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The impact of electronic customer relationship management strategies on customer loyalty: A mediated model

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ABSTRACT

This study investigated the impact of electronic customer relationship management (e-CRM) strategies (functional and personal dimensions) on customer loyalty in the Jordanian telecommunication sector. The mediating role of perceived customer relationship quality (cognitive and an emotional dimensions) was tested in this relationship. Data was collected via online survey from 301 Jordanian online shoppers and analysed using structural equation modelling (AMOS). The results showed a significant and positive impact of the functional dimension on customer loyalty, while the personal dimension negatively affected it. However, the functional and personal dimensions had a positive effect of on perceived customer relationship (CR) quality, as it positively affected customer loyalty. Hence, CR quality is indirectly impacted the relationship between the functional dimension and customer loyalty; in other words, CR quality mediated the relationship between the personal dimension and customer loyalty. The study's findings enhance the current understanding of the relationship between e-CRM strategies and customer loyalty in a context specific bounded to Jordan. In addition, it provides evidence of the mediating role of CR quality in the Jordanian telecommunication sector. This research suggests practical strategies for the Jordanian telecommunication industry to enhance customer loyalty.

1. Introduction

Most businesses are familiar with customer loyalty, e-CRM strategies, and their crucial role in business strategies aimed at achieving profits and sustainability (Al-Okaily and Al-Okaily et al., 2022; Al-Bashayreh et al., 2022). Customer loyalty is reflected in various behaviours, such as the number of purchases, the length of time spent on a website, and the number of website visits. Previous research has shown that website quality and the seller's reputation positively impact the quality of online relationships, affecting online customer loyalty (Rabiul et al., 2023; Kousheshi et al., 2019). Menon (2018) aims to clarify the quality of electronic services by considering various aspects of electronic service quality performance, especially those that contribute to

customer loyalty to the organisation. The study focuses on how the quality of e-services is related to the quality of e-relationships with customers, which has been shown to precede customer loyalty, achieved through high-level e-services (Al-Okaily, 2023a).

Accordingly, the novelty of this study lies in addressing the integration between the functional and personal dimensions of e-CRM strategies and their impact on customer loyalty in the Jordanian telecommunication sector by considering the mediating effect of perceived customer relationship quality. In fact, e-CRM strategies and customer loyalty guarantee technological benefits and help businesses maintain long-term relationships with customers.

Various relationships between e-CRM dimensions and the quality of the customer relationship have been examined in the literature, showing

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that e-CRM positively impacts customer loyalty. Numerous studies (Aljawarneh et al., 2022; Al-Okaily, 2021; Gremler et al., 2020; Ho and Lee, 2015; Kousheshi et al., 2019; Zhang et al., 2016; Lam et al., 2013) have investigated whether online relationship quality positively affects customers' loyalty.

Moreover, Pandey and Chawla (2018) identify e-negative beliefs, e-self-inefficiency, e-logistic ease, e-convenience, e-enjoyment, and informativeness as determinants of the online customer experience, influencing customer loyalty either directly or indirectly through satisfaction with the interaction. The study confirms that the impact of these dimensions on satisfaction and loyalty varies across contexts. Roy et al. (2014) have developed an experimental model to examine the relationship between various dimensions of the electronic service (information, system, and service quality) responsible for the success of an information system (a retail website, in this case). They find that website quality, adherence to the website, loyalty to the website, word of mouth (WOM), and perceived website quality positively impact the intentions to maintain relationships with an e-retail website. Srinivasan et al. (2002) focus on the consequences of customer loyalty in an online business-to-consumer context (B2C), suggesting that eight factors affect electronic loyalty (customisation, contact, interactivity, care, community, convenience, cultivation, choice, and character). Their results confirm that electronic loyalty impacts two customer-related outcomes—promotion through WOM and the desire to pay more for a service.

Ho and Lee (2007) find evidence of the direct influence of perceived website quality on online consumers' patronage intentions. Hughes et al. (2019) contend that customer loyalty in e-commerce contributes to long-term profitability. The study focuses on how business-related factors such as credibility, e-satisfaction, website knowledge, and factors related to customer innovation, aggressiveness, and inertia all affect e-commerce loyalty. It shows that by correctly identifying manageable businesses and controllable customer factors that drive loyalty, e-commerce retailers may appropriately adjust their marketing strategies.

In Jordan, the market for telecommunications services was estimated to be worth \$1.2 billion in 2022. During the forecast period, 2022–2027, the market is anticipated to expand at a compound annual growth rate (CAGR) of 6.4%. The country's telecom sector will be driven by the commercial debut of 5 G services in 2023, which will encourage the adoption of 5 G plans and investments in the extension and modernization of 4 G networks by all major operators (Global Data, 2023).

The significance of telecommunications and information technology to Jordan's total economy has been acknowledged, and the growth of these areas has received significant attention. The fixed telecommunications industry in Jordan has been liberalized recently, while the mobile communications market has grown significantly. The general population has benefited greatly from this development, not just in terms of the accessibility and cost of services but also in terms of the breadth of options available to subscribers. The TRC's role in this expansion, as well as its continuous role going forward, has been and will remain focused on fostering and sustaining an environment that stimulates ongoing investment, supports competition, and offers significant benefits to the customers (Ai Ping and Al-Okaily, 2023a; Aws et al., 2021; Al-Okaily et al., 2021).

Al-Weshah et al. (2019) indicated that the telecommunications industry has made significant strides, particularly in the areas of regulation and legislation, fundamental infrastructure, new services, and service quality improvement at more affordable pricing. The most significant facilitators for implementing e-business in the Jordanian telecommunications sector are hence improving customer services, competitive pressures, and governmental incentives.

Telecommunication companies in Jordan should concentrate on e-CRM strategies to sustain relationships with customers and generate profits in the long run while enhancing technology, a critical dimension for Internet service providers (Al-Kofahi et al., 2023; Al-Okaily, 2023b). Therefore, improving the current understanding of e-CRM strategies is crucial to uncovering their effects on businesses. Thus, this study tries to

fill the research gap in the Jordanian context by examining the impact of various functionality dimensions (information quality on the website, ease of navigation, website aesthetics, and channels integration) and personal dimensions (perceived rewards that customers receive when using the website, personalisation, and interpersonal communication) on Jordanian telecommunications customers' trust and commitment. In doing so, we also investigate the impact of perceived trust (a cognitive relationship) and commitment (an emotional relationship) on loyalty among Jordanian telecommunications customers.

The importance of this study is a result of the fact that there have been several previous studies within the context of e-CRM application in Jordan in different industries, such as food industry (Al-Weshah, 2019; Kakeesh et al., 2021), banks (Awwad and Al-Adaileh, 2012; Al-Okaily, 2022; Ai Ping et al., 2023b; Al-Dmour et al., 2019), hospitals (Alshurideh, 2022) and telecommunication (Wahab et al., 2010; Al-Weshah et al., 2019). Thus, it became evident that there is a gap in the literature as a result of the absence of studies that dealt with the concept of e-CRM and customer loyalty with the mediating effect of perceived customer relationship quality in Jordan, despite the presence of a number of studies that dealt with the e-CRM, therefore, this study contributes to fill the literary gap.

2. Theoretical background and hypotheses development

2.1. Theoretical background

The current begins with a brief review of the literature regarding the effect of e-CRM strategies, both functional and personal on loyalty of Jordanian telecommunications customers. Taken into consideration the mediating role of perceived customer relationship quality (cognitive and an emotional dimensions) was assessed in this relationship.

The performance of Jordanian telecommunication firms was significantly impacted by CRMS dimensions, according to Al-Weshah et al. (2019). Additionally, the success of Jordanian telecommunication firms is significantly impacted by each CRMs factor (system quality, information quality, system usage, and user satisfaction). Employees who use CRMS and work closely with customers were surveyed.

Al-Weshah (2019) investigated CRM methods in Jordanian food sector small enterprises from the views of executives. The study concludes that CRM is only used in a few practices and that the idea is still very new in the industry. CRM is anticipated to have the following advantages: profit maximization, market share, brand equity, and favourable word-of-mouth. Social media and phone calls are two typical CRM methods in the food business. Kakeesh et al. (2021) revealed that telemarketing and social media are the most popular e-CRM tactics used by food organizations in Jordan. The most often used metrics for gauging customer loyalty are sales frequency and sales figures. The most important E-CRM strategies that food firms use to increase client loyalty are resolving complaints, post-sale services, customer follow-up, and relationship maintenance. According to the study, food firms do not have well-established customer loyalty policies; yet, implementing e-CRM policies is crucial for maintaining consumer loyalty.

A recent study by Al-Dmour et al. (2019) studied the effects of the following (e CRM) aspects (process fit, customer information quality and system support) on customer satisfaction, customer trust and customer retention, which, in turn, affect the financial performance of Jordanian commercial banks in Amman.

In addition, Alshurideh (2022) found in earlier research that (e-CRM) improved service quality. The purpose of the study was to determine how (CRM) impacts the quality of service in Jordan's private hospitals. While the elements of service quality include reliability, responsiveness, assurance, and empathy, the dimensions of e-CRM were represented by website design, website search, privacy, security, and on-time service delivery. Inpatients in Jordanian private hospitals served as the source of the data. While Al Nawas et al. (2021) by surveying Jordanian online shoppers examined how hedonic

(e-retailer's escapism and social presence) and utilitarian (e-retailer's transaction convenience and informativeness) shopping values differ in their effects on the "cognitive" and "emotional" relationship quality factors, as well as how the latter differs in its effects on word-of-mouth and brand evangelism.

In order to determine the factors that influence CRM performance in Jordan Mobile Phone Services, Wahab et al. (2010) investigated the ease of use, usability, enjoyment, e-service quality. This study demonstrated that e-service quality and ease of use are the antecedent characteristics that significantly influence CRM performance.

Awwad and Al-Adaileh (2012) looked at what variables Jordanian Commercial Banks (JCBs) used to determine their CRM procedures. From the perspective of this study, these characteristics (interactive management, customer prospecting, customer surveys, customer responsiveness, and partnerships) were thought to be the most crucial deciding factors for CRM's practices.

Lam et al. (2013) examine the relationship between E-CRM and loyalty, identifying four independent variables associated with E-CRM dimensions, namely, direct mail, interpersonal communication, preferential treatment, and tangible rewards, which play essential roles in building customer relationships.

The research has looked at several correlations between e-CRM characteristics and the quality of the customer relationship and found that e-CRM has a positive impact on customer loyalty. Numerous research have looked at whether the quality of an online relationship influences a company's ability to retain customers (Gremier et al., 2020; Ho and Lee, 2015; Kousheshi et al., 2019; Zhang et al., 2016; Lam et al., 2013).

2.2. Hypotheses development

2.2.1. Functionality dimension

This dimension comprises information quality, ease of navigation, website aesthetics, and channel integration. Information quality reflects the relevance, adequacy, consistency, and understanding of information because consumer decision-making becomes more efficient and effective when the information available on a website is understandable, clear, and up to date (Ab Hamid et al., 2011). Information quality also refers to the exactness, timeliness, publish ability, and accuracy (reliability) of the information (Kousheshi et al., 2019). Chen and Dibb (2010) contend that the most critical dimensions associated with the quality of a website are usability, security and privacy assurance, and product information quality. They confirm that confidence in the website positively impacts consumer behaviours and attitudes. Many studies have investigated the information quality associated with website attributes (Chen and Dibb, 2010; Elliott and Speck, 2005; Janda et al., 2002; Kim and Lennon, 2008; Page and Lepkowska-White, 2002; Park and Kim, 2003), assessing the degree to which information is up to date, sufficient, easy to understand, consistent, and accurate. Chen and Dibb (2010) examine the degree to which a website offers detailed information about a company (e.g., physical location, full contact information, history, and mission), delivery and other costs, return and refund policy, frequently asked questions, and customer endorsements.

Information quality has a significant impact on the quality of online relationships (Chen and Dibb, 2010; Hsu et al., 2016; Kousheshi, Wu and Hsu et al., 2019, 2015). Previous research (Liu et al., 2008) has shown that information quality is crucial for customers' satisfaction with their online shopping experiences at the information search stage. This phenomenon has also been explored by Liu et al. (2008), showing that higher information quality improves customer satisfaction with online shopping. Trainor et al. (2011) show that information technology may be integrated into marketing practices to gain customers and strengthen and maintain customer relationships depending on the material, human, and marketing capabilities available to organisations.

Ease of navigation refers to a good organisation (format) to plan content, ease of use, and mobility to quickly access the required

information with the least possible effort (Ab Hamid et al., 2011). Chen et al. (2007) focus on the benefits and ease of use of websites, which affect the degree of satisfaction with the online experience and the extent to which customers are willing to repeat it. Other studies (Liu et al., 2008; Wei, 2013) argue that good website design lies in a good organisation, so that the website is uncluttered, easy to navigate, and easy to search.

Website aesthetics pertain to the general look and feel of the interface (e.g., the use of colours, graphics, images, background patterns, and screen layouts) and the general organisation of the content (Chen and Dibb, 2010). Theodosiou et al. (2019) clarifies the concept and measurement of electronic service quality, proposing various factors (security/privacy, fulfilment/reliability, website design, customer service, informativeness, and customisation.) that influence customers' quality perceptions.

Channel integration implies that integrating virtual and physical processes is critical to ensure continuous relationships with consumers on both channels. Consumers want to treat companies as single entities, constantly experiencing the same level of service across all distribution channels (Ab Hamid et al., 2011). Grabovica and Turulja (2018) identify the crucial dimensions of E-CRM as customer satisfaction with a bank's website, personalisation of services, trust in the bank, integration of online and physical services, and the impact on innovativeness from a customer perspective. Based on the literature and the background discussed so far, we propose the following hypotheses:

H1. : The functionality dimension has a direct effect on customer loyalty.

H2. : The functionality dimension has a positive impact on perceived customer relationship quality.

2.2.2. Personal dimensions

This dimension comprises perceived rewards, preferential treatment personalisation, and interpersonal communication. Perceived rewards imply that consumers may collect points when they make a purchase or visit a website through reward programmes that offer gifts, coupons, or cash discounts. The programme may also provide membership privileges for returning consumers (Ab Hamid et al., 2011; Devon and Kent, 2005). Personalisation reflects the organisation's superior treatment of regular customers, distinguishing them from casual buyers (Lam et al., 2013). Internet technologies facilitate the use of customer data, allowing companies to implement CRM principles. Unique products can also be offered based on customer profiles. By doing so, companies may enhance customer retention, showing that they care for them and treat them better (Chaston and Mangles, 2003; Hennig-Thurau and Klee, 1997; Lam et al., 2013). The degree to which a customer perceives that a service provider's responses online are tailored to their unique preferences and communication behaviours and consider their individual needs depends on the personalisation of the online content (Boateng and Narteh, 2016; Chellappa and Sin, 2005). This perception affects the relationship with customers by increasing loyalty (Blasco-Arcas et al., 2014).

Along the same lines, Grabovica and Turulja (2018) identify customer satisfaction with a bank's website, the level of personalisation of services, trust in the bank, integration of online and physical services, and the impact on innovativeness from a customer perspective as crucial dimensions of electronic CR management.

Interpersonal communication is one of the essential components of CRM. Interaction is critical on the Internet and provides individuals with an active role through social media. In addition, the Internet can help individuals gather information and knowledge about products, improving the search for information (Bezjian-Avery et al., 1998; Lam et al., 2013).

Chen et al. (2007) focus on customer interactions, addressing media richness from the human-computer perspective. They examine the role of interaction, computer-mediated communication fields, and perceived interactivity in marketing. Rad et al. (2015) show that management

information systems have generated a significant change in business processes, and E-CRM has emerged in conjunction with the development of traditional customers. The study focuses on organisations seeking marketing opportunities, improving communication and interaction with customers, and creating customer data storage options, showing that E-CRM provides a competitive advantage for companies.

Thaichon and Quach (2015) examine how to improve the quality of customer relationships and retention through marketing communications. They argue that enhanced marketing communications affect customer satisfaction and confidence and thus the organisation's success in retaining customers. Furthermore, marketing contacts have direct and indirect implications for the brand and brand loyalty. Several studies suggest that regular personalised emails, among other personalised online communication strategies, allow a firm to improve its relationship with its customers by enhancing customer satisfaction, suggesting that loyalty improves the relationship between firms and their customers (Al-Okaily et al., 2020; Al-Okaily and Al-Okaily, 2022; Alomari, 2020; Al-Qudah et al., 2022; Bashedi et al., 2023; Hatamleh et al., 2023a, 2023b; Blasco-Arcas et al., 2014; Johnson et al., 2008).

Marolt et al. (2018) investigate how social CRM may enhance the performance of organisations through effective customer communication and customer information management. They show that large organisations focus on this type of relationship, while small and medium-sized enterprises have different characteristics. The study applies the quantitative approach by conducting a standard set of interviews to determine the antecedents of the intensity of social CRM and their dimensions and impact on performance. Based on the literature and the background discussed so far, we propose the following hypotheses:

H3. : The personal dimension has a direct effect on customer loyalty.

H4. : The personal dimension has a positive impact on perceived customer relationship quality.

2.2.3. Perceived customer relationship quality dimension

Osobajo and Moore (2017) focus on the relationship between companies and individuals, addressing the different types of relationships between businesses and organisations, such as business-to-business (B2B), B2C, and customer-to-business (C2B). As mentioned above, Menon (2018) clarifies the quality of electronic services by using the performance and quality of the electronic services used by customers, especially those that contribute to customer loyalty to the organisation. The study focuses on how the quality of electronic service relates to the quality of electronic relationships, affecting customer experiences and, ultimately, customer loyalty achieved through high-level electronic services. While Al Nawas et al. (2021) investigated how hedonic and utilitarian shopping values differ in their effects on "cognitive and emotional" relationship quality factors, as well as how the latter differs in its effects on brand evangelism and word-of-mouth.

Finally, Kousheshi et al. (2019) suggest a model to predict the consequences of the relationship quality in the sale of physical goods online. The results show that the website quality and the seller's reputation positively impact the quality of the online relationship, affecting the electronic word of mouth (E-WOM), online customer share, online customer loyalty, and online customer reviews. The present study investigates the perceived relationship quality through cognitive relationship (perceived trust) and emotional relationship (commitment).

Perceived trust implies that risk characterises most online transactions; hence, trust and confidence in the organisation are crucial for customers' decision-making. The organization can, in return, protect its website by providing digital certificates, a secure server, and using a third-party trusting agency (Ab Hamid et al., 2011; Devon and Kent, 2005). Salo et al. (2008) have described the online context as a mental state in which consumers are vulnerable, especially when conducting an electronic transaction. Consumers may feel apprehensive or hesitant about purchasing something they cannot see or touch; hence, trust is key

to overcoming such worries when shopping online (Kousheshi et al., 2019). Hsu et al. (2016) define trust as the willingness of consumers to provide their personal and financial information to the website in return for the products, in line with established policies and procedures. The willingness of a customer to trust their exchange partner depends on the conviction that their partner is honest, reliable, and only participates in activities that produce the best possible results (Chellappa and Sin, 2005). Chen and Chou (2012) emphasise that trust presupposes the existence of a relationship between two parties and the expectation of one party regarding the behaviour of the other in this relationship. Due to insufficient knowledge (information asymmetry) and the impersonal character of the online environment, trust is a necessary antecedent of e-commerce. The exchange of realisable information, mainly through direct contact, is how trust is usually earned.

Mangus et al. (2020) examine the personal aspects of the relationship between sellers and buyers. They analyse the interaction between businesses and personal confidence in the performance of the relationship by addressing customer satisfaction and loyalty. They show that personal trust has a positive direct effect on performance in the relationship. Johnson and Grayson (2005) focus on the relative impact of the service provider's experience, product performance, company reputation, satisfaction, and effect similarity on the customer's perception of trust in the service provider.

It has been shown that the cognitive and emotional dimensions of trust can be distinguished by experience. A significant relationship exists between trust and a company's sales effectiveness. Several studies (Auh, 2005; Mukherjee and Nath, 2007) suggest that trust acts as a mediator between relational aspects like interaction quality and communication and various relationship outcomes, including customer loyalty and behavioural intentions, in the online domain. The absence of trust in the online medium may result in customers being reluctant to participate in online exchanges, hampering the organisation's achievement of desired outcomes (Eastlick et al., 2006; Tarhini et al., 2015). Previous research (Boateng and Narteh, 2016) suggests that trust in the Internet may mediate this relationship.

Commitment is defined as an enduring desire to maintain a valued relationship. It refers to an implicit or explicit pledge of the continuity of a relationship between exchange partners. As Scanzoni (1979) stated, 'commitment is the most advanced phase of partners' interdependence'. In marketing practice and research, mutual commitment among business partners benefits companies. Commitment is a reliable indicator of long-term relationships and the highest level of relational bonding. Commitment is vital to studying relationships because it signals enduring stability at the conceptual level and serves as a reliable surrogate measure for long-term relationships at the operational and empirical levels (Alrubaiee and Al-Nazer, 2010).

Hsieh and Wei (2017) have developed a model to assess how recreating value in online brand communities may improve the brand relationship between an organisation and its consumer. They show that brand commitment is positively associated with brand loyalty. Previous studies (Boateng and Narteh, 2016; Crosby et al., 1990; Dorsch et al., 1998; Dwyer et al., 1987; Fullerton, 2005; Hewett et al., 2002; Kousheshi et al., 2019; Lam et al., 2013; McIntyre, 2004; Morgan and Hunt, 1994) emphasise that relationship quality may describe business relationships, typically conceptualised as an overarching construct of commitment. Based on the literature and the background discussed so far, we propose the following hypotheses:

H5. : The perceived customer relationship quality directly affects customer loyalty.

H6. : The perceived customer relationship quality mediates the relationship between functionality dimensions and customer loyalty.

H7. : The perceived customer relationship quality mediates the relationship between personal dimensions and customer loyalty.

2.2.4. Customer loyalty

Most definitions of customer loyalty focus on affection and degree of commitment towards a product, service, brand, or organisation (Oliver, 1999), reflecting customers repurchase intentions (Edvardsson et al., 2000). Loyalty is, therefore, a reflection of the customer’s emotional, psychological, and unconscious need to obtain a consistent source of value and satisfaction (Jenkinson, 1995). One of the most common behaviours for loyal customers is the continuation of the relationship, the increased scale or scope of the relationship and recommendations (Hallowell, 1996), favourable WOM, and the repurchase of the company’s products (Dwyer et al., 1987; Fornell, 1992). Loyalty is an essential factor for a company to maintain its success (Flavian et al., 2006; Keating et al., 2003).

Our study contends that use behaviour is a crucial element of customer loyalty. Many authors (Dwyer et al., 1987; Edvardsson et al., 2000; Fornell, 1992; Hallowell, 1996; Jenkinson, 1995; Lam et al., 2013; Oliver, 1999; Bell et al., 2005) recognise that customer loyalty reflects the customers’ affection and commitment to a product and their intention to repurchase. For example, Cyr et al. (2007) define online loyalty as a customer’s sustained psychological sense of belonging to an online service provider. (Fig. 1).

3. Research methodology

3.1. Sample and data collection

To achieve the main purpose, this study employed the quantitative research approach with an online survey to gather data from 301 Jordanian online shoppers. Data were gathered using a web-based survey created using Google Forms (Rose et al., 2012). Online shoppers from Jordan served as the research’s sample frame. Respondents received the surveys via various ways such as email and social media platforms. To

test the validity of the measurement tools, the questionnaire was first tested by 25 experts from academia and the telecommunication sector. Then, the final form of the questionnaire was launched and tested for four months. We used non-probability (purposive) sampling because the population framework did not exist.

We rated the answers using a five-point Likert scale. We reached 301 respondents from Jordan by the end of the data gathering period, 29.5% male, 70.5% female, 42% less than 30 years old, 31% between 31% and 40%, and 28% 41 or older. Regarding social status, 41.8% were single, 53% were married, 1.6% were divorced, and 3.6% were separated. Concerning their educational level, 7.9% of respondents attended high school or less, 4.6% had a diploma, 52.5% had a bachelor’s degree, and 35% had a postgraduate degree. Regarding social media usage, Facebook was the most frequently used social media, with an average of 250 repeats, followed by Instagram at a repeat rate of 202, YouTube at a frequency of 187 repeats, LinkedIn is with a repeat rate of 57, and finally WhatsApp at a repeat rate of 54, all used separately or in conjunction with other social media. According to Duration of Social Media Consumption Daily, 37% of participants featured less than two hours of media consumption, 18% between two and four hours, 42% between five and nine hours, and 3% more than 10 h.

Zain Telecommunication company exhibited the largest number of subscribers, 64%, followed by Orange with 23%, then Umniah company with 6%, and 7% of participants subscribed to more than one telecommunication company. Concerning the duration of the relationship with a telecommunication company, 10% of participants declared less than one year, 17% between one and three years, 19% between four and six years, and 54% more than six years.

3.2. Research instrument

This study measures the proposed four constructs using previously

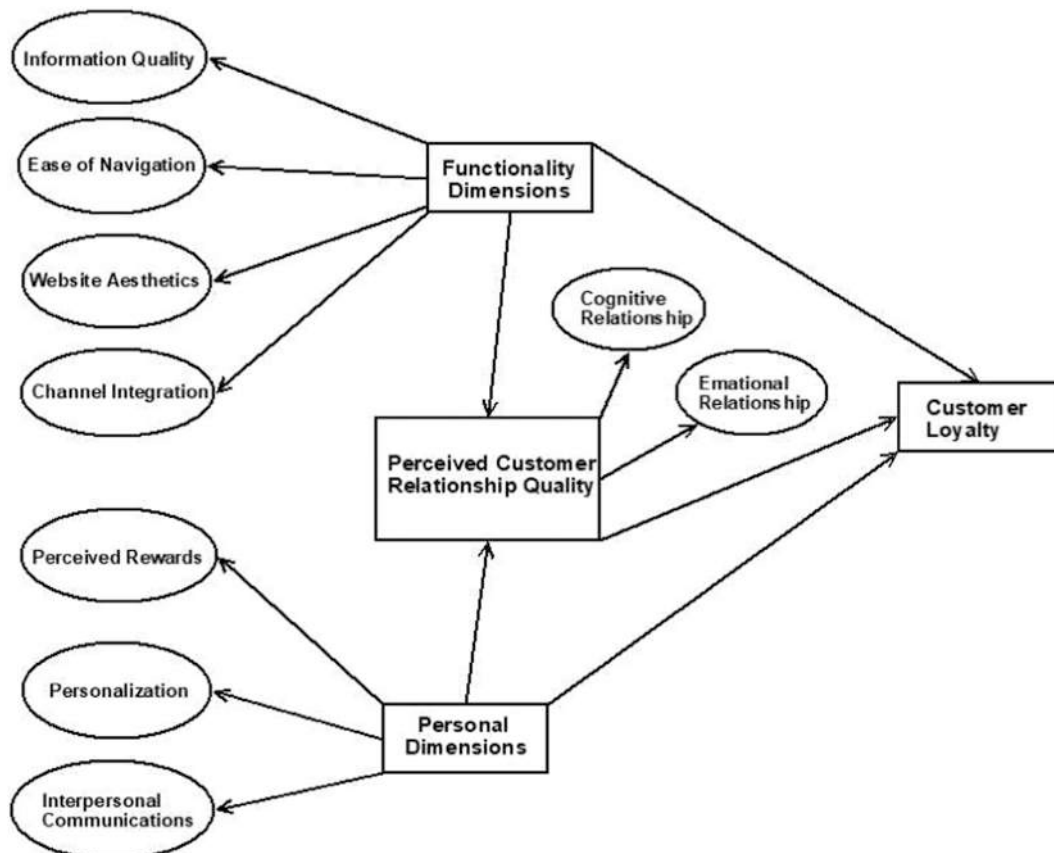


Fig. 1. Research Model.

validated scales. We assess the functionality dimension with four items adapted from [Chen and Dibb \(2010\)](#), [Xia Liu \(2008\)](#), [Pandey and Chawla \(2018\)](#), and [Ab Hamid et al. \(2011\)](#). The personal dimension is assessed using three items from [Devon and Kent \(2005\)](#), [Theodosiou et al. \(2019\)](#), and [Boateng and Narteh \(2016\)](#). We measure perceived (CR) quality with two items (cognitive relationship: perceived trust; emotional relationship: commitment) adapted from [Devon and Kent \(2005\)](#) and [Kousheshi et al. \(2019\)](#). Finally, we adopt customer loyalty from [Roy et al. \(2014\)](#) and [Hughes et al. \(2019\)](#). We evaluate these items using a Likert scale ranging from '1' (strongly disagree) to '5' (strongly agree) adapted from [Hodge and Gillespie \(2003\)](#).

4. Data analysis and results

We also verify the composite reliability of all constructs. [Table 1](#) indicates that the values of composite reliability, ranging from 0.894 to 0.928, are above the recommended value of 0.60 ([Bagozzi and Yi, 1988](#)). The average variance extracted (AVE) values for each construct exceed 0.50, indicating convergent validity. In addition, discriminant validity is supported as the values of square roots of the AVE are greater than the off-diagonal measures in the correlation table ([Fornell and Larcker, 1981](#)). Finally, we calculate Cronbach's alpha measures to test for reliability, and each exceeds 0.7, indicating reliability ([Nunnally and Bernstein, 1978](#)). Overall, these results confirm the reliability of the proposed measures and approach.

[Table 2](#) reports the discriminant validity and descriptive statistics of the variables used for analysis.

4.1. Hypothesis testing

The standardised estimates of the structural model indicate a satisfactory model fit (CMIN/DF = 2.94, CFI = 0.972, RMSEA = 0.079, IFI=.973; GFI=.947; SRMR=0.0407) These indices are acceptable according to the literature ([Chau, 1997](#); [Hu and Bentler, 1999](#)). [Figure \(2\)](#) and [Table 3](#) show that the path coefficient from functionality and customer loyalty ($\beta = .236, t = 2.588$) is significant and positive ($P < 0.01$), supporting H1. However, the results do not support H2, namely, that the personal dimension significantly affects customer loyalty ($\beta = 0.08, t = 1.029, P > 0.05$). In contrast, the results support H3 and H4, namely, that the functionality and personal dimensions positively affect the perceived CR quality ($\beta = 0.236, t = 2.588, P < 0.01$, and $\beta = 0.339, t = 4.357, P < 0.01$). Finally, the data analysis results support H5, which predicts the impacts of perceived CR quality on customer loyalty ($\beta = .461, t = 6.738, P < 0.01$). The two perceived CR quality determinants (the functionality and personal dimensions) explain 35.2% of the variance in perceived CR quality. In addition, the analysis indicates that 44.7% of the variance in customer loyalty is explained by functionality, personal, and perceived CR quality.

With regards to model fit, all model fit indicators (as displayed in [Table 4](#)) resulting from CFA indicate that the data fit the proposed model very well and meet the conventional threshold requirements for good model fit presented by [Hair et al. \(2017\)](#).

4.2. Mediation results

To test the mediating effect of perceived CR quality in the relationships between functionality and the personal dimension and customer loyalty, we follow [Preacher and Hayes \(2008\)](#) and use the bootstrapping technique to determine the mediating variable's effect in the structural model. We perform a bootstrap of 2000 observations with 95% bias-corrected confidence intervals. The results confirm the indirect effect of perceived CR quality ($b = 0.109, p > 0.05$) in the relationship between functionality and customer loyalty; hence, H6 is rejected. In contrast, the perceived CR quality ($b = 0.184, p < 0.05$) mediates the relationship between the personal dimension and customer loyalty; hence, H7 is supported.

Table 1
The result of confirmatory factor analysis.

Items	Factor Loading	CR	AVE	Cronbach's α			
IQ1	0.789	0.863	0.513	0.861			
IQ2	0.691						
IQ3	0.769						
IQ4	0.699						
IQ5	0.652						
IQ6	0.699						
EN1	0.768	0.874	0.501	0.871			
EN2	0.695						
EN3	0.749						
EN4	0.655						
EN5	0.549						
EN6	0.709						
EN7	0.801	0.872	0.536	0.860			
WA1	0.818						
WA2	0.798						
WA3	0.777						
WA4	0.793						
WA5	0.657						
WA6	0.511	0.872	0.578	0.859			
PR1	0.766						
PR2	0.853						
PR3	0.773						
PR4	0.778						
PR5	0.686						
Items	Factor Loading	CR	AVE	Cronbach's α			
PR1	0.795	0.905	0.656	0.901			
PR2	0.838						
PR3	0.857						
PR4	0.832						
PR5	0.724						
P1	0.779				0.921	0.593	0.920
P2	0.786						
P3	0.767						
P4	0.756						
P5	0.789						
P6	0.824						
P7	0.696	0.858	0.503	0.860			
P8	0.763						
IC1	0.790						
IC2	0.704						
IC3	0.607						
IC4	0.688						
IC5	0.746	0.874	0.507	0.856			
IC6	0.709						
Items	Factor Loading				CR	AVE	Cronbach's α
IC1	0.533				0.884	0.656	0.882
IC3	0.726						
IC4	0.765						
IC5	0.718						
IC6	0.727						
IC7	0.781						
PR1	0.793	0.876	0.601	0.846			
PR2	0.861						
PR3	0.826						
PR4	0.755						
Items	Factor Loading				CR	AVE	Cronbach's α
IC1	0.715				0.876	0.601	0.846
IC2	0.733						
IC3	0.818						
IC4	0.725						
IC5	0.759						

5. Research discussion

We estimate structural models with AMOS 22.0 using the maximum likelihood method to test the proposed research hypotheses. [Figure 2](#) depicts the results of path analysis statistic calculation.

Firstly, [Chen and Dibb \(2010\)](#) show that the quality of information has a significant and positive impact on confidence and confirm that perceived confidence in the website depends on the quality of product information in terms of texts and drawings. The information must be sufficient, easy, understandable, consistent, and accurate. Our study also

Table 2
Discriminant Validity.

	Mean	SD	1	2	3	4	5	6	7	8	9	10
Information Quality	3.76	.693	0.716									
Ease of Navigation	3.68	.705	.705 **	0.707								
Web site Aesthetics	3.68	.714	.649 **	.701 **	0.732							
Channel Integration	3.63	.725	.576 **	.629 **	.616 **	0.760						
Perceived Rewards	3.33	.900	.476 **	.537 **	.458 **	.578 **	0.810					
Personalization	3.33	.876	.542 **	.591 **	.541 **	.570 **	.791 **	0.770				
Interpersonal Communication	3.42	.847	.561 **	.586 **	.519 **	.534 **	.744 **	.757 **	0.709			
Cognitive Relationship	3.58	.756	.337 **	.403 **	.361 **	.446 **	.487 **	.454 **	.489 **	0.712		
Emotional Relationship	3.60	.915	.316 **	.417 **	.281 **	.381 **	.454 **	.388 **	.408 **	.693 **	0.810	
Customer Loyalty	3.61	.812	.454 **	.444 **	.398 **	.414 **	.450	.457 **	.464 **	.440 **	.576 **	0.775

The square-root of the average variance extracted (AVE) is printed in bold on the diagonal.

•Sig< .05; *Sig< .0

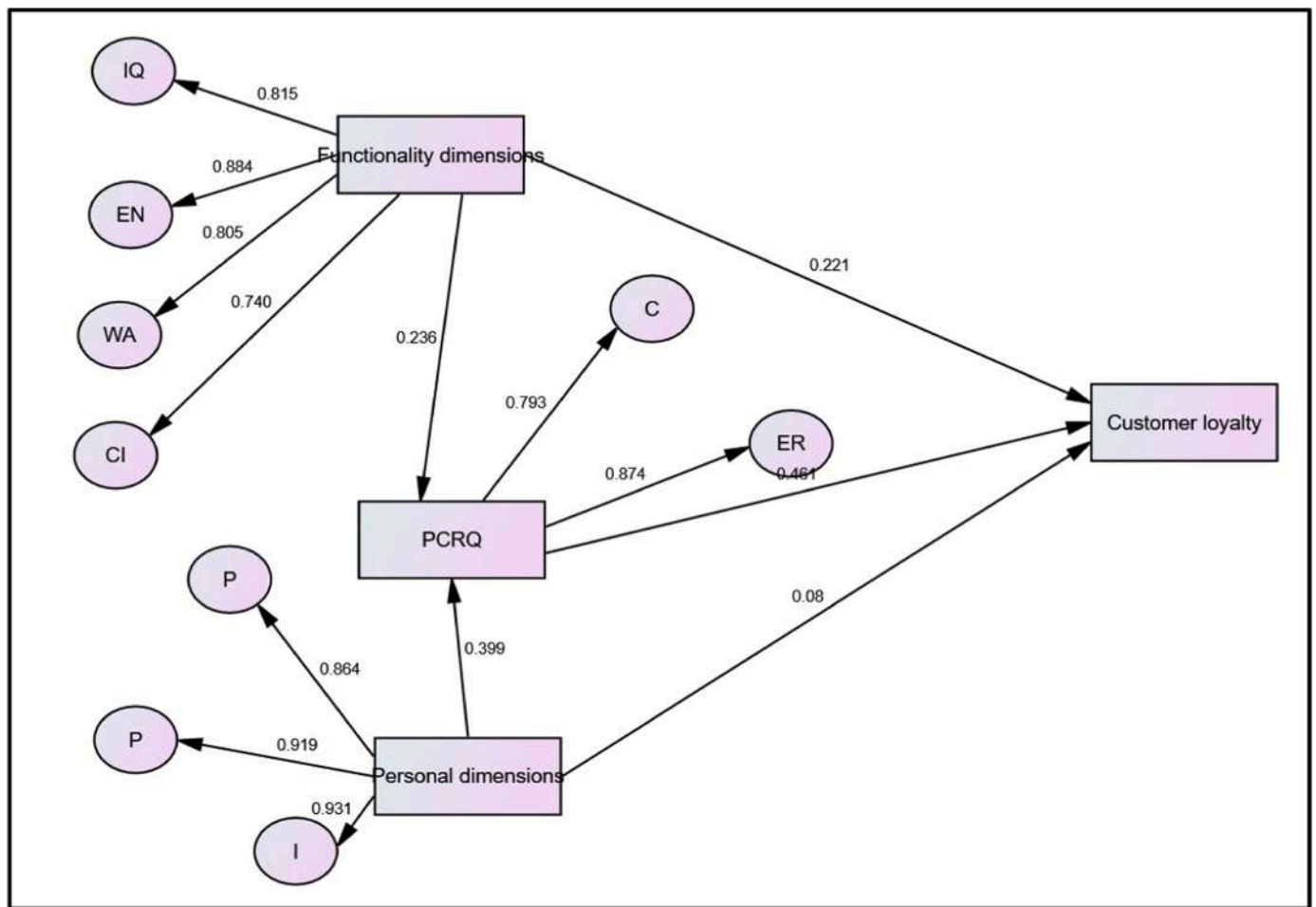


Fig. 2. Result of Hypotheses Testing.

confirms the positive impact of information quality on trust. According to [Pandey and Chawla \(2018\)](#), the ease of using a website impacts customer satisfaction and loyalty more in females than males. Our study confirms a positive relationship between ease of navigation and customer loyalty.

Moreover, [Chen and Dibb \(2010\)](#) contend that the interface of the website in terms of download speed, quality of service information, and the look of the website (such as background, colours, and images used, among others) fail to show significant relationships with confidence, which seems less important than the dimensions of usability and ensuring security, privacy, and quality of product information in enhancing consumer confidence in online purchase. This result

contradicts the results of our study, which confirm the relationship between website site aesthetics and trust.

According to [Ab Hamid et al. \(2011\)](#) address marketing communication channels and their integration among hotel customers, showing that in the case of online customers, especially those using Facebook, which reflects the intention to review the available information, the integration of marketing communications positively impacts the service reviews and intention to buy. Similarly, our study demonstrates the positive effect of channel integration on customer loyalty creation and CR quality.

[Hughes et al. \(2019\)](#) show the positive impact of customisation on customer perceptions and its reflection on the quality of electronic

Table 3
Path analysis for the constructs of the study.

Relation		Coefficients	CR	Support/ nonsupport	
path	Perceived CR Quality	Functionality	0.236	2.588	0.01
	Perceived CR Quality	Personal	0.399	4.357	***
	Information quality	Functionality	0.815		
	Ease of Navigation	Functionality	0.884	17.607	***
	Web site Aesthetics	Functionality	0.805	15.651	***
	Channel Integration	Functionality	0.740	13.982	***
	Perceived Rewards	Personal	0.864		
	Personalization	Personal	0.919	19.547	***
	Interpersonal Communication	Personal	0.931	20.114	***
	Cognitive Relationship	Perceived CR Quality	0.793		
	Emotional Relationship	Perceived CR Quality	0.874	12.606	***
	Customer Loyalty	Perceived CR Quality	0.461	6.738	***
	Customer Loyalty	Functionality	0.221	2.855	0.004
	Customer Loyalty	Personal	0.08	1.029	0.303
Explained variance proportion R ² of Perceived CR Quality					.352
Explained variance proportion R ² of Customer Loyalty					.447

Notes: * $p < 0.05$; ** $p < 0.01$

Table 4
Model Fit Indicators.

Model fit indicator	Recommended values	Estimated values
GFI	Above 0.90	0.922
CFI	Above 0.90	0.935
TLI	Above 0.90	0.919
RMSEA	Less than 0.08	0.040
RMSE	Less than 0.08	0.032

services, creating loyalty. This result aligns with our study, which proposes personalisation as one of the key dimensions affecting customer loyalty in the presence of high CR quality, while the direct relationship between them is negative and not significant. [Boateng and Narteh \(2016\)](#) address the effect of interactions with customers on emotional commitment, finding no significant relationship. Their results also confirm the absence of a mediation effect of the trust factor in the relationship between the communication process and commitment. Our study partly supports this finding, showing the significant impact of interpersonal communication on customer loyalty in the presence of the mediating effect of CR quality, while the direct relationship between them is negative and not significant.

[Johnson and Grayson \(2005\)](#) provide moderate evidence that the perception of trust has cognitive and emotional dimensions. Although the two dimensions are highly interlinked, they may be empirically distinguished, as the service provider's experience and product performance are antecedents of cognitive confidence but not the emotional dimension. Sales effectiveness is the result of cognitive confidence but not emotional confidence. The study also indicated that satisfaction with previous interactions contributes to cognitive confidence rather than emotional confidence, meaning that customer satisfaction in the financial services industry is primarily based on the basic aspects of service delivery. Unlike some previous studies on marketing confidence, the study supports the relationship between trust (cognitive) and sales effectiveness, which creates customer loyalty, suggesting that

multidimensional division may help explore the administrative benefits of trust. This view is supported by the result of our study, which documents a positive impact of trust and commitment on customer loyalty.

[Kousheshi et al. \(2019\)](#) indicate that a website's system quality, information quality, and service quality positively impact the quality of online relationships. Their results also show that customer satisfaction with their transactions on a website, together with confidence and commitment, are achieved through customers' evaluation of the website quality. This study also supports the importance of increasing customer confidence in the organisation's website, commitment, and customer satisfaction with the relationship with the website. These elements lead customers to spread spontaneous (free) advertisements and maintain their relationship with and loyalty to the website in the long term. Our study supports these findings, showing a positive impact of trust and commitment on customer loyalty.

[Roy et al. \(2014\)](#) show that customer loyalty is not only achieved through the website. The customer's stability and loyalty imply a buyback behaviour. [Swaminathan et al. \(2018\)](#) argue that there is an increasing and urgent need to achieve customer loyalty to face competition, particularly in e-commerce, as recognised by researchers, administrators, and business managers ([Al-Fraihat et al., 2022](#); [Al-Okaily et al., 2022](#); [Abd Rahman et al., 2020](#)). Loyalty is essential for organisations to gain a differential advantage, and this goal is achieved by pursuing innovation in products, pricing, and private services. Hence, institutions devote substantial resources to this goal to reap greater benefits ([Alqudah et al., 2022](#); [Alsmadi et al., 2022](#)). Similarly, our study shows that trust in and commitment to an organisation generates customer loyalty.

Understanding e-CRM allows for knowledge of other consumer behavior because it measures consumer trust, and loyalty ([Utomo et al., 2021](#)). According to [Li et al. \(2023\)](#) concluded that sustainable CRM is a relatively new idea that guarantees long-term customer retention, increasing any company's profitability and equipping it to outperform competitors. Therefore, creating a durable CRM is crucial for every business, but especially for those who offer online purchasing services. By addressing uncomfortable issues and producing fresh consumer needs, wants, and demands, sustainable CRM strengthens customer connections. CRM emphasizes both the marginal utility that customers obtain and customer incentives, awards, etc. In the highly competitive environment of today, organizations need this knowledge to survive. Therefore, in addition to efficiency and effectiveness, adapting information systems to their demands offers the foundation for businesses' success. ([Purnomowati et al., 2022](#)) concluded that long-term, loyal customers will generate a more lucrative business since they are willing to pay a higher price and will refer other potential customers to the business. Additionally, happy consumers will result in business success since they encourage repeat purchases and spread good word of mouth.

By increasing information availability and lowering transaction costs, the digital world has altered how consumers and businesses interact. A happy customer is a crucial component of a business' success in today's digital and dynamic market. Businesses need to be consumer-focused in the current (digital) environment if they hope to compete in the marketplace. Building long-term customer relationships is now more important than ever before for the longevity of a business, even if customer relationship management has been a tradition in business for decades. Today, e-CRM is growing in popularity as it enhances and expands customer communication by utilizing cutting-edge technologies. E-CRM enables businesses to improve performance and make the most of each client engagement ([Angeloska-Dichovska and Angeleski, 2020](#)). Lastly, the study of [Farmania et al. \(2021\)](#) concluded that e-loyalty is positively impacted by e-CRM value. The four most important aspects, out of the 10 used to measure the value of e-CRM, were interactivity, convenience, customization, and choice.

6. Contributions, limitations and future research directions

6.1. Theoretical contributions

Numerous insights are offered by the study in terms of theoretical implications. The study investigates the role of E-CRM strategies in telecommunication sector in a developing country (Aljawarneh and Al-Omari, 2018; Wahab et al., 2010; Al-Weshah et al., 2019). According to Harrigan and Miles (2014), this study has aided in the exploration of the subject in small and medium-sized enterprises (SMEs). The integration of new technologies with marketing, and the impact of these strategies on customer loyalty. E-CRM strategies are crucial to achieving profits and business sustainability. This is the first study to examine the integration between the mentioned dimensions of E-CRM strategies and their impact on customer loyalty in the Jordanian telecommunication sector and to examine these dimensions altogether. E-CRM strategies and customer loyalty have become essential due to their increasing technological benefits, and efficient E-CRM is vital to maintaining long-term relationships with customers. This is the first study to show that telecommunication companies in Jordan concentrate on E-CRM strategies to sustain relationships with customers and increase profits in the long run, focusing on new technology as they are generally considered Internet service providers.

6.2. Managerial contributions

This study offers several practical suggestions for applying E-CRM techniques in Jordanian telecommunication companies to increase client loyalty. telecommunication companies must first invest in E-CRM skills to boost customer profitability and overall business success to increase customer loyalty. Additionally, a good E-CRM system must be created to increase customer profitability, loyalty. Improving functionality dimensions such as information quality, ease of navigation, website aesthetics, and channel integration is critical for lowering uncertainty and increasing confidence in online shopping, ultimately raising customer loyalty. The personal dimension, which includes perceived rewards, personalisation, and interpersonal communication, has no direct impact on customer loyalty. As CR quality mediates the relationship between the personal dimension and customer loyalty, organisations should enhance perceived trust and commitment. Both functional and personal dimensions have a positive impact on perceived relationship quality. CR quality positively affects customer loyalty and has an indirect impact on the relationship between the functionality dimension and customer loyalty. In addition, CR quality mediates the relationship between the personal dimension and customer quality; hence, e-retailers should increase awareness of the types of experiences that appeal to their customers.

6.3. Limitations and future research directions

Despite its contributions, this study has some limitations that should be addressed by future research. First, we only focus on the Jordanian telecommunication sector. Future studies may extend the analysis to the Middle East and address more than one sector, achieving more representative results. Other developing and developed countries may be addressed, highlighting different dimensions of eCRM and their impact on customer loyalty, and considering the role of other moderating variables.

Ethical Approval

We confirm that the manuscript follows compliance with ethical standards; authors confirm that the study does not need any approval from any ethics committee.

Ethical Statement /Approval

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Consent to participate

“Not applicable,” manuscript does not report on or involve the use of any animal or human data or tissue.

Consent to publish

“Not applicable,” manuscript does not contain data from any individual person.

Competing interests

On behalf of all authors, the corresponding author states that there is no conflict of interest.

CRedit authorship contribution statement

All authors contributed to the study conception. Literature review preparation, data collection and analysis were performed by Sima Magatef, Manaf Al-Okaily and Laila Ashour. The first draft of the manuscript was written by Manaf Al-Okaily, Sima Magatef, Tala Abuhusseini and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Declaration of Competing Interest

The author 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

Authors confirm that all relevant data are included in this manuscript, and all sources are well cited.

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