include the general population, children and adolescents, individuals with chronic conditions, low-income communities, pregnant women and new mothers, and older adults. Youth is also an important target group for healthy diet interventions.

2.1.1 Youth as target for food intervention for healthier diet

The United Nations defines youth as persons between 15 and 24 (United Nations, n.d.). Healthy eating is essential among youth or adolescents to support their rapid physical growth and development. Insufficient intake of essential nutrients can negatively affect their growth, sexual maturation, and overall function. Excessive food consumption, on the other hand, may harm one's health by increasing susceptibility to non-communicable diseases. Furthermore, adolescents' eating habits are rapidly changing (Savidge, Macfarlane and Ball, 2007). Takeaway meals, consumption of food outside typical meal hours, peer influence, a wider range of dietary choices, and higher levels of restrained eating are more common among adolescents (Mohammadi *et al.*, 2020). The rising prevalence of obesity and unhealthy eating habits among youth is causing concern due to their link to chronic diseases such as cardiovascular disease.

In Malaysia, the Malaysian Dietary Guidelines for Children and Adolescents (2013) by the Ministry of Health (MOH) includes recommendations on healthy eating for children and adolescents. The guidelines recommend eating fruits and vegetables, consuming milk and milk products, and drinking plenty of water (Loh *et al.*, 2017). They are also encouraged to limit their daily fat, salt, and sugar intake. Despite guidelines, children and adolescents' food intake does not meet the recommended amounts (Moy, Ying and Kassim, 2006). Studies reveal that when adolescents reach puberty, the quality of their nutrition deteriorates (Soo, Shariff and Taib, 2008). The consumption of fruit, vegetables, and milk decreases through

Table 1: The practices and teachings of the Prophet Muhammad(ﷺ) regarding food etiquette

Practice/Teaching	Hadith	References
Saying "Bismillah" (in the Name of Allah) before eating	"When any one of you eats, let him mention the name of Allah. If he forgets to mention the name of Allah at the beginning, let him say <i>Bismillaahi fi auwalihi wa aakhirihi</i> ."	<i>Al-Tirmidhi</i> (1859), <i>Abu Dawood</i> (3767)
Not criticising food	"He never criticised food at all. If he liked it, he would eat it; if he did not, he would leave it and not say anything."	<i>Al-Bukhari</i> (3370), <i>Muslim</i> (2064)
Expressing disinterest in certain food instead of criticising food	"I do not feel like eating this."	<i>Al-Bukhari</i> (5076), <i>Muslim</i> (1946)
Eat from what is in front of them in the dish*	"Say <i>Bismillah</i> and eat from that in front of you in the dish." *At the time of the Prophet Muhammad(ﷺ), people used to eat together from one dish, and children would sometimes forget the etiquette	<i>Al-Bukhari</i> (5061), <i>Muslim</i> (2022)
Urging guests to eat generously	The Prophet Muhammad(ﷺ) repeatedly said to him (the guest), "Drink!" and he kept telling him to drink until he said, "By the One Who sent you with the truth, I have no more room for it!"	<i>Al-Bukhari</i> (6087)
Making supplication (dua) for others before leaving the meal	The Prophet Muhammad(ﷺ) made <i>du'a</i> in the house of 'Abdullah ibn Bisir and said: "O Allah, bless for them that which You have provided for them, forgive them and have mercy on them."	<i>Muslim</i> (2042)
Eating with the right hand and forbidding eating with the left hand	The Prophet Muhammad(ﷺ) said: "The <i>Satan</i> eats with his left hand and drinks with his left hand."	<i>Muslim</i> (2020)
Encouraging eating together and mentioning Allah's name for blessings	"I command you to eat together and mention the name of Allah over your food so that He might bless it for you."	<i>Abu Dawood</i> (3764), <i>Ibn Maaajah</i> (3286)
Avoiding reclining while eating	"I do not eat reclining."	<i>Al-Bukhari</i> (5083)

adolescence and early adulthood, while the consumption of sugar-sweetened beverages and confectionery grows. According to the National Health and Morbidity Survey (NHMS), the obesity prevalence among Malaysians aged 10–17 increased from 5.7 percent in 2011 to 11.9 percent in 2015 (Mohammadi S *et al.*, 2020). Obesity and overweight among adolescents continue to rise and persist into adulthood; promoting healthy eating among adolescents has become a top public health and research goal (Sharifah Intan Zainun *et al.*, 2019).

While the rising incidence of obesity and overweight among adolescents is a growing concern, it is equally important to recognise the significance of promoting healthy eating among university students. The transition from adolescence to young adulthood, mostly spent at colleges or universities, is gaining recognition as an important time for health promotion and disease prevention (Nelson *et al.*, 2008). Targeting university students in healthy diet interventions allows for shaping their dietary behaviours, equipping them with tools for healthier choices, and providing knowledge that positively impacts their overall wellbeing, academic performance, and long-term health outcomes. The university phase marks a critical transition from adolescence to adulthood as individuals prepare for future responsibilities and the workforce. By focusing on interventions for university students, essential life skills, including healthy eating and self-care, can be developed as they navigate this pivotal stage.

2.2 Food interventions studies among university students

University students between 18 and 24 gain new experiences and personal freedom and develop a sense of identity as they ascend from adolescence to adulthood (Franko *et al.*, 2008). This is crucial during which young people establish independence and adopt lasting health behaviour patterns. Unfortunately, there is a potent tendency for university students to engage in unhealthy dieting, meal skipping (especially breakfast), and fast-food consumption. Lack of physical activity has also become a common practice.

Although university life is considered an age of optimal health and wellbeing, it is well documented that university students nowadays have poor dietary habits. The students often fail to meet recommended targets for fruits and vegetables, whole grains, milk, and dairy products compared to their adolescent years. According to Nelson *et al.*, 2008, poor eating habits and limited physical activity can likely increase the risk for osteoporosis, obesity, hyperlipidaemia, diabetes, and cancer in the long term. This unhealthy lifestyle is further linked to health-related quality of life (HRQoL). All of these associations suggest that it is important to establish good eating habits at an early age (White *et al.*, 2009). Therefore, early interventions are needed to improve health behaviours in this age group. Few nutritional education interventions (NEI) have targeted college or university students relative to interventions designed for children and the elderly.

Table 2: Food or dietary intervention studies among university students

(Reference)	Design	Sample/ Country	Description of Intervention	Summary of Findings
Brown <i>et al.</i> , (2014)	Pre-post design	150 university students from the non-health department. - USA	Mobile MyPlate text messages over 7 weeks vs. brochure (for controlled group). Pre-post survey on nutrition knowledge & and behaviour.	Text message intervention is effective in increasing nutrition knowledge and promoting good diet behaviour (breakfast, eating at restaurants, daily consumption of whole grain products, fruits, vegetables or potatoes, milk, yoghurt, or cheese)
Clifford <i>et al.</i> , (2009)	Randomised controlled pre-post design	101 university students - USA	Television program (15 minutes) based on the Social Cognitive Theory vs. sleep disorders program (5-minute internet-based). Impact on dietary behaviour and knowledge.	The result showed that television programs have little impact on dietary behaviour but still can influence changing people's knowledge.
Schnoll & Zimmerman, (2001)	Randomised controlled trials (RCT)	113 university students from nutrition class & and introductory health - USA	Incorporating two self-regulatory strategies (goal setting and self-monitoring) into a nutrition education class to enhance dietary fibre self-efficacy and consumption. Four treatment conditions	Goal setting (GS) significantly impacted dietary fibre self-efficacy and consumption. No significant interaction with self-monitoring (SM). Supports Social Cognitive Theory.
Tas <i>et al.</i> , (2020)	Cross-sectional test and re-test	378 university students (no knowledge of food or nutrition knowledge before & and after study) - UK	Four weeks of intervention for key topics (i.e., eat more dietary fibre, eat less sodium, eat less sugar, and eat less saturated fats and trans-fats) was given in dietary guidelines. The intervention uses Healthy snacks and Informative leaflets.	Improvement in knowledge related to "less saturated fat and trans-fat." Limited impact on practical dietary outcomes (e.g. serving sizes or making informed food choices)
You <i>et al.</i> , (2009)	Pre and post test	22 university students from nutrition education class. - Korea	Intervention: The 8-week body weight control program consists of an Introductory class (individualised low-calorie diet), Diet therapy, Exercise, Behavioural modification (online nutrition lecture; Supplement (sea tangle powder).	The results showed that the program could help decrease participants' body weight, body fat mass, per cent body fat, waist-hip ratio, and BMI. Additionally, it can improve dietary habits and enhance the quality of life.
Chiba T., et. al., (2020)	Randomised controlled trials (RCT) - Pre- and post-intervention	328 university students - Japan	Intervention on dietary supplements: A single educational lecture on dietary supplements to different groups of students with different backgrounds. An assessment scale with 14 questions to evaluate the effects of the educational intervention	A one-hour lecture on dietary supplements improved university students' knowledge.

(Reference)	Design	Sample/ Country	Description of Intervention	Summary of Findings
Peterson <i>et al.</i> , (2010)	Pre and post surveys	104 university students (Both pre-survey & post-survey) - USA	Healthy choice indicators, large signs, table tents, flyers, and colourful photographs with "benefit-based messages" promoted targeted foods. Pre-survey collected in the dining hall, followed by 3-week intervention. After the intervention period, post-survey data was collected via email.	Significant increase in consumption of certain foods. Short-term marketing strategies can enhance students' perceptions and choices of healthful foods.
Winzelberg <i>et al.</i> , (2000)	Randomised controlled trials (RCT)	60 female students from public university - USA	3-month internet-delivered health education program. Aims to enhance body satisfaction. Participants who completed the online CAHE program underwent body image and disordered eating attitude assessment at baseline, post-intervention and during a 3-month follow-up	Significant improvement in body image and reduction in desire to be thin. Demonstrates the effectiveness of using the internet for health education.
Poddar <i>et al.</i> , (2010)	Randomised controlled trial (RCT)	294 undergraduate students from personal health - USA	Five-week online course on dairy consumption. Topics self-efficacy, outcome expectation, and regulation regarding dairy consumption). Included email messages and behaviour checklists.	Successful in improving self-efficacy and self-regulation, but not outcome expectations or actual dairy consumption.
Shahril <i>et al.</i> , (2013)	Cluster randomised controlled – pre and post	417 university students - Malaysia	Intervention: 10-week multimodal nutrition education (NEI) to enhance dietary intake among participants. Interventions include conventional lectures, brochures, and text messages.	Significant improvement in dietary intake of various nutrients (e.g. calcium, vitamin C, thiamine, fruits) and food items (eggs, milk, and dairy products). NEI is effective in improving participants' dietary intake

Different interventions have been employed to promote healthy eating among university students, with mixed results (Table 2). One approach utilised mobile technology, as Brown *et al.*, (2014) demonstrated, who delivered behaviour-directed motivational dietary guideline messages to participants through Mobile MyPlate text messages. Another intervention focused on point-of-selection marketing, where Peterson *et al.*, (2010) implemented a multifaceted marketing strategy in university dining halls, using visual cues such as indicators, signs, tents, flyers, and photographs with "benefit-based messages" to promote healthier food choices. Web-based interventions were also applied, as seen in the study by Poddar *et al.*, (2010), who used an online course system to deliver tailored email messages, posted information, and behaviour checklists to improve milk intake. The study successfully improved self-efficacy and self-regulation but not outcome expectations or actual dairy consumption.

Additionally, a multimodal nutrition education intervention conducted by Shahril *et al.*, (2013) employed conventional lectures, brochures, and text messages over 10 weeks to enhance dietary intake among university students. The diversity of target behaviours and strategies employed in these studies highlights the complexity of interventions in this context. This underscores the importance of adopting multifaceted approaches that address various aspects of knowledge, attitude, and behaviour to promote healthy eating among university students effectively.

As indicated in Table 2, studies on promoting healthy eating among university students were conducted in various countries, highlighting the global focus on this important issue. Brown *et al.*, (2014) and Peterson *et al.*, (2010) implemented interventions to improve dietary behaviours in the United States. Shahril *et al.*, (2013) conducted their study in Malaysia, contributing to understanding healthy eating interventions in a Southeast Asian context. Similarly, Tas *et al.*, (2020) conducted their research in the United Kingdom, adding to the growing body of knowledge on promoting healthy eating among university students in European settings. Lastly, the study by You *et al.*, (2009) took place in Korea, providing insights into interventions tailored to Korean university students' specific needs and preferences. Table 2 overviews university students' food or dietary intervention studies.

2.3 Digital-based intervention

The rapid advancement and increasing complexity of digital technologies, including websites, mobile apps, wearable devices, and smartphone applications, have become popular and cost-effective tools for encouraging positive changes in diet and overall health. These digital interventions encompass a wide range of tools, such as internet programs, mobile apps, websites, emails, videos, CD-ROMs, games, tele services, SMS text messages, and social media, sometimes used in combination (Public Health Ontario, 2021).

The history of employing digital interventions for health and wellbeing among youth has an enduring trajectory. As evidenced by the interventions summarised in Table 3, there are diverse digital approaches implemented over the years, underscoring a sustained commitment to explore and refine digital strategies. The popularity of digital interventions reflects the increasing global accessibility of these digital technologies. With internet penetration reaching 95% in the most developed countries and reaching 60% worldwide, these interventions have witnessed a broadening reach. The advantages of employing digital strategies, particularly

internet- and mobile-based approaches, are multifaceted. These interventions possess the capability to deliver services irrespective of space and time constraints, ensuring accessibility at the convenience of the users. Additionally, they offer potential anonymity, flexibility in conduct, and a strong appeal to the youth demographic. The advantages also include potential cost-effectiveness and scalability on a larger, consistent basis (Andersson *et al.*, 2019; Domhardt *et al.*, 2018; Domhardt and Baumeister, 2018; Ebert *et al.*, 2018).

Various digital interventions have been utilised to enhance health and wellbeing outcomes for youth (Table 3). This includes web-based interventions that leverage online platforms or applications to deliver treatment, monitor health conditions, and provide valuable resources such as modules, psychoeducational, self-management strategies, and disease-specific information (Nijhof *et al.*, 2012; Stinson *et al.*, 2010). Similarly, mobile interventions that harness the power of mobile applications to track health information and monitor disease progression (Berndt *et al.*, 2014) were also applied. These mobile interventions offer flexibility and convenience, as they can be accessed anytime, anywhere through mobile devices.

As shown in Table 3, digital interventions were conducted in various countries, demonstrating the applicability, widespread implementation, and diverse impact. For example, Nijhof *et al.*, (2012) conducted their intervention in the Netherlands, shedding light on the effective use of digital strategies to enhance the wellbeing of adolescents in that specific region. In the study by Stinson *et al.*, (2010), the intervention took place in Canada, showcasing how digital platforms have been harnessed to improve adolescent health outcomes within the Canadian context. There are also few studies conducted in Malaysia (Shahril *et al.*, 2013; Ahmad *et al.*, 2018; Nawi & Jamaludin, 2015).

Digital interventions can be implemented as stand-alone interventions (Andersson *et al.*, 2019; Domhardt *et al.*, 2018; Domhardt and Baumeister, 2018; Ebert *et al.*, 2018; Yonek *et al.*, 2020) or in combination with human support (Therese and Holter, 2023). These interventions employ diverse delivery methods, some exclusively using a single mode, such as web-based applications, while others are evolving towards multimodal approaches. Multimodal strategies involve integrating different tools or platforms—from web-based applications to mobile devices—effectively delivering interventions. For instance, Ahmad *et al.*, (2018) conducted a study targeting overweight and obese primary school students aged 8 to 11 years old. The researchers used several digital platforms, including Facebook and WhatsApp, to incorporate face-to-face sessions. Despite the innovative approaches evident in these studies, an area less commonly explored is the integration of faith-based interventions within digital strategies.

2.4 Faith-based intervention

Despite being less known, faith-based interventions are gaining significance within healthcare initiatives as they integrate spiritual and religious beliefs into their framework. Religion, a multifaceted concept encompassing beliefs, behaviours, rituals, and ceremonies, can be privately or publicly practised. These interventions have considerable potential to promote positive health outcomes among believers by incorporating spiritual and religious beliefs, practices, and teachings. Two distinct types of faith-based interventions exist faith-placed interventions, which are spiritually grounded initiatives.

Table 3: Digital intervention to improve health and wellbeing among youth

Authors	Country	Sample	Age	Duration	Focus	Intervention	Outcome
Berndt <i>et al.</i> , (2014)	German	68	8-18 years	14 weeks	Diabetes management	Mobile/web-based disease monitoring applications (Mobil Diab).	Increased self-efficacy, improved quality of life, weight, and BMI values in diabetes management.
Carlsen <i>et al.</i> , (2017)	Denmark	29 (intervention) and 21(control group)	10-17 years	30 months	Inflammatory bowel disease	Patient-managed eHealth (a web-based disease with symptom monitoring	Acceptable patient adherence, improved knowledge and understanding of inflammatory bowel disease.
Toole & Craighead, (2016)	USA	80	Age not specified (Undergraduate)	6 - 8 day	Body image distress (BID)	Self-compassion meditation podcast Interactive; Self-directed; Audio-delivered podcasts	Minimal attrition, low compliance with meditation practice; impact on body image distress not specified.
Franklin <i>et al.</i> , (2006)	UK	92	8-18 years	12-month	Diabetes care	Mobile-based support system (Sweet Talk) - Automated, scheduled text messaging.	Improved self-efficacy and adherence in diabetes care, potential support for introducing intensive insulin therapy.
Newcombe <i>et al.</i> , (2012)	Australia	42	10-17 years	9-week time	Psychosocial wellbeing of a Chronic Respiratory Condition patient	Web-based problem-solving program (Breathe Easier Online) for psychosocial wellbeing.	No significant group differences post-intervention; preliminary evidence suggests program efficacy, improvement in attitudes, and reduction in depression symptoms. Decreased maladaptive social problem solving (impulsive/careless style) for participants
Nijhof <i>et al.</i> , (2012)	Netherlands	135	12-18 years	6 months	Internet-based therapeutic program	Web-based (FITNET)- Guided and tailored iCBT with 21 modules and a comprehensive psychoeducation part	More effective than usual care in achieving full school attendance, absence of severe fatigue, and normal physical functioning at 6 months.

						(e.g., goals, sleep routine, cognition, fatigue-specific interventions, physical activities, and balance)	
Stinson <i>et al.</i> , (2010)	Canada	43	12-18 years	12 months	Juvenile Idiopathic Arthritis Self-Management	Web-based self-management programme (Teens Taking Charge) plus telephone support.	Effective in reducing pain intensity and interference and improving health-related quality of life in adolescents with juvenile idiopathic arthritis.
Shahril <i>et al.</i> , (2013)	Malaysia	417	18-24 years	10-week	Dietary Intake	Multimodal intervention using three modes. Conventional lectures, brochures, and text messages Daily servings of food intake.	Significant improvement in dietary intake compared to the control group.
Nawi & Jamaludin (2015)	Malaysia	97	16 years old school students	12 weeks	Weight management	Website intervention with topics related to weight management for school students. Websites include games and exercise videos.	Between baseline and end-line, BMI, waist circumference, and body fat percentage significantly decreased only in the intervention group. Comparing the two groups, however, there were no significant differences in the change in these measures over time.
Ahmad <i>et al.</i> , (2018)	Malaysia	134	8 - 11 years old primary school children	4 months	Weight management	Four-week training program using face-to-face sessions, Facebook, and WhatsApp for weight management in primary school children.	Effective in reducing childhood adiposity.

conducted in organised religious settings, and faith-based interventions, which either have a spiritual foundation or involve a significant presence of a faith group but may not necessarily unfold within religious establishments. Faith-based dietary interventions offer several advantages compared to alternative methods. Ismail *et al.*, (2013) suggest that integrating faith-based objectives into the intervention is a tactic for achieving enduring behavioural changes. These interventions have the capacity to engage a substantial and consistent group, allocate space for programming, provide social support, and involve influential leaders who can encourage participation, potentially ensuring the sustainability of programs in the long term (Peterson *et al.*, 2002, Holt *et al.*, 2013, Wilcox *et al.*, 2013).

Numerous studies have explored faith-based interventions tailored for Muslims, addressing health and wellbeing concerns such as physical exercise, cardiovascular health, diabetes prevention, healthy lifestyle promotion, mental health, substance use, and cancer screening within their communities. In their comprehensive review, McLaren *et al.*, (2022) examined studies integrating the development and delivery of health interventions for Muslim minorities in Canada, Australia, the United States of America, and the United Kingdom. A recurring theme across these studies is the emphasis on religious tailoring, community consultations, and integrating Islamic principles. The cumulative evidence from these studies strongly suggests that integrating religious and cultural elements into interventions enhances their effectiveness and relevance among Muslim populations.

Faith-based intervention studies adopted diverse settings such as mosque-based programs, community centres, and collaborations with healthcare institutions (McLaren *et al.*, 2022). Collaboration is necessary for interventions to be effective, as they need to be co-designed and culturally and religiously sensitive, combining scientific guidelines on healthy living with the Islamic narrative (Sufyan *et al.*, 2021). This diverse and culturally attuned approach underscores the significance of faith-based initiatives in promoting health and wellbeing within Muslim communities (McLaren *et al.*, 2022).

Integrating food interventions rooted in Islamic principles, particularly the *halalan toyyiban* concept, has substantial potential to positively influence the dietary habits of tech-savvy youth, including university students. This could be done through digital platforms such as interactive modules, educational videos, mobile applications, and online support networks. This multi-approach strategy encourages healthier choices and aligns dietary practices with religious beliefs. This approach fosters a deeper intrinsic motivation to adopt healthier habits. A review indicates a limited exploration or incorporation of faith-based concepts within the context of digital interventions. This suggests a potential area for further investigation and development in this field. Moreover, by effectively combining the strengths of *halalan toyyiban* principles with digital technologies, interventions can guide and empower Muslim youth to make healthier dietary choices while adhering to their faith.

3. Conclusion

Healthy eating habits are crucial for maintaining physical and mental wellbeing, particularly among youth. Transitioning from adolescence to young adulthood is critical for establishing healthy eating habits, and interventions are needed to improve health behaviours in this age group. Different interventions have been employed to promote healthy eating among

university students, with mixed results. The range of target outcomes and strategies used in these studies emphasises the complexity of influencing university students' dietary knowledge and habits, highlighting the need for comprehensive strategies to address these outcomes effectively. Recognising the significant role of religion, particularly for Muslims, faith-based interventions could serve as valuable tools in promoting a healthy diet. The *halalan toyyiban* concept, in particular, could be integrated into digital interventions to create a digital faith-based approach to foster healthy eating habits among Muslim youth.

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