



## Exploring the Role of Social Media in Promoting Healthy Consumption

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### ABSTRACT

This research seeks to investigate how interactions on social media influence the collaborative creation of value in promoting healthy consumption. To gain a more profound understanding of the process of social media communication and its impact on generating shared value, we employed the Stimuli-Organism-Response (SOR) model to formulate our hypotheses. Our study drew upon a survey conducted across five countries and regions (Canada, Malaysia, Taiwan, the United Kingdom, and the United States). By utilising Structural Equation Modelling (SEM), we tested these hypotheses. The results of our research indicate that social media communication significantly enhances the quality of relationships within online communities, subsequently influencing the creation of value in the context of healthy consumption. The findings show individuals who maintain good relationships within their social media networks and believe they can obtain not only important information but also are more likely to share information about their own experiences regarding healthy consumption. We conclude the paper by discussing the theoretical and practical implications of our findings.

### 1. Introduction

The rapid growth of technology has created new streams of communication and transactions. More specifically, e-commerce, a substantial part of the global retail framework, has been transformed into social commerce as people tend to share their knowledge, experiences, comments, and testimonials of products and/or services they have used by posting on social media (Gan and Wang, 2017; Hajli, 2019; Shirazi et al., 2022). The value of social commerce sales worldwide for 2021 was \$992 billion, and the projection for 2026 is \$2900 billion (Statista, 2021). The social commerce revenue for 2021 was \$7245 billion, and it is expected to reach \$6200 billion by 2030 (Statista, 2021). A new era has risen where consumers inform and ultimately influence other consumers' decisions by highlighting their negative or positive experiences throughout their customer journey (Huang and Benyoucef, 2013). The proliferation of social media channels has increased the number of people who use them to post information about products, brands, and companies and advise their social network leading. As a result, more business owners rely on them for their business's growth and marketing strategy (Zhou et al., 2013). People's behaviour toward products is influenced by their peer's communication (Zhang and Daugherty, 2009), and their purchase decisions are shaped through collaboration and online exchange of feedback and advice (Leitner and

Grechenig, 2009). Recent data show that almost two-thirds (63 %) of consumers had made unplanned purchases on social media worldwide in October 2021 (Statista, 2021). Thus, it is suggested that business owners, retailers, consumers, and researchers acknowledge social media's impact and ramifications on e-commerce.

Concurrently, the impact of social commerce on brand value co-creation is largely explored. The brand value that is co-created by consumers through their online social communication (Hajli et al., 2017; Naylor et al., 2012; Tajvidi et al., 2021; Wang and Hajli, 2014). A new paradigm has emerged where brands create value by engaging stakeholders (Iglesias et al., 2017; Swaminathan et al., 2007; Tajvidi et al., 2021). Iglesias et al. (2017) proposed that managers need to adapt their leadership style and adopt a new one "that is more humble, open and participatory" (p. 670). Relationship quality refers to the online interrelationship and/or bond of customers (Hajli, 2014). It has been argued that relationship quality is of major importance when examining the concepts of social commerce and relationship marketing (Hajli, 2014). De Wulf et al. (2001) proposed that relationship quality incorporates the elements of trust, when people feel confident to rely on others; relationship satisfaction, when customers are fulfilled with the feeling of contentment following their interactions with a retailer; and relationship commitment, people's intrinsic desire to continue the relationship. Even though De Wulf et al. (2001) examined relationship quality

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between customers and retailers, the relationship quality theory and its indicators have been drawn from previous studies that examined relationship quality (Crosby et al., 1990; Dorsch et al., 1998). Thus, we can argue that the same definition of relationship quality can be applied to our research too. The strength of relationship quality is a key element in e-commerce. People rely on others to share credible and trustworthy information informing their purchasing decisions and building in that way their prospect relations. Commitment is an intrinsic part of that relationship indicating whether people want to continue their online relations or not. Finally, if people feel satisfied from their online interactions, it is expected that their desire to invest on this relationship circle will be enhanced. Therefore, we expect that relationship quality will act as a mediator between social media communication and value co-creation.

A crisis is defined as an unexpected event that can have catastrophic and dangerous outcomes in society (Ratten, 2022). COVID-19 is a type of crisis that has profoundly influenced consumer behaviour, expectations, and interactions. For example, during the pandemic, the reliance on digital interactions increased dramatically, making social commerce platforms crucial for maintaining consumer relationships and facilitating value co-creation (Klafke et al., 2021). Also, consumers turned to online communities for support, information, and purchasing decisions more than ever. Businesses that responded transparently and empathetically to feedback were better able to maintain and even strengthen customer relationships (Bidar et al., 2022; Taherinia et al., 2021). Therefore, special consideration of the crisis factor is essential to accurately assess and enhance relationship quality and value co-creation in this new context. Thus, we expect that COVID-19 will act as a second mediator between relationship quality and value co-creation. Three theoretical research gaps are identified. First, a review of the literature has shed light on consumers' motivations guided by value co-creation that led consumers to co-create value with businesses and other consumers using social media channels. Roberts et al. (2014) found that people engage in co-creation activities and interactions with their community when their deeper incentives are altruistic, such as seeking opportunities for recognition or building strong community relationships. They want to exchange knowledge and information to shape other people's opinions and create relationship bonds. While Roberts et al. (2014) proposed that people's intrinsic and extrinsic motivations can help businesses create better and more effective strategies by considering the online environment they operate, their study limits the explanation of the impact of mediating factors in the process of value co-creation.

Second, Tajvidi et al. (2021) proposed a model of brand value co-creation considering the role and impact of social commerce activity and, more specifically, the consumer-consumer interaction and consumer-seller interaction on social support and relationship quality emphasizing two-way communications. Even though Tajvidi et al. (2021) investigated brand value co-creation in more depth, their research sample came only from one country, offering a narrow perspective. Thus, the question remains if a more widespread and representative sample can confirm their results. This research aims to collect data from different countries, offering a cross-cultural viewpoint and generalizing the findings.

Thirdly, it remains unanswered whether similar results can be found in specific retail areas considering the impact of external environmental factors, especially in times of crisis, for example the Great Depression of the 1930's and Global Financial Crisis in 2008 (Ratten et al., 2021). In our research we focus on COVID-19 and its impact on the healthy consumption industry. Finally, all these gaps have not been answered previously by applying the Stimulus-Organism-Response (SOR) theory.

In this study, through an analysis of 184 completed surveys collected from online communities in Canada, Malaysia, Taiwan, the United Kingdom, and the United States, we found that social media communication positively affects relationship quality and thus the healthy consumption value co-creation. In addition, COVID-19 also positively

moderates the relationship between relationship quality and value co-creation. Therefore, the research findings mitigate the gaps in previous literature.

The purpose of this paper is threefold: 1) to examine the influence of social media communication on value co-creation of healthy consumption 2) to investigate the mediating role of relationship quality, and 3) to explore the impact of external environmental factors and more specifically the influence of COVID-19 using the SOR framework. The main contribution of this study is that it adds to the value co-creation theory by providing a holistic framework as it explores mediating and external factors as well as their interrelationship. Additionally, we investigate the value co-creation through the use of social media communication using cross-cultural and more comprehensive data offering a globalised perspective. We apply the SOR paradigm expanding ultimately its application. Finally, the study provides practical implications to industry retailers. Food business owners will need to consider the importance of providing advanced and satisfying products and experiences to their customers as well as effective ways to promote their customers' online information sharing behaviour as key indicators to their existence and sustainable growth.

## 2. Literature review and hypotheses

### 2.1. The SOR model

Mehrabian and Russell (1980) developed the Stimuli-Organism-Response (SOR) model. The SOR model consists of three components: stimulus (S), organisms (O), and response (R). It states that certain external stimuli influence individuals' perceptions and attitudes, shaping their intentions and behaviours (Mehrabian and Russell, 1980). Following this model, individual behaviour is the response to external stimuli. By incorporating the concept of organisms between stimulus and response, the SOR model elucidates how organisms mediate the relationship between stimulus and response. The SOR model has been widely used in previous studies on consumer behaviour (e.g., Han et al., 2022; Lin et al., 2022; Kwon and Boger, 2021; Xu et al., 2020; Zhang et al., 2014). Previous studies have shown that external environmental stimuli (S) affect consumers' consumption behaviour (R) by influencing their perception and experience (O). By adopting the SOR model, previous studies have explored the impact of consumer experience (Xu et al., 2020), brand image (Kwon and Boger, 2021), and consumer confidence (Han et al., 2022) on consumers' purchase intention. In addition, this model is also used to explain online consumption behaviour. Lin et al. (2022) applied the SOR model within the context of live-streaming shopping and explored why consumers impulse purchases during live-streaming shopping. It also explained the impact of technical features on customers' virtual experience in the social commerce setting (Zhang et al., 2014).

Regarding the online value co-creation of healthy consumption, the SOR model provides a structured framework to examine the impact of social media communication on users' online communication experience and then translate their intentions into online community shared experiences. Specifically, social media communication (S) is an external stimulus. It reflects external forces related to value co-creation through different contextual inputs (Xu et al., 2020; Yang et al., 2021). The main drivers of value co-creation in social media communication are related to consumers' subsequent decision-making. Consumers' perception of online communication experience (relationship quality) generated by social media communication as an organism (O) reflects consumers' evaluation and experience of social media communication. It indicates the internal state of consumers. Healthy consumption value co-creation as a response (R) reflects consumers' final outcome and behaviour. Therefore, the SOR model fits our research topic well. By adopting this model, it is possible to explore the direct relationship between social media communication and the co-creation of healthy consumption value and discover the mediating mechanism of relationship quality. Our

conceptual framework is reported in Fig. 1. In the following sections, we will discuss the relationship among social media communication (S), relationship quality (O), and healthy consumption value co-creation (R) and then put forward the research hypotheses of this paper.

## 2.2. Social media communication as the stimuli (S)

The digital revolution has opened up new ways of disseminating information and communicating. The widespread use of social media is a hallmark of the digital revolution (Gordon, 2013). Social media is an interactive media technology that facilitates the creation and sharing of information, ideas, interests, and other forms of expression through virtual communities and networks (Zhang et al., 2014). With the help of social media, contact with specific individuals or groups can be effectively achieved, and information can be exchanged through social media communication (Dibb and Carrigan, 2013). Social media communication is achieved through the communication tools available on social media platforms. Specifically, by using blogs, instant messaging, and real-time subscriptions, online users can communicate with each other in the virtual social environment (Huang and Benyoucef, 2013; Parboteeah et al., 2009). Therefore, social media platforms have reshaped the nature of digital information disseminating and sharing (Panagiotopoulos et al., 2016).

The rapid development of social media has transformed traditional e-commerce into social commerce. As a new genre of e-commerce, social commerce empowers consumers by enabling online communication between users on social media platforms (Hajli, 2019). Social commerce comprises three key elements: social media content, positive valence information, and negative valence information (Hajli, 2019). Social media content refers to textual and visual information about products or services posted by users through social media (Hajli, 2019). Through social media platforms, consumers can quickly share and receive information about generic or specific products from their social networks, family, and other online consumers (Ahuja and Galvin, 2003; Dhar and Chang, 2009; Kozinets, 1999; Liang et al., 2011). This information plays a vital role in shaping consumers' evaluations and purchasing decisions for a product or service (Hajli, 2019; Lueg and Finney, 2007). The degree of motivation of consumers to purchase is positively related to the frequency of obtaining information (Gregorio and Sung, 2010; Shim, 1996). In addition, social media content also affects consumer attitudes (Bianchi and Andrews, 2012; Blasco-Arcas et al., 2014).

Social media content about a product or service can be positive valence or negative valence. Positive valence information is beneficial to increase the purchase intention of potential consumers. Negative valence information refers to negative claims made by users for a specific product or service on social media platforms (Hajli, 2019). By aggregating different information (positive and negative valence information) about a particular product or service generated by social media, consumers can obtain more objective and reliable product information than retailer-provided advertisements (Goh and Heng, 2013).

## 2.3. Relationship quality as customers' internal states (O)

The strength of relationships between users in social media is measured by relationship quality (Palmatier et al., 2006). Relationship quality reflects users' overall evaluations of a social network community, emphasizing users' beliefs or attitudes toward it (Wang et al., 2020). When users feel they have a good relationship with other users in a social network community, they are more willing to share valuable product information and recommend products online. Therefore, the role of relationship quality in social commerce cannot be ignored (Lin et al., 2019). Relationship quality is reflected by relationship commitment and satisfaction (Garbarino and Johnson, 1999). Relationship commitment is a psychological state induced when users realize the importance of maintaining a relationship with a social network and can derive personal benefits from it (Gustavson et al., 2005; Morgan and Hunt, 1994). Relationship satisfaction refers to emotional states elicited by a global assessment of the user's interactive experience with other online communities (Gustavson et al., 2005). Relationship commitment and relationship satisfaction represent users' overall attitudes toward social network communities.

The improvement of relationship quality relies on interactive communication between social media users and their peers in the social network community. Specifically, social network users communicate and interact with other users by creating and sharing (Liang et al., 2011). In the social commerce context, they could communicate by posting shopping experiences and product information. In interaction and communication, besides obtaining valuable information, users can also obtain emotional support from other users. Emotional support as an important social value leads users to believe that they are cared for, valued, and helped by other customers in their social network (Liang et al., 2011). Emotional support serves as an important social value that makes users believe that they are cared for, valued, and helped by their peers in the social community (Zhang et al., 2014).

From another perspective, based on the consideration of reciprocity, the users who have acquired information value and emotional value will regard it as an obligation to provide useful information and emotional support to other users in the community (Zhang et al., 2014). The acquisition of useful information and emotional support in communication satisfies users' needs, thus prompting them to continue communicating with each other. As the interactive communication gradually escalates, users will evoke a sense of identity and belonging to the online community, which in turn induces relational commitment and increases satisfaction with the community (Animesh et al., 2011; Kreijns et al., 2007; Lin et al., 2019; Zhang et al., 2014). To sum up, social media communication awakens users' relational commitment and improves relational satisfaction, thereby improving the relationship quality of the community (Liang et al., 2011). Therefore, we hypothesize:

**H1.** Social media communication is positively related to relationship quality.

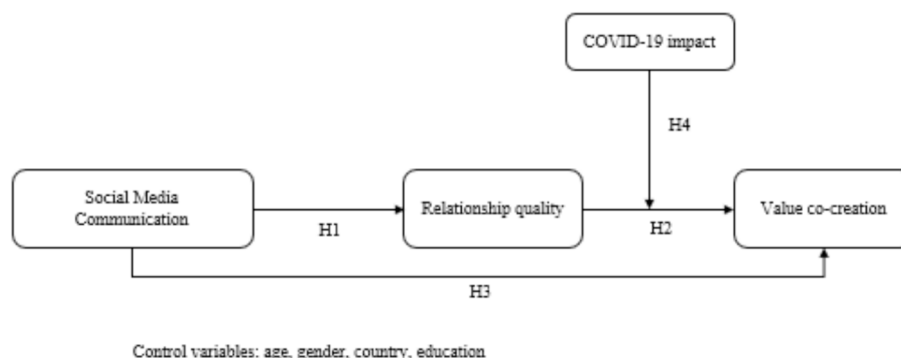


Fig. 1. Conceptual framework.

## 2.4. Value co-creation intention as the response (R)

Value co-creation is one of the key values created by social commerce, and it refers to a new type of marketing strategy that realizes marketing value by attracting customers on social commerce platforms (Frasquet-Deltoro and Lorenzo-Romero, 2019; Zhou et al., 2013). In social commerce, consumers jointly create value by interacting with other consumers, and the role of consumers changes from passive audience to active partners (Prahalad and Ramaswamy 2004). The essence of value co-creation is interaction (Echeverri and Skålén, 2011). Dialogue is the most critical link in value co-creation (Prahalad and Ramaswamy, 2004). Dialogues represent social network users interacting with other users in an online community by sharing experiences and posting information. In social commerce, social interaction between users is the venue for value co-creation, and the co-creation experience is the basis for value acquisition (Prahalad and Ramaswamy 2004). The main purpose of an interaction is to build a relationship. Users' interaction on social media platforms connects users to online communities and builds relationships with users in the communities (Crocker and Canevello, 2008; Weber et al., 2004). In the process of communication and interaction, in addition to obtaining useful information, users can also satisfy their own psychological needs (Venkatesh and Morris, 2000), such as getting emotional support from other users. Users whose needs are satisfied will realize the value of online community communication, and stimulate their relationship commitment and satisfaction with online communities, thereby improving the quality of the relationship between users and online communities. That is, social media communication is positively related to the quality of community relations.

Furthermore, users who rated the quality of online community relationships higher would increase their intention to continue interacting through online communities (Gustafsson et al., 2005; Shabbir et al., 2007). The higher the relationship quality between a user and an online community, the higher the likelihood that the user will continue to interact with the online community. In the social commerce setting, when the quality of the relationship between the customer and the online community is high, the customer commitment to and satisfaction with the interactive experience is higher. Higher relationship quality will lead customers to interact more proactively with their peers through online communities, leading to sustainable value co-creation (Lin et al., 2019; Morgan and Hunt, 1994; Wang et al., 2020). Thus, there is a positive relationship between quality and value co-creation (Merz et al., 2018; See-To and Ho, 2014; Shamim et al., 2016; Tajvidi et al., 2017).

Regarding the value co-creation of healthy consumption, customers interact with others by publishing their own healthy consumption posts (e.g., personal healthy food consumption records) or sharing their favourite healthy-consumption posts (e.g., others' healthy consumption experiences) with their peers in online communities (Shang et al., 2021; Tajvidi et al., 2020; Wang et al., 2020). Through these interactions, customers can have a clearer understanding of the meaning and content of healthy consumption, thereby changing their consumption behaviour through value co-creation (Aral et al., 2013; Kaplan and Haenlein, 2010). The previous discussion shows that relationship quality positively correlates with the value co-creation of healthy consumption. Relationship quality plays a mediating role between social media communication and healthy consumption value co-creation. Therefore, we make the following hypotheses:

**H2.** Relationship quality is positively related to value co-creation to enhance healthy consumption.

**H3.** Relationship quality mediates the relationship between social media communication and value co-creation to enhance healthy consumption.

## 2.5. The moderating effect of COVID-19's impacts

Service-Dominant (S-D) logic emphasizes that value is co-created

through interactions (Vargo and Lusch, 2008). COVID-19 created a context where collaborative interactions became even more critical for survival and growth, thus positively moderating the relationship between relationship quality and value co-creation. For example, the COVID-19 pandemic has dramatically altered social and eating habits (Grantham et al., 2021). During the COVID-19 period, people are adopting social media for online socializing due to the inconvenience of offline socializing (Kaya, 2020). Social media allows individuals to connect and support each other virtually and to share and disseminate knowledge and information among groups of people by building supportive virtual communities. In addition, the COVID-19 pandemic has significantly changed people's eating habits. During the COVID-19 pandemic, demand for high-calorie takeaway food, snacks, and alcohol has increased substantially due to restrictions on going out (Noyes and Lyle, 2021). These unhealthy eating habits lead to an unbalanced diet to a certain extent, and lead to the potential risk of obesity. Obesity can worsen COVID-19 symptoms (Grantham et al., 2021).

According to social exchange theory (Cropanzano and Mitchell, 2005), social behaviour is the result of an exchange process aiming to maximize benefits and minimize costs. During the pandemic, consumers tend to read, share and disseminate information about healthy consumption on social networks to avoid the risky consequences of unhealthy diets (Grantham et al., 2021; Lee et al., 2020; Van den Broucke, 2020). Specifically, consumers can reduce the negative impact of COVID-19 by strengthening their immunity through healthy consumption and a balanced diet (Gleeson et al., 2010). Therefore, the impact of relationship quality on the co-creation of healthy consumption is also affected by the positive moderating effect of covid-19. The more significant the impact of COVID-19, the more people care about healthy consumption and the more they hope to acquire healthy consumption knowledge through social network communication. Thus, this increased benefit perception strengthened the positive link between relationship quality and value co-creation. Based on the above discussion, we propose the following hypotheses:

**H4.** The impact of COVID-19 positively moderates the relationship between relationship quality and value co-creation.

## 3. Data and methodology

We define the sample population for this study are members involved in discussions about healthy consumption. Because of this, we use online communities to observe co-creating value for healthy consumption among people. The aim is to examine the factors influencing the development of value co-creation by people in online communities such as Facebook, Instagram, and others for healthy consumption. The goal is to develop a new knowledge and theoretical framework to enhance understanding of concepts, behaviours, problems, and issues related to value co-creation for healthy consumption. To minimize the risk of respondents guessing the underlying theory behind the survey, the questionnaire was strategically divided into two parts. The first part contained questions related to the independent variables, while the second part focused on questions about the dependent variables. This separation was intended to reduce potential biases by preventing respondents from making direct connections between the types of questions asked and the objectives of the study. We invited 900 random users from those platforms to participate in our online Google questionnaire, with a response rate of 21 %. After removing the outliers and incomplete responses, the final sample contains 184 valid responses.

According to Table 1, the survey responses are mainly from individuals in five regions (Canada 17.9 %, Malaysia 25.7 %, Taiwan 39.7 %, UK 11.2 %, and the USA 5.6 %). 36.1 % and 62.8 % of responses come from female and male respondents. Over half of the responses are from individuals aged less than 30. Table 2 contains the dependent and independent variables and the mediator and moderator items. All the item factor loadings exceed the 0.5 threshold demonstrating that all the constructs show well-defined structures.

**Table 1**  
Demographic background.

| Demographics       |                   | Sample N=184 |
|--------------------|-------------------|--------------|
| Gender             | Female            | 36.1 %       |
|                    | Male              | 62.8 %       |
|                    | Prefer not to say | 1.1 %        |
| Age                | ≤30               | 56.3 %       |
|                    | 31—40             | 38.8 %       |
|                    | 41—50             | 4.9 %        |
| Level of education | College           | 27.2 %       |
|                    | Graduate          | 50 %         |
|                    | High school       | 5.4 %        |
| Region             | PhD               | 17.4 %       |
|                    | Canada            | 17.9 %       |
|                    | Malaysia          | 25.7 %       |
| Social member      | Taiwan            | 39.7 %       |
|                    | UK                | 11.2 %       |
|                    | USA               | 5.6 %        |
|                    | Active member     | 87.4 %       |
|                    | Inactive member   | 12.6 %       |

*Value co-creation to enhance healthy consumption.* The measurement items for value co-creation to enhance health consumption are sourced from Tajvidi et al. (2018) and Wang et al. (2019). This construct is measured by a 5-point Likert scale ranging from 1 for “strongly disagree”

to 5 for “strongly agree”.

*Social media communication.* The measurement items for social media communication are bought from Hajli (2019). The measurement items include constructs regarding social media content, positive valence and negative valence. This construct is measured by a 5-point Likert scale ranging from 1 for “strongly disagree” to 5 for “strongly agree”.

*Relationship quality.* The relationship quality contains measurement items for relationship commitment and satisfaction sourced from Wang et al. (2019) and Lin et al. (2019). The relationship quality construct is measured by a 5-point Likert scale ranging from 1 for “strongly disagree” to 5 for “strongly agree”.

*COVID-19 impact.* By referring related previous literature(e.g., Grantham et al., 2021; Lee et al., 2020; Van den Broucke, 2020), we have created three questions to measure the impact of COVID-19 on eating habits, social media usage and healthy consumption. This construct is measured by a 5-point Likert scale ranging from 1 for “strongly disagree” to 5 for “strongly agree”.

*Control variables.* In analysing the factors that influence value co-creation in online communities for healthy consumption, we recognize the importance of incorporating control variables that may affect the outcomes. For this study, we initially controlled for the age, gender, and country of the respondents due to their potential to influence engagement in healthy consumption discussions. The age distribution and level

**Table 2**  
Constructs and items with factor loadings.

| Construct   | Measurement  | Factor loading                      |        |
|---|--|-------------------------------------|--------|
| <b>Social media communication</b>                       |  |                                     |        |
| <i>Hajli (2019)</i>                                     |  |                                     |        |
| Social media content                                    | the quality of the posts they have.  | 0.822                               |        |
|   | the variety of the posts available to see and read.  | 0.730                               |        |
|   | the user-friendliness content.   | 0.696                               |        |
| Positive valence  | the quality of posts, communication and comments.  | 0.822                               |        |
|   | I recommend my favourite online community (such as Instagram, Facebook, etc.) to others.   | 0.642                               |        |
|   | I have spoken favourably of my favourite online community to others.   | 0.751                               |        |
|   | I speak of my favourite online community’s good sides to others.   | 0.703                               |        |
| Negative valence  | I strongly recommend people to watch the videos and read the information about healthy consumptions from my favourite online community.                          | 0.686                               |        |
|   | I mostly say negative things to others on my favourite online community.   | 0.840                               |        |
|   | I have spoken unflatteringly of people who post content about healthy consumptions to others on my favourite online community.                                   | 0.840                               |        |
| <b>Relationship quality</b>                             |  |                                     |        |
| Relationship commitment                                 |  |                                     |        |
| <i>Wang, Tajvidi, Lin and Hajli (2019)</i>              |  |                                     |        |
| Satisfaction  | I have an emotional attachment to my favourite online community (such as Instagram, Facebook, etc.).   | 0.801                               |        |
|   | I feel a sense of belonging to my favourite online community.  | 0.738                               |        |
|   | I feel a strong connection from my favourite online community.   | 0.655                               |        |
| <i>Lin, Wang, and Hajli (2019)</i>                      | I feel a part of the group in my favourite online community.   | 0.701                               |        |
|   | I feel satisfied with my overall experiences with my favourite online community (such as Instagram, Facebook, etc.).   | 0.648                               |        |
|   | I feel pleased about my overall experiences with my favourite online community.  | 0.718                               |        |
|   | I feel content about my overall experiences with my favourite online community.  | 0.637                               |        |
| <b>Value Co-Creation to Enhance Healthy Consumption</b> | I feel delighted with my overall experiences with my favourite online community.   | 0.747                               |        |
|   | I often share healthy consumption posts (such as my healthy foods or news) from my favourite online community (such as Instagram, Facebook, etc.) on my own page | 0.791                               |        |
|   | I often recommend my favourite page with healthy consumption posts to my contacts in my favourite online community.  | 0.780                               |        |
| <i>Wang, Tajvidi, Lin and Hajli (2019)</i>              | I frequently upload healthy consumption posts, videos, audios, pictures, or images from my favourite page on my own page.  | 0.828                               |        |
|   | I often join events organized through my favourite online community.   | 0.748                               |        |
|   | I often share my own healthy consumption on my favourite healthy consumption page.   | 0.844                               |        |
| <b>COVID-19 impact</b>                                  | The current situation with COVID-19 influenced my diet and eating habits.  | 0.767                               |        |
|   | The current situation with COVID-19 influenced my social media usage, and I read more about healthy consumption.   | 0.743                               |        |
|   | The current situation with COVID-19 influenced my activities in social media.  | 0.781                               |        |
| Common method variance                                  |  |                                     |        |
| component   | Initial Eigenvalues  | Extraction Sums of Squared Loadings |        |
|   | Total  |                                     | Total  |
|   | % of Variance  | % of Variance                       |        |
|   | Cumulative %   | Cumulative %                        |        |
| 1   | 9.969  | 38.342                              | 38.342 |
| 2   | 1.471  | 5.658                               | 43.999 |
| 3   | 1.318  | 5.070                               | 49.070 |
| 4   | 1.153  | 4.434                               | 53.503 |
| 5   | 1.032  | 3.968                               | 57.472 |

Note. Recommended cumulative variance should be less than 50%.

of education are particularly relevant to interact differently with social media compared to older groups (Holt et al., 2013). Gender distribution also plays a crucial role in influencing value co-creation behaviours (Holt et al., 2013). Moreover, the geographic diversity of our sample, primarily from five different regions, introduces varying cultural perspectives on health, which could impact value co-creation behaviours (Bhatti et al., 2021).

**Common method variance (CMV) analysis.** CMV was tested using the Harman one-factor test (Podsakoff et al., 2003). The Harman one-factor test demonstrates that the first component variance is 38.342 % below the 50 % threshold (Podsakoff et al., 2003). Therefore, the CMV is not a concern for this study.

The descriptive statistics of the variables and correlation matrix are presented in Table 3.

**4. Results**

**4.1. Structural equation modelling**

To test the model fit, we employed SPSS 28 and AMOS 27 to estimate the SEM model and the model constructs (dependent, independent, moderators, mediators, and control variables). We ran a confirmatory factor analysis (CFA). The model fit for the CFA is: CMIN=268.865 (CMIN/DF=1.251),  $p < 0.007$ , CFI=.966, RMSEA=.037, PCLOSE=.945 > 0.05, 95 % CI (0.020, 0.050). According to Hu and Bentler (1998) and Kline (2015), the CFA model rejects the exact but maintains the close fit. Moreover, the maximum likelihood estimation of the final model is CMIN=32.468 (CMIN/DF=3.247),  $p < 0.001$ , CFI=.982, RMSEA=.111, PCLOSE=.01 < 0.05, 95 % CI (0.070, 0.154). Based on Kline (2015), these statistics demonstrate that the final model shows a good model fit. (1) CMIN/DF between 2 and 5, showing appropriate model fit; (2) RMSEA value is over 0.08 showing the close-fit of the model is rejected; (3) 95 % confident intervals (CI) of RMSEA range between 0.070 and 0.154 so that the highest value exceeds 0.1 showing poor-fit model is accepted.

**4.2. Construct reliability, validity, and item factor loading**

Based on Table 2, all item factor loadings range from 0.637 to 0.844. At the same time, the CR (between 0.706 and 0.898) and AVE (0.505 and 0.638) are over the threshold of 0.7 and 0.5. The square roots of the AVE value of each construct are higher than the correlation values with other constructs. According to Hu and Bentler (1998), this CR and convergent validity are satisfied.

Table 4 shows that social media communication is positively and significantly related to relationship quality ( $\beta = 0.695, p < 0.001$ ), which supports H1. Relationship quality is positively and significantly related to value co-creation to enhance healthy consumption ( $\beta = 0.269, p < 0.001$ ), supporting H2. Relationship quality mediates the relationship between social media communication and value co-creation to enhance healthy consumption ( $\beta = 0.256, p < 0.01$ ), supporting H3. Moreover, H4 is supported because the COVID-19 impact positively moderates the relationship between relationship quality and value co-creation ( $\beta = 0.084, p < 0.01$ ). The higher the COVID-19 impact, the stronger the relationship between relationship quality and value co-creation to enhance healthy consumption. The conceptual framework with SEM results is presented in Fig. 2.

**4.3. Robustness check**

To ensure the robustness of our findings, a series of alternative model tests were conducted by modifying the social media communication and the mediator within the model. First, in Model A, social media communication is replaced by social media content, and the fit indices were suboptimal compared to the original model: CMIN=31.786 (CMIN/DF=7.532),  $p < 0.001$ , CFI=.952, RMSEA=.118, PCLOSE=.007

**Table 3** Composite Reliabilities (CR), average variance extracted (AVE), correlation matrix, and descriptive statistics of measures.

|                            | 1        | 2       | 3        | 4        | 5       | 6        | 7       | 8       | 9        | 10      | 11       | 12       | 13       | 14       | 15    |
|----------------------------|----------|---------|----------|----------|---------|----------|---------|---------|----------|---------|----------|----------|----------|----------|-------|
| 1. Social media content    | 1        |         |          |          |         |          |         |         |          |         |          |          |          |          |       |
| 2. Positive valence        | 0.604**  | 1       |          |          |         |          |         |         |          |         |          |          |          |          |       |
| 3. Negative valence        | 0.582**  | 0.426** | 1        |          |         |          |         |         |          |         |          |          |          |          |       |
| 4. Relationship commitment | 0.623**  | 0.665** | 0.461**  | 1        |         |          |         |         |          |         |          |          |          |          |       |
| 5. Satisfaction            | 0.547**  | 0.689** | 0.369**  | 0.652**  | 1       |          |         |         |          |         |          |          |          |          |       |
| 6. Value Co-Creation       | 0.665**  | 0.773** | 0.611**  | 0.678**  | 0.607** | 1        |         |         |          |         |          |          |          |          |       |
| 7. COVID-19 impact         | 0.592**  | 0.553** | 0.381**  | 0.538**  | 0.436** | 0.650**  | 1       |         |          |         |          |          |          |          |       |
| 8. Age                     | 0.017    | 0.005   | -0.079   | -0.020   | -0.022  | -0.144   | 0.014   | 1       |          |         |          |          |          |          |       |
| 9. Gender                  | 0.054    | 0.065   | 0.202**  | 0.031    | 0.077   | 0.081    | 0.055   | -0.184* | 1        |         |          |          |          |          |       |
| 10. Level of Education     | 0.010    | 0.135   | -0.124   | 0.095    | 0.105   | -0.028   | 0.081   | 0.501** | 0.185*   | 1       |          |          |          |          |       |
| 11. Canada                 | 0.177*   | 0.167*  | 0.348**  | 0.100    | 0.187*  | 0.221**  | 0.091   | -0.156* | 0.035    | -0.070  | 1        |          |          |          |       |
| 12. USA                    | -0.002   | 0.046   | 0.106    | 0.005    | 0.093   | 0.093    | 0.005   | -0.104  | 0.250**  | 0.035   | -0.122   | 1        |          |          |       |
| 13. Taiwan                 | 0.070    | -0.052  | -0.270** | 0.096    | -0.098  | -0.062   | 0.050   | 0.350** | -0.205** | 0.253** | -0.367** | -0.211** | 1        |          |       |
| 14. UK                     | 0.081    | 0.071   | 0.195**  | 0.039    | 0.069   | 0.095    | 0.131   | -0.077  | -0.051   | -0.113  | -0.161*  | -0.093   | -0.154*  | 1        |       |
| 15. Malaysia               | -0.273** | -0.162* | -0.180*  | -0.202** | -0.174* | -0.211** | -0.156* | -0.165* | -0.031   | -0.184* | -0.267** | -0.154*  | -0.461** | -0.203** | 1     |
| CR                         | 0.852    | 0.790   | 0.706    | 0.835    | 0.744   | 0.808    | 0.808   | N/A     | N/A      | N/A     | N/A      | N/A      | N/A      | N/A      | N/A   |
| AVE                        | 0.592    | 0.485   | 0.827    | 0.505    | 0.493   | 0.638    | 0.583   | N/A     | N/A      | N/A     | N/A      | N/A      | N/A      | N/A      | N/A   |
| √AVE                       | 0.769    | 0.696   | 0.909    | 0.711    | 0.702   | 0.799    | 0.764   | N/A     | N/A      | N/A     | N/A      | N/A      | N/A      | N/A      | N/A   |
| Mean                       | 3.934    | 4.029   | 3.500    | 3.968    | 4.047   | 3.851    | 4.020   | 1.490   | 0.660    | 2.130   | 0.170    | 0.070    | 0.390    | 0.110    | 0.250 |
| SD                         | 0.664    | 0.562   | 1.037    | 0.624    | 0.524   | 0.809    | 0.685   | 0.592   | 0.540    | 1.005   | 0.381    | 0.248    | 0.489    | 0.313    | 0.435 |

Note. \*  $p < 0.05$ ; \*\*  $p < 0.01$ .

**Table 4**  
SEM results.

| Variable relations  | Hypothesis | Estimate (SE)       |
|---|------------|---------------------|
| <b>Control variables</b>  |            |                     |
| Age → Value Co-Creation   |            | −0.139**<br>(0.60)  |
| Gender → Value Co-Creation  |            | −0.073 (0.62)       |
| Level of Education → Value Co-Creation                                |            | 0.006 (0.031)       |
| Canada → Value Co-Creation  |            | 0.039 (0.336)       |
| USA → Value Co-Creation   |            | 0.069 (0.349)       |
| Taiwan → Value Co-Creation  |            | 0.042 (0.330)       |
| UK → Value Co-Creation  |            | −0.006<br>(0.342)   |
| Malaysia → Value Co-Creation  |            | 0.013 (0.330)       |
| <b>Part A: Direct effect</b>  |            |                     |
| Social Media Communication → Relationship Quality                     | H1         | 0.695***<br>(0.046) |
| Social Media Communication → Value Co-Creation                        |            | 0.488***<br>(0.086) |
| Relationship Quality → Value Co-Creation                              | H2         | 0.268***<br>(0.085) |
| <b>Part B: Indirect effect</b>  |            |                     |
| Social Media Communication → Relationship quality → Value Co-Creation | H3         | 0.258**<br>(0.088)  |
| <b>Part C: Moderated effect</b>                                       |            |                     |
| COVID-19 impact → Value Co-Creation                                   |            | 0.266***<br>(0.066) |
| Relationship Quality × COVID-19 impact → Value Co-Creation            | H4         | 0.085†<br>(0.057)   |

Note. †  $p < 0.1$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ , SE=standard error of estimate.

< 0.05, 95 % CI (0.075, 0.163). Model B, treating positive valence as the model-independent variable, showed a negative improvement in fit: CMIN=23.572 (CMIN/DF=7.669),  $p < 0.005$ , CFI=.92, RMSEA=.097, PCLOSE=.055 > 0.05, 95 % CI (0.048, 0.141). Model C, incorporating negative valence, demonstrated notably poorer performance in model fit: CMIN=65.412 (CMIN/DF=7.268),  $p < 0.001$ , CFI=.947, RMSEA=.185, PCLOSE=.055 > 0.05, 95 % CI (0.144, 0.228). Additionally, we replaced the original mediator with alternative constructs (i.e., relationship commitment and satisfaction, from Table 2). When relationship commitment was used as the mediator in Model D, the model fit was less satisfactory than the original, indicated: Model D: CMIN=77.547 (CMIN/DF=8.616),  $p < 0.001$ , CFI=.943, RMSEA=.204, PCLOSE<.001, 95 % CI (0.164, 0.247). Similarly, using satisfaction as the mediator in Model E also worsened the model fit: CMIN=68.969 (CMIN/DF=7.663),  $p < 0.001$ , CFI=.949, RMSEA=.191, PCLOSE<.001, 95 % CI (0.150, 0.234). Based on these robustness checks, the original model was confirmed to provide a superior fit to the data compared to all tested variations, thereby strengthening the validity of our original findings and emphasizing the specific role and type of social media content and the chosen mediators in influencing the studied outcomes.

### 5. Discussion

Our results show that social media communication positively relates to relationship quality. Consumers' online information and knowledge-sharing behaviour positively influence their relationship towards their social network community (Lin et al., 2019). Our findings confirm previous researchers who suggested that consumers tend to maintain their social network relationships (Garbarino and Johnson, 1999) as well as feel satisfied from their online interactions with them (Gustavson et al., 2005), as long as they tend to post valuable social commerce content providing not only information but emotional value too (Liang et al., 2011). Our research expanded however the current literature by exploring a specific industry sector, the healthy industry. Thus, the results show that relationship quality positively relates to healthy consumption value co-creation. Users' online dialogue and exchanging ideas, experiences, knowledge, and information about healthy consumption using social media platforms create value through interaction. Our findings confirm previous studies which found that people who have good relationships with their social media network and believe they can acquire not only important information but emotional support too, they tend to disseminate information and post comments as well as previous experiences about healthy consumption informing their peers and therefore influencing consumer behaviour through value co-creation (Aral et al., 2013). Our findings inform the current literature of the role of the relationship quality. It highlights the mediating role of relationship quality between social media communication and value co-creation to enhance healthy consumption.

Further, the moderating effect of COVID-19 between relationship quality and value co-creation has been confirmed. This is in line with previous findings (Taherinina et al., 2021) which suggested that COVID-19 has impacted businesses value co-creation cycle. Our research expanded, however the current body of literature by exploring the impact of COVID-19 on people's eating habits. It has been found that COVID-19 has prompted people to share posts and comments about healthy habits, healthier diets, and healthy consumption to minimize the risk of obesity and potentially decrease the COVID-19 impact (Grantham et al., 2021). The results show that people tend to disseminate information about a balanced diet through social media platforms when the impact of COVID-19 is apparent, building more supportive virtual communities and increasing the bond with their networks by providing valuable information and emotional support.

#### 5.1. Theoretical implications

The digital revolution has created new communication, knowledge, and information-sharing methods. The emergence of social media has opened new horizons in the world of social communication and networking (Hajli, 2019). People share with and receive information from friends, family, and their online social circle. These interactions expand into consumption, consumer behaviour, and e-commerce

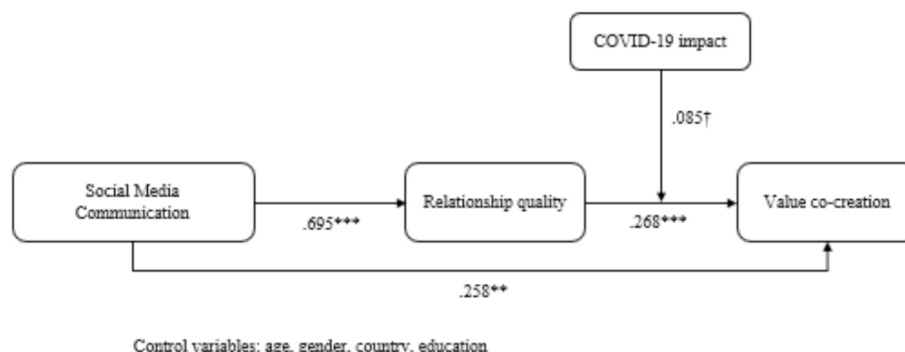


Fig. 2. Conceptual framework with SEM results.

experiences, including posting different types of content: positive and negative valenced. Consequently, e-commerce has taken a new shape and form. Social commerce includes consumer-to-consumer and consumer-to-brand online communication about products, services, and brands (Ng, 2013). The importance of social media platforms resides in the fact that they can shape people's opinions, behaviours, and, ultimately, their decision-making process (Hajli, 2019). The proposed model contributes to the existing body of knowledge by investigating the social media communication and value co-creation research streams.

First, this research applied the Stimuli-Organism-Response (SOR) model to explore the above relationships. Previous researchers have used the SOR model (Mehrabian and Russell, 1980) on consumer behaviour to investigate how external environmental stimuli (S) can impact customers' internal state (O), influencing in turn consumers' behaviour (R) (e.g., Han et al., 2022; Kwon and Boger, 2021; Lin et al., 2022). Limited research has, however, applied the SOR model for the exploration of the mechanisms of the external stimulus, social media communication (S) and how it can affect consumer's healthy consumption value co-creation as a response (R) by influencing consumers' internal state, and specifically their perception of online communication experience (relationship quality) (O). Therefore, this research proposes a model to examine the relationship among social media communication, relationship quality and value co-creation considering the impact of the mediating effect of COVID-19 in the relationship between relationship quality and value co-creation (see Fig. 2).

Second, this research explored the linkage of these two theories in relation to a specific retail industry, namely healthy consumption. Thus, it advances our understanding of the two theories applying them in a specific sector and examining their interrelationship.

Third, the underlying mechanism and moderating effect of relationship quality have enhanced our understanding of the under-investigation theories. It provides a more holistic overview by investigating the mediating factors and their impact complementing previous research. It also sheds light on the dynamics of these interactions in a specific retail industry contributing to the existing literature.

Lastly, having considered the impact of external environmental factors such as COVID-19, we provide a more structured, and comprehensive framework contributing to the body of knowledge by identifying another important factor. Previous researchers (Roberts et al., 2014) have explored value co-creation through the use of social media channels and how people's motivations can affect it, however the identification of external factors that can impact these relationships has been under-examined. Our research advances the examination of value co-creation by incorporating internal and external elements emphasizing its complex nature. Moreover, the research has used a wide-representative sample from different countries offering a cross-cultural viewpoint and a more granular insight into the under-investigation topic. Thus, it responds to the call of previous researchers (Tajvidi et al., 2021), who highlighted the importance of conducting a follow up study with a more widespread sample.

## 5.2. Practical implications

This research also makes practical contributions. It explored how social media communication influences people's online social community links and relationships, which can impact value co-creation and, thus, people's purchasing intentions and behaviour about healthy consumption. The results of this study suggest the importance of social media communication and how the quality and variety of posts and comments people share on social media platforms can shape consumers' behaviour about healthier lifestyles. Considering the impact of positive valence as a component of social media communication, health food businesses need to consider their unique value proposition and how to stand out from competitors. They need to contemplate their consumers' satisfaction and ways to provide better products and services and superior consumer experiences throughout the consumer journey to

increase their profitability. When people feel satisfied with a product or service, when they have experienced a seamless, holistic end-to-end-buying process where they feel considered and their customer expectations have been fulfilled, they will post positive comments on their social media platforms, informing their peers, providing valuable knowledge, and ultimately shaping and informing their consumer decision-making process. Health food business owners and retailers need to consider ways to prompt their consumers' online presence and social media information-sharing behaviour, as this can lead to future customers.

## 5.3. Limitations and future research

Although this research makes significant theoretical and practical contributions, it is not without limitations. Online questionnaires have been distributed, achieving a very good response rate from a diverse pool of participants that helped successfully investigate the hypotheses and build the proposed model. Future researchers can explore the topic in more depth, investigating the underlying mechanisms of online media presence and their impact on consumer buying using qualitative methods such as interviewing consumers and analysing their online information-sharing intentions. Moreover, the type and strength of the relationship between the different measurements of each construct could be analysed separately. Social media communication differs (Smith et al., 2012); thus, we suggest involving more social media platforms be explored according to their unique characteristics. Additional factors and their impacts can be explored, such as brand advertising and its actual and perceived effectiveness on consumers' social media communication. Further research can also expand this model's application into different industries and investigate how consumers' decision-making processes can be shaped and informed, which underlying mechanisms impact them and whether other variables act as moderators.

Moreover, our sample consisted of 184 valid responses, primarily from Southeast Asia, while regions known for significant social media use, such as the United States, were notably underrepresented. This composition might limit the generalizability of our findings across different global internet user populations, which may exhibit distinct behaviours and preferences. Recognizing this, future research could aim to engage a more diverse and expansive participant pool. Efforts could be made to balance the geographic representation in the samples to enhance the external validity of the study. Also, we controlled for age, gender, country, and educational background to assess their impact on value co-creation in online communities focused on healthy consumption. These variables were chosen based on their relevance and the data available. While other potential variables like income and social media usage habits, which might affect value co-creation, were not collected, acknowledging this limitation points to areas for future research to strengthen the validity of similar studies.

## 6. Conclusion

Consumers use social media platforms to communicate their experiences and influence online social networks. Much research has been done on online consumer behaviour. However, this research investigated this phenomenon more deeply by exploring how online communication can influence healthy consumption value co-creation considering the effects of consumer relationship quality and COVID-19. This research expanded our horizons by examining how these variables interact and shape consumers' decision-making processes and behaviour. It has been found that social media communication influences people's relationship quality, leading to value co-creation of healthy consumption. People tend to post their experiences, opinions, and knowledge about healthy products and services on social media platforms, trying to inform their online social circle. Hence this influences people's relationship state. They feel more emotionally attached and



connected to their network as they acknowledge that people want to inform and support them. Value co-creation is the outcome of this interaction leading to consumer behaviour. It has also been suggested that COVID-19 has a mediating effect between relationship quality and value co-creation, as people tend to post relevant posts online to advise others, enhancing. As a result, the relationship quality and value co-creation of healthy consumption. The new theoretical model contributes to social media communication, value co-creation, and the SOR areas opening new research directions. Finally, this research provides essential practical knowledge targeting the health industry.

### CRedit authorship contribution statement

**Liang Zhao:** Conceptualization, Formal analysis, Supervision, Writing – original draft, Writing – review & editing. **Qilin Hu:** Conceptualization, Data curation, Methodology, Supervision, Writing – original draft, Writing – review & editing. **Peggy Alexopoulou:** Data curation, Investigation, Validation, Writing – original draft, Writing – review & editing. **Nick Hajli:** Conceptualization, Data curation, Methodology, Supervision, Writing – original draft, Writing – review & editing.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Data availability

Data will be made available on request.

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