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Social Commerce Acceptance after Post COVID-19 Pandemic in Saudi Women Customers: A Multi-Group Analysis of Customer Age

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Abstract: The COVID-19 pandemic has formed a new reality for customers around the world. In response to this situation, users of digital technologies are facing the necessity to adopt and use specific technologies almost overnight. This research aims to examine the determinants of social (s)-commerce acceptance in Saudi female customers in a post-pandemic era. Utilizing the unified theory of acceptance and use of technology (UTUAT2) and social commerce constructs as a theoretical framework under the circumstances of the COVID-19 pandemic, we examine the antecedents of purchase intention and s-commerce use behavior of Saudi female customers. Moreover, using individual differences in the literature, we test the moderating role of customer age on their purchase intention and use behavior. Data were obtained from 475 Saudi women customers. Our results indicate that performance expectancy, facilitating conditions, price value, and habit are significantly predicting customer purchase intention. Furthermore, social commerce constructs are important to improve customer trust, which in turn influences purchase intention. The results also show that the effects of facilitating conditions, price value, and habit vary on purchase intention and use behavior because of the customer age profiles. Finally, this paper represents important insights for researchers, service providers, marketers, and policymakers.

Keywords: UTUAT2; social commerce constructs; customer age; post-COVID-19 pandemic; Saudi Arabia

1. Introduction

Throughout history, pandemics have altered societies, changed world paradigms, and affected personal relationships [1,2]. The recent pandemic has seriously affected the way we live. One of the unexpected changes brought about by the pandemic is the increased use of various digital technologies, such as Internet-based shopping [3]. This research focuses on how customers' online purchasing intentions are influenced by the pandemic and how these behavioral aspects are determined by different customer segments. The prior studies on the effect of the COVID-19 pandemic have focused on behavior related to preventative measures to protect the health of the customers; however, less attention has been paid to the influence of the pandemic on customer purchase intention. To bridge this important gap UTUAT2 framework and social commerce constructs have been employed to examine the changes in customers' purchase intention and use of s-commerce. To be less vulnerable to becoming brutally ill with the virus, people choose touchless digital mediums for purchasing goods and services. For example, [4] asserted that the pandemic had changed customers' purchasing behaviors. Thus, the use of social media has gained critical importance, especially after the pandemic [4], and companies may find new opportunities to gain a competitive advantage through their use of effective social media strategies. Social commerce relates to the emergence of web 2.0 technology that has revolutionized electronic

commerce activities like interactive mechanisms for users' interactions [5,6]. The Web 1.0 technology was not properly supporting the fast development of e-commerce as there were phenomenal ups and downs in the field. Especially, the dot.com bubble burst down turned the trend of such technologies and recommended a solution to understand the consumers' behavior [7]. Electronic commerce (like Alibaba) and social commerce (like Facebook) are different in that e-commerce entails conversation among groups and communities, while social commerce emphasizes one-to-one communication where individuals interact and gain some value [8]. Social commerce has been indispensably embedded into societal economic and commercial lives. Social media (Facebook, Twitter, LinkedIn) has changed the landscape of commerce and revolutionized the commercial activities that are laden with technological and mutual-interactive perspectives. The interactive nature of Web 2 technologies has expanded the customers' choices of selecting products using referrals from friends and peers [5]. Social commerce helps buyers to purchase what they want using social interactivity. Social commerce simply integrates social media and electronic commerce websites, thereby buying and selling with social networking sites. Social commerce has been proved to be a good opportunity for online retailers [9].

Social commerce provides a platform where consumers do have access to the information and suggestions of previous users and this mechanism help consumers to buy the right products benefiting from the social support [10]. The social commerce constructs (SCCs) like online referrals and recommendations, users' reviews, and online forums are the social resources that extend support to non-experienced customers. Such ratings and discussions create good environments and help relationships [11,12]. This is viewed as a rational way of using social platforms for buying goods and services. The views of other users might be encouraging and useful as good experiences of any service generate a recommendation for that product [13]. Social commerce is truly a significant player in buying and selling via SCCs as such constructs give consumers a good chance of social interactions and it extends to other users [10].

There is sparse literature highlighting the acceptance of social commerce, especially using a rich theoretical basis [10,14]. To enrich the theoretical implications of the social commerce usage behavior, the unified theory of acceptance and use of technology (UTAUT2) is advocated to be more accommodative and parsimonious that can better predict the acceptance of technology for social commerce [15]. It's a fact social commerce represents a solid tool for business organizations and consumers that has been largely supported by getting the attention of scholars in the development of different areas of social commerce. From the analysis of literature, it seems that the majority of studies have focused their efforts on examining the determinants of intention with limited attempts to consider social commerce adoption behavior [16]. Moreover, very few studies attempted to establish a sound model establishing UTAUT coupled with social commerce constructs. UTAUT2 model is more appropriate in the context of individual users and their acceptance of technology for getting online services. Previous studies found that the UTAUT2 model has more explanatory power in predicting usage behavior. Justifying the UTAUT2 model, the previous studies investigated the determinants of digital banking proliferation [17], adoption of mobile learning [18,19], online banking [20], m-banking [21], and electronic commerce [22], which articulated various technological and behavioral features with social commerce.

Therefore, this study selects the UTAUT2 theory as a theoretical framework to examine the acceptance of social commerce in the context of Saudi Arabia. Following the recommendations of [15] that new studies should take UTAUT2 in various geographical contexts using new technologies and user groups. The study also enriches the UTAT2 model coupling with social commerce constructs, as was suggested by [15], to increase the predictability of the model. Thus, the study uniquely contributes to the extant literature using a combination of the UTAUT2 framework and social commerce constructs to explore social commerce acceptance. Being the amalgamation of various behavioral models, the UTAUT2 model appropriately discusses consumers' choices as the model comprehensively detects the constructs that lead to the acceptance of various technologies.

The social commerce constructs are coupled with the UTAUT2 model to pinpoint exactly the social commerce-related intentions of female Saudi consumers. Such constructs will fortify and will further validate the model, thereby strengthening the argument that social commerce, an emerging phenomenon, can be engrossed in the societal cadres across the country. On the grounds, the study aims to know whether the Saudi customers accept social commerce by validating the rich UTAUT2 model integrating with the SCCs.

There is an exponential increase in the social media outlets and platforms in Saudi Arabia that are changing the landscape of commercial activities. This shift from bricks and mortar to click and mortar is characterized as a revolution towards the emergence of social commerce in Saudi Arabia [23]. Multiple organizations and businesses are rushing to use social media like Facebook, LinkedIn, and Instagram to boost their sales. Particularly, with the introduction of Vision 2030, Crown Prince Mohammad Bin Salman mandated that Saudi Arabia must be progressed to be a digitized and smart country at par with the developed nations. The vision has enlightened the Saudi citizens to be smarter and actively patriciate in the gig economy using all the social media platforms. Achieving a large social media presence, currently, the electronic and social media reports on Saudi Arabia reveals that, as of 25 December 2021, the number of active social media users surpassed accounts 27.8 million representing 79.25% of the total population; those who are active on Facebook were 25.92 million, the Twitter users were exceeded 25 million, while the number of Instagram users were 26.8 million. It was also reported that YouTube had gained the most visited social website with 31.40 million viewers in Saudi Arabia in December 2021. There are 4.2 billion customers of social media worldwide and the number is expected to be more than 5 billion by the end of 2025 [24]. The number of internet users in Saudi Arabia will be 33.18 million in 2022, while it is expected to be 36.2 million in 2025.

Unlike previous studies, this study looks differently and investigates female customers' social-commerce (s-commerce) adoption in Saudi Arabia. This study is crucial in the present circumstances where the Saudi government struggles to empower women to participate heavily in the economic development of the country by opening and enlarging their choices. This study effort to address the following research questions: (1) what are the antecedents of s-commerce adoption of Saudi female customers? (2) whether the adoption of s-commerce is influenced by customer age? Taken together, this study seeks to contribute to s-commerce literature in two ways. First, this research used the UTUAT2 framework and social commerce constructs as antecedents of Saudi female customers' s-commerce adoption. In this research, we focused on female customers in Saudi Arabia because previous research rarely addressed the antecedents of female s-commerce adoption. Therefore, the study tried to examine the antecedents of s-commerce adoption of Saudi female customers. Second, this study takes age as a moderating variable to examine whether it is influencing the purchase intentions and use of s-commerce of Saudi female customers. Because an individual's age is considered an important demographic factor in consumer research [19]. Thus, buyers varying age profiles are expected to reveal different psychological and behavioral attributes of a given product or service, which in turn influence their consumer behavior [20]. Past studies suggest that customer requirements and reactions differ during the life span [21]. Therefore, age may influence the approach in which customers recognize the brand signals and respond to marketing messages [21], yielding its moderating effect. Prior research shows that the effect of consumer age on the relationship between UTUAT2 and purchase intention is still hazy. That is, we believe customers of different age groups have different requirements and preferences, so differently influencing the facilitating conditions (FC), hedonic motivation (HM), price value (PV), habit (HT), and purchase intention (PI) relationship.

2. Theoretical Background and Hypotheses Development

2.1. Overview of Social Media

The new technology has structured the new shapes of commerce, especially with the emergence of web 2.0. There are radical changes due to the Web 2.0 technologies

that have enabled and extended the routine use of blogs, online communities, wikis, and social networking sites [25]. Globally, about 4.2 billion customers are virtually alive on social media and the number is expected to be more than 5 billion by the end of 2025 [26]. Internet users in Saudi Arabia are currently 33.18 million in 2022 and are expected to reach 36.2 million in 2025. In 2020, the worldwide electronic retail revenue surpassed US \$4.3 trillion due to the increasing number of digital buyers. Similarly, the global revenue from social commerce transactions was the US \$585 billion in 2021 and it is expected to touch the figure of US \$3370 by the end of 2028, showing an exponential increase in the upcoming years. The figures show that social networking sites, social media, and Web 2.0 technologies are significantly adding to the expansion of social commerce. Huge use of such platforms also signifies that customers value the recommendations and referrals of their peers and friends. Some of the dominant SNSs are detailed over here;

The most important SNS is Facebook, which assimilates a high magnitude of commercial features for individuals and businesses. Facebook utilizes its huge social capital to attract maximum financial advantages [25]. Since its foundation in 2004, Facebook is currently the biggest SNS based on its wider reach and large number of active users. With 2.91 actively monthly users in 2021, Facebook was on the top of the SNS [26]. Twitter, another micro-blogging social networking website, is getting a high momentum of daily users due to its interactive nature and a good model for social commerce activities [27]. In December 2021, about 330 million global active users were reported on Twitter. YouTube is also serving as a commendable medium enhancing the customers' perception to buy products in an interactive way. Brand awareness can be increased using online content on YouTube [28].

According to YouTube statistics, there are 1.86 billion users worldwide that are active on this platform, constituting a huge audience for social commerce [26]. Instagram, a photo-sharing social service, is one of the biggest and most emerging social media applications boosting e-commerce and social commerce. This app is used for pictures, editing, and discussing photos by a large audience worldwide. The users of Instagram will have surpassed 1.20 billion by the end of 2020 [26]. It launched in 2010 and now, at its height, 91% of users have added their photos to Instagram [26].

2.2. Social Commerce

The worldwide acceptance of social media outlets and social networking sites has inaugurated a new era of social commerce that is energetically backed by the Internet [29]. Social media has equipped customers to access different markets by materializing socially connected networks and online recommendations from users of different products [30]. Social media generates content that is marked differently from e-commerce in that there are online interactions among the users. The popularity of social media has substantiated fresh business models in the virtual world, thereby initiating a new era of social commerce [31]. Such electronic social platforms provide virtual meeting places for sharing information, past experiences, users' opinions, and perceptions about products and services [32]. The prevalence of SNS applications in the current age is the salient factor connecting social media with commercial activities [29].

The effectiveness of social commerce affirms customers with a pleasuring experience that boosts not only the commercial activities but also the customers are pleased to add such experiences in their decision making [33]. In online commerce, the importance of social communications has been recognized to be very productive [34]. As online transactions are becoming complex and, therefore, consumers are keenly interested in other users' recommendations like their comments, ratings, and favorable suggestions) products have become technical and increasingly complex, and consumers are keen to gain recommendations (e.g., comments, ratings, and suggestions) and appropriate product information from others' experiences and capabilities [35]. This kind of information is called user-generated content and is professed to be a more trustworthy source of information than conventional media [36]. To facilitate the consumers' timely and perfect buying

decisions, user-generated content can be produced and disseminated rapidly using several social interaction activities [35]. Consequently, the research of social commerce seems a significant frontier for consumer research.

2.3. The Extended Unified Model (UTAUT2)

There are many models explaining the relationship between technology adoption and behavioral factors. [37] stated and reconciled the previous eight models that explained different determinants for acceptance of new technologies, thereby introducing the unified theory of acceptance and use of technology (UTAUT). The most notable among the eight models were the technology acceptance model (TAM) proposed by [38] and the theory of planned behavior (TPB) by [39]. The UTAUT is more accommodative and appropriate at the organizational and national levels but has been used at the individual level [20]. Many consumers-focused studies used the lens of UTAUT in multiple contextual backgrounds and, therefore, the model has more explanatory power given the validated predictors. Examples of the UTAUT2 models are; mobile banking usages [40], online banking [41,42], mobile phone-based therapy [43], students' electronic learning [44], e-government services [45], telemedicine adoption [46], QR-code mobile payment [47], electronic prescribing and mobile health applications [48,49].

The UTAUT model has also been applied in organizational contexts, such as human resource databases [50]; electronic commerce applications [51]; computer use [52]; interactive whiteboard usage [53]; virtual learning technologies [54]; organizational social networks [55]; and health information systems [56].

There are four main constructs in the UTAUT model, i.e., performance expectancy, efforts expectancy, social influence, and facilitating conditions, that were presumed to predict the acceptance of any technology. Facilitating conditions were also theorized to have a direct impact on user behavior [37]. The extended UTAUT2 model incorporated three additional customer-oriented constructs, i.e., habit, hedonic motivation, and price value, to make the model more appropriate for the customers' intrinsic inclinations [15]. The intrinsic motivation was added to the UTAUT model to assimilate the enjoyment aspects of the technology. Another addition was related to the repetition and experience of using the technology. Similarly, the costs and prices matter in the adoption of any technology, especially in the context of individual usage of any system. The following hypotheses are formulated to know their relevance and acceptance in the context of social commerce usage by Saudi customers.

This research uses performance expectancy (PE) as the precursor of customers' PI in a voluntary setting. It is more likely that the customers will adopt s-commerce for online shopping if their performance is getting better with the use of the online system. We argue that the performance improvement is observed through the beliefs of customers towards using the online system for online purchasing over a long time. Previous studies reported mixed findings on the positive influence of effort expectancy (EE) on customer PI. For example, [12] found that EE is one of the strong predictors of purchase intention. However, [3] reported an insignificant effect of EE on PI. In this research, we propose that the use of technology will upgrade, manage, and reduce the efforts of customers while perching online through s-commerce platforms. Social influence (SI) refers to when people change their behavior to fulfill the demands of their social environment. We argue that people around one's circle might influence the individual to accept or reject the system and there is the influence of the opinions of colleagues, friends, peers, superiors, relatives, co-workers, educated class, and others (like media). So, we expect a positive relationship between SI and PI in the Saudi context. In terms of FC, it supports the users of any system with appropriate knowledge and adequate infrastructure to operate the system successfully. In the Saudi context, it is anticipated that FC will influence the purchase intention and s-commerce use of women customers.

According to [12], HM indicates the pleasure derived from the use of social media platforms. We argue that HM influence the emotional feeling of one to adopt any technology.

The researchers believe that it is probably to motivate individuals to use social media platforms if it provides them with some entertainment. PV denotes 'individuals' mental trade-off among perceived benefits and monetary cost of the use of an application. PV will be higher when we perceive the benefits of using the application are greater than its cost. It is argued that the cost element plays a significant role in users' decision-making. Therefore, we expect a positive relationship between PV and Saudi women's purchase intention through s-commerce platforms. HT is the extent to which individuals tend to use behavior spontaneously from the learning accrued from experience in the use of any online application. We argue that when people learn from their previous experience of use of any s-commerce platform, it will positively influence their purchase intention and s-commerce use for online purchasing. We formulated the following hypotheses to know the relevance of UTUAT2 factors and acceptance in the context of social commerce usage by Saudi women customers.

Hypothesis 1 (H1). *Performance expectancy has a positive influence on purchase intentions.*

Hypothesis 2 (H2). *Effort expectancy has a positive influence on purchase intentions.*

Hypothesis 3 (H3). *Social influence has a positive influence on purchase intentions.*

Hypothesis 4a (H4a). *Facilitating conditions have a positive influence on purchase intentions.*

Hypothesis 4b (H4b). *Facilitating conditions have a positive influence on the use purchase of s-commerce.*

Hypothesis 5 (H5). *Hedonic motivation has a positive influence on purchase intentions.*

Hypothesis 6 (H6). *Price value has a positive influence on purchase intentions.*

Hypothesis 7a (H7a). *Habit has a positive influence on purchase intentions.*

Hypothesis 7b (H7b). *Habit has a positive influence on the use behavior of s-commerce.*

2.4. Social Commerce Constructs

Social commerce has many constructs like social media, customers' ratings, reviews, referrals, social shopping, and discussions with different forums and communities [57]. Business companies use such forums to contact potential customers, and in return, customers contact the companies [58]. These channels are cost-effective and help accelerate sales throughout any country. Aided by Web 2.0 and social networking sites, consumers are more facilitated nowadays through having online ratings, reviews, and recommendations from existing users. The online reviews and ratings can be accessed by customers and help them in their buying decision-making. Consumers are keen to share their information and experience about the products they use and like. Such referrals and recommendations by third-party customers are the normal activity in today's social commerce [7]. The comments of users give strength and credibility to the usage of the products for new customers. The online suggestions of customers also reduce the advertising expense of the firms as well as develop customers' online community that may boost sales to the potential users [34]. The social media platforms generating reviews, recommendations, and ratings enable swift increase or decrease in sales revenues. Such interactions give birth to social support and social connectivity that further add to the social capital [10]. Such support is indispensable in the application of Web 2.0 technologies benefiting both the customers and firms.

Word of mouth and especially electronic word of mouth establish a long-lasting relationship in the social commerce environment and it also extends the supportive ways of doing commerce [59]. SCCs enable consumers to make decisions comfortably using the

online support they receive from other users. Repairing customers' trust can prevent the decreasing trend in purchases of goods and services. On the other hand, trust improves purchasing intentions [60]. Social commerce validates the customers' trust as they might feel better about their decision upon receiving online advice from other customers [61]. Previous studies testified that the social commerce constructs have a profound effect on the consumers' intentions to opt for shopping online. The other users' recommendations and referrals, ratings and reviews, and forums and communities lead to social commerce constructs that further add to the acceptance of such social commerce websites for online shopping. Customers are keen to know what other users rate and say about the products [62]. The variables of social commerce coupled with the constructs of UTAUT2 portray the specific connections of technology, social commerce, and young users' intentions towards using the platforms. Such a combination is more cogent than using single models exhaustively inundating the phenomenon. Based on the previous literature, this study holds that social commerce constructs will positively determine customers' behavioral intentions and their trust in using online products. Hence, it is hypothesized;

Hypothesis 8 (H8). *Social commerce constructs have a positive influence on purchase intentions.*

Hypothesis 9 (H9). *Social commerce constructs have a positive influence on user trust.*

Hypothesis 10 (H10). *User trust has a positive influence on purchase intentions.*

Purchase intention encourages people to use technology for purchasing through s-commerce platforms [31]. Several theoretical and psychological frameworks illustrate that individual customers' use behavior of platforms for online shopping is persuaded by their purchase intention. We argue that the purchase intentions of the consumers urge them to use s-commerce. Previous studies signified those behavioral intentions lead buyers to the actual usage of a given technology. Many technological adoption models of psychological theories and technology acceptance studies showed that individual usage behavior is influenced by behavioral intentions [48]. Consistent with previous models, UTAUT and UTAUT2 also support those behavioral intentions that lead to behavioral usage [37,63]. Consequently, it is hypothesized that:

Hypothesis 11 (H11). *Purchase intention has a positive influence on the use of s-commerce.*

2.5. Moderation of Customer Age

The UTAUT model postulates that gender moderates the effects of performance expectancy, efforts expectancy, social influence, and behavioral intentions. Similarly, age has a moderating effect on the path of performance expectancy, efforts expectancy, social influence, facilitating conditions, and behavioral intentions. The experience was also theorized to have a moderation influence on the effects of effort expectancy, social influence, and facilitating conditions on behavioral intentions [37]. Age is a crucial factor that determines the level of intentions for different technologies. The younger generation is more inclined towards social commerce due to the hedonic motivation, social functions, and use of social commerce websites [64]. Discussing the gender moderating effects [65] reported that social commerce activities are moderated by gender. Previous studies justified that both age and gender have a moderating role in social commerce settings [66]. Experience, showing the time spent on using the social commerce activities, also matters in determining social commerce usage. In referrals and suggestions, the users' experience has a vibrant role in developing intentions for using social commerce [67]. This study hypothesized that customer age would have a moderating effect on PI the use of s-commerce in the context of Saudi Arabia.

According to [19], customer age is a crucial factor that determines the level of intentions for different technologies. For example, the younger generation is more inclined toward social commerce due to the hedonic motivation, social functions, and use of social

commerce websites [64]. Previous research suggested that the acceptance of s-commerce varies across different age groups [68]. The s-commerce adaptation varies across different age groups; this phenomenon requires further research to investigate the role of customer age affecting the willingness to use s-commerce. According to [69], the age of the customer is considered a significant demographic factor in consumer research. For instance, [38] asserted that customer requirements and responses to marketing campaigns change throughout the life cycle. Moreover, [70] reported that old consumers are more responsive to practical orientation, exhibiting their lessened probability to look for new facts to make purchase decisions [21], which can be elucidated because older customers may process hold emotional control and greater maturity. Furthermore, [71] suggested that older customers tend to exhibit greater brand loyalty and commitment, generating unique affective and behavioral outcomes. [19] concluded that consumers with ages above 35 years have a higher level of willingness to access mobile applications for online shopping. With the best knowledge of the author, no such study in the Saudi context has been conducted to assess the moderating role of customer age across different age groups. In this study, the age of the consumer is considered the moderating variable to assess its role in the acceptance of s-commerce customer intentions (see Figure 1). Thus, building on the premise of the above arguments, the following hypotheses are posited.

Hypothesis 12a (H12a). *Customer age moderates the effect of FC on PI.*

Hypothesis 12b (H12b). *Customer age moderates the effect of HM on PI.*

Hypothesis 12c (H12c). *Customer age moderates the effect of PV on PI.*

Hypothesis 12d (H12d). *Customer age moderates the effect of habit on PI.*

Hypothesis 12e (H12e). *Customer age moderates the effect of habit on s-commerce use behavior.*
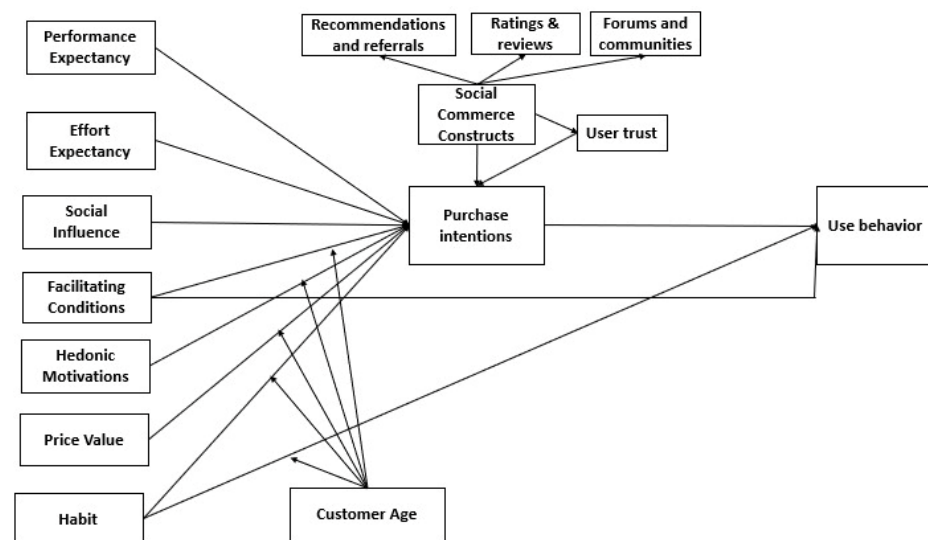
Figure 1. Research framework.

3. Materials and Methods

3.1. Data Collection

Using a survey approach, this study obtained data from Saudi women customers. The questionnaire comprises a set of close-end questions, as has previously mentioned being a preferred way in behavioral and social sciences research [72]. This research managed to collect the data through an online survey, which is an effective way to obtain data from large participants [73]. The survey was initially pilot tested among 36 Saudi women

s-commerce users who were then excluded from the final data set. The pilot test results indicate acceptable reliability and validity of the scales. We obtained data from Saudi women's s-commerce users. This research focused on women s-commerce users because most of the previous studies in Saudi Arabia on the use of SNSs sites for online purchasing considered men participants [7]. For this research, any women user who was registered with social networking sites (such as Instagram, Twitter, Facebook, and LinkedIn) in Saudi Arabia was a potential participant. Employing the snowball sampling technique, the participants were also asked to share this online questionnaire with at least two of their friends who are SNSs users. Finally, we obtained 487 responses, out of which 461 responses were usable (see Table 1 for more detail).

Table 1. Demographic details of the respondents.

Variables	Group	Frequency	Percentage
Age	18–35	244	51.4
	36–50	136	28.6
	Above 50	95	20.0
Education	High school	61	12.8
	Bachelor's degree	283	59.6
	Master's degree	82	17.3
	Ph.D. degree	49	10.3
Experience of online shopping use SNS	Less than 1 years	131	27.6
	2–3 years	295	62.1
	4–6 years	49	10.3
	More than 6 years	0	0

3.2. Measures

We approached the previous literature on technology acceptance for adapting the survey questionnaire; UTUAT2 measures were used from 37,63]. SCCs and user trust scales were adapted from [74,75] (for detail, see Appendix A). Each indicator in the survey was anchored with five point-Likert type scale, ranging from (1 = strongly disagree) to (5 = strongly agree).

3.3. Data Analysis

We employed SPSS 20 for data analysis and AMOS 21 for hypothesis testing. For data screening, several approaches were used, such as missing value analysis, data normality, multivariate outliers, and descriptive statistics and correlation analysis. Moreover, by following a previous study by [76], we employed two-stage structural equation modeling (SEM) approach. First, the researchers performed the confirmatory factor analysis (CFA) with each of the studied latent constructs. The model fit indices of the constructs are as follows: χ^2 = 564.30, df = 318, CFI = 0.93, TLI = 0.92 and RMSEA = 0.06, indicating an acceptable model fit indices [77].

4. Results

4.1. Common Method Bias

In this research, common method bias was tested using Harman's single factor test [78]. The principal component analysis of all the constructs yielded 13 distinct factors that altogether reported 63.10% of the total variance; in our case, the first factor only produces 19.1% of the reference. Likewise, we also employed a common latent factor to assess the presence of common method bias. Our analysis indicates that the common latent factor yielded only 13.4% of the variance, which is below the recommended threshold level [78]. These findings indicate that common method bias was not a serious issue for this research. Multicollinearity among independent variables was examined using both variance inflation factors (VIF) and the tolerance values. Our results indicate that VIF scores of all the independent variables were between 1.52 to 1.91 and tolerance values were

greater than the cut-off level of 0.10 [79]. Thus, our results show the absence of serious multicollinearity issues.

4.2. Reliability and Validity

We conducted CFA to examine the validity and reliability of the constructs; specifically, we evaluated the average variance extracted (AVE), composite reliability (CR), and Cronbach alpha of all variables [79]. The acceptable thresholds for all scores were met, as [80] suggested that Cronbach alpha and CR should be greater than 0.70 and the AVE above 0.50 [81] (see Table 2). To test the discriminant validity of all the constructs, we examined the square root of AVE of each construct and compared it with the correlation scores of other constructs [81,82]. Results in Table 3 show that the square roots of the AVE are above the correlation scores among constructs, hence, demonstrating acceptable discriminant validity. Table 3 show descriptive statistics and correlation of all the constructs.

Table 2. Factor Loading Values for All Construct Variables.

Constructs	Items	Factor Lodgings	Cronbach Alpha	CR	AVE
Performance Expectancy (PE)	PE1	0.810	0.78	0.85	0.58
	PE2	0.733			
	PE3	0.715			
	PE4	0.779			
Effort Expectancy (EE)	EE1	0.633	0.70	0.82	0.53
	EE2	0.744			
	EE3	0.763			
	EE4	0.764			
Social Influence (SI)	SI1	0.758	0.72	0.79	0.55
	SI2	0.786			
	SI3	0.684			
Facilitating conditions (FC)	FC1	0.714	0.74	0.87	0.54
	FC2	0.719			
	FC3	0.766			
Hedonic motivation (HM)	HM1	0.769	0.72	0.79	0.59
	HM2	0.754			
	HM3	0.721			
Habit (HT)	HT1	0.728	0.73	0.82	0.53
	HT2	0.729			
	HT3	0.733			
	HT4	0.723			
Price Valve (PV)	PV1	0.785	0.74	0.78	0.55
	PV2	0.742			
	PV3	0.691			
Purchase Intention (PI)	PI1	0.804	0.75	0.79	0.56
	PI2	0.722			
	PI3	0.718			
Recommendations & Referrals (RR)	RR1	0.745	0.73	00.81	0.52
	RR2	0.728			
	RR3	0.705			
	RR4	0.705			
Rating & Reviews (RAR)	RAR1	0.792	0.78	0.84	0.57
	RAR2	0.711			
	RAR3	0.727			
	RAR4	0.795			
Forums & Communities (FCOM)	FOCO1	0.710	0.71	0.83	0.55
	FOCO2	0.778			
	FOCO3	0.721			
	FOCO4	0.752			
Trust	Trust1	0.701	0.72	0.81	0.52
	Trust2	0.681			
	Trust3	0.725			
	Trust5	0.771			

Table 3. Descriptive statistics, correlations, reliability, and validity results.

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. PE	3.66	0.76	**0.78**											
2. EE	3.30	0.70	0.55	**0.72**										
3. SI	3.41	0.86	0.56	0.42	**0.80**									
4. FC	3.59	0.79	0.38	0.55	0.32	**0.81**								
5. HM	3.60	0.83	0.07	0.05	0.01	0.03	**0.77**							
6. HT	3.69	0.77	0.40	0.47	0.31	0.60	0.01	**0.85**						
7. PV	3.57	0.83	0.33	0.18	0.26	0.27	0.04	0.16	**0.81**					
8. PI	3.70	0.77	0.62	0.35	0.38	0.53	0.06	0.49	0.44	**0.82**				
9. Trust	3.59	0.66	0.34	0.18	0.31	0.35	0.05	0.45	0.24	0.45	**0.79**			
10. FCOM	3.35	0.71	0.39	0.68	0.32	0.83	0.04	0.64	0.23	0.51	0.24	**0.73**		
11. RAR	3.67	0.74	0.66	0.34	0.34	0.39	0.01	0.42	0.32	0.61	0.36	0.40	**0.78**	
12. RR	3.47	0.78	0.24	0.32	0.24	0.54	0.02	0.44	0.44	0.32	0.27	0.45	0.27	**0.74**
13. Use behavior	3.77	0.98	0.38	0.32	0.38	0.45	0.06	0.44	0.23	0.50	0.53	0.46	0.35	0.27

Note: N = 475, bold elements are the square root of the average variance extracted from each construct. PE = Performance expectancy; EE = Effort expectancy, SI = Social influence; Facilitating conditions; HM = Hedonic Motivation; PV = Price Value; HT= Habit; RR = Rating and reviews; FCOM; Forums and communities; RAR; recommendations and referrals.

4.3. Hypotheses Testing

After assessing the content, convergent, and discriminant validity of scales, we tested the structural model and analyzed the hypothesized relationships based on the examination of standardized paths in SEM. The path significance levels were computed through the bootstrap resampling method [83], using 2000 iterations of resampling [83]. We attained following model fit indices: χ^2 = 572.60, df = 321, CFI = 0.95, TLI = 0.94 and RMSEA = 0.07, therefore, demonstrating satisfactory model fit indices of the structural model. The results in Table 4 illustrate that PE, FC, PV, HT, SCC, and user trust have positive and significant effects on PI, thus confirming hypotheses H1, H4a, H6, H7a, H9, and H10. Our results also show that SCC positively predicts female customer trust, confirming hypothesis H8. The result does not show significant effects of EE, SI, and HM on PI, so the hypotheses H2, H3, and H5 were not supported. Moreover, the results demonstrate that FC, HT, and PI are positively related to user behavior; therefore, confirming hypotheses H4b, H7b, and H11. The model illustrates that there is 49.3% variance exists in PI and 28.6% use behavior.

Table 4. Structural regression model results.

Paths	Path Coefficient	t-Value	R²	Results
H1: PE —> PI	0.450	10.788		Supported
H2: EE —> PI	−0.202	−4.602		Not Supported
H3: SI —> PI	−0.030	−0.944		Not Supported
H4a: FC —> PI	0.201	5.117		Supported
H5: HM —> PI	0.018	0.653		Not Supported
H6: PV —> PI	0.158	5.359		Supported
H7: HT —> PI	0.116	3.058		Supported
H8: SCC —> trust	0.448	9.125		Supported
H9: Trust —> PI	0.151	4.087		Supported
H10: SCC —> PI	0.180	4.203	49.3%	Supported
H4b: FC —> UB	0.214	3.533		Supported
H7b: HT —> UB	0.231	3.538		Supported
H11: PI —> UB	0.418	6.893	28.6%	Supported

4.4. Moderating Role of Customer Age

The multi-group analysis of this study demonstrates that the regression coefficients significantly differ across three age groups. Our results (see Table 5) reveal the corresponding differences among female customer age groups. Hypotheses H12a, H12c, H12d, and H12e

were thus supported in group 1, while in group 2, H12a, H12b, and H12e were supported, and for group 3, only H12c and H12d were supported. Therefore, the paths from FC, HM, PV, and HT to PI and HT to purchase intention and use behavior were found to be different across three age groups of Saudi women customers.

Table 5. Model path coefficient values and multi-group analysis—moderating effect of the consumer age.

Hypotheses	Age Group 1 (18–35) Set n = 244, Path (t-Value)	Group 2 (36–50 Years) n = 136, Path (t-Value)	Group 3 (Above 50 Years) n = 95, Path (t-Value)
H12a: FC —-> PI	0.192 (3.514) **	0.271 (3.839) **	0.166 (1.874) ns
H12b: HM —-> PI	−0.017 (0.398) ns	0.094 (2.091) *	−0.070 (−1.331) ns
H12c: PV —-> PI	0.198 (4.520) **	0.075 (1.447) ns	.197 (3.478) **
H12d: HT —-> PI	0.117 (2.020) *	0.121 (1.853) ns	0.160 (2.241) *
H12e: HT —-> UB	0.293 (3.340) **	0.247 (2.233) *	0.043 (0.308) ns

Note: ** Significant at the 0.01 level (2-tailed). * Significant at the 0.05 level (2-tailed). ns = Not Significant.

5. Discussion and Implications

The recent COVID-19 pandemic affected individuals and society as a whole. Old people were particularly more vulnerable than young, as COVID-19 poses a serious health risk for them. In this research, we examine the effects of UTUAT2 factors, social commerce constructs, and user trust on Saudi women's purchase intention and use behavior. Based on individual differences literature [84], we also examine the moderating role of customer age on FC, HM, PV, HT, and purchase intention relationship. The results indicate that PE, FC, PV, HT, SCC, and user trust are significant predictors of Saudi women's social media users' PI. These findings are in line with several other studies [15,20] examining a similar relationship. While examining the moderating role of customer age, the findings suggest that for young customers (group 1), FC, PV, and HT are important predictors of intention to purchase through s-commerce platforms. For customers whose age was between 36–50 years, only PV was a significant predictor of their PI and HT for their user behavior. For the older customer (group 3), only PV was a significant predictor of their PI towards online purchasing through s-commerce platforms. These findings are in line with previous research exploring similar relationships [85]. Additionally, the UTAUT2 framework explicitly includes variables such as social influence, perceived value, and actual use that may provide an insight into the sustainability of s-commerce. We suggest that s-commerce platforms can offer a significant pathway to individual sustainability by providing appropriate multi-dimensional information to the customer to choose products for improving their sustainability and support their sustainable transformation through s-commerce features. We also suggest that s-commerce platforms may also use sustainability dashboards, where customers will be given health, financial and environmental information about selected products. When a customer makes a payment, they will be informed of the overall health, financial and environmental information via a sustainability dashboard for future references, and it would also serve to give them a sense of accomplishment.

5.1. Theoretical Implications

The findings of this research offer both theoretical and practical implications. The previous studies have constantly been using various models for examining the antecedents of the PI and use behavior of online shopping through s-commerce platforms. The research

framework used in this study is more comprehensive and encompasses more logical factors in the context of s-commerce, keeping in view the developing economy. In this regard, the study used the basic constructs of UTAUT2 to get a clearer understanding of the phenomenon. Additionally, we used social commerce constructs and user trust with UTUAT2 as an antecedent of Saudi women's purchase intention and use behavior to check its predictability at an individual level of analysis. Therefore, this research provides theoretical evidence that the UTUAT2 framework and social commerce constructs are significant predictors of s-commerce acceptance in Saudi women customers. Furthermore, this study has contributed to the literature by testing the moderating role of customer age across different age groups of Saudi women customers and providing insights into that customer age is an important demographic factor that affects the acceptance of s-commerce in Saudi Arabia. Thus, the results of this research suggested that online businesses can use customer age in customer segmentation in their experiential marketing strategies [68]. Finally, this study examined the influence of PIs on the use behavior. The findings are consistent with the prior researcher's findings [85,86].

5.2. Practical Implications

This study offers several practical implications. First, the findings of this research can be useful to both sellers and buyers who intend to buy or sell online, specifically through s-commerce platforms. They will have to comprehend how various factors can enhance the purchasing intention of customers and that, as a result, compels them to use different social commerce websites. These findings suggest that the business managers should incorporate facilitating conditions such as knowledge and other resources for website design and marketing efforts that can go a long way to improve acceptance of s-commerce for online shopping, especially among older, tech-savvy consumers. Second, this research offers imperative insights into demographic differences in s-commerce acceptance, which might assist business managers in enhancing customer satisfaction and using s-commerce platforms across age groups. More essentially, the findings of this research outline the variations in customer age and emphasis the need for the introduction of different strategies to attract customers who belong to different age groups. We argue that the role of age is critical to enhancing the factors such as facilitating conditions and price value perceptions because youth-specific rewards and loyalty programs could be developed to attract younger users and ensure facilitated customer retention. Such ways are also important by considering young customers' greater price value worries and might incorporate economic incentives for using s-commerce platforms for online shopping. Also, that young people are conscious of the security in payments and expect better value against the price they want to pay and the ease in the process of making transactions. Third, this research provides implications for s-commerce industry, especially the s-commerce platforms. A potential consumer might have different characteristics; as such, s-commerce platforms should improve upon their mechanism to attract and motivate them to purchase. One practical way is to offer desired moods of payment and target the appropriate age group by customizing the platform that should be according to the customer preferences.

5.3. Limitations and Future Research Directions

Some shortcomings of this research require to be considered. First, we used cross-sectional data, which may avert us from concluding the causal relationship between our study variables. Second, this research has been conducted in the Saudi context, where s-commerce websites are in early development stages, so the framework of this research could replicate in those countries that have similar technologies to generalize the findings of this research. Third, the understanding of technology acceptance is an emerging field in the broader area of social and behavioral sciences. So far, many studies have been undertaken in this area, but still, there are research avenues for future researchers. The different models of technology acceptance can be potentially used for exploring, evaluating, comparing, or examining various technologies. The differences in the contexts or technologies or

users' groups are also worth pursuing for future research. For example, the context may be hospitality and leisure (e-hoteling, e-gambling, online movies, online tour guides), government (e-parliament, e-electoral process, e-government payments), education (online learning, online technologies, and platforms like massive online open courses, e-reading, e-games, e-libraries, etc.), agriculture and health dynamics (e-health, electronic health records, e-prescribing, etc.).

6. Conclusions

This research examines the UTUAT2 framework and social commerce constructs as the predictors of Saudi women customers' PI and use behavior. Consistent with the individual differences literature, we also tested the moderating role of customer age on s-commerce adoption. The structural model results of this study indicate that from UTUAT2 components, PE, FC, PV, and HT are significant predictors of Saudi women's purchase intention. The results also show that social commerce constructs and user trust significantly predict Saudi women customers' purchase intentions. Similarly, while examining the moderating role of customer age, the findings suggest that for young customers (group 1), FC, PV, and Habit are more important predictors of intention to purchase through s-commerce than older customers. The research adds to the extant literature in multiple ways and elucidates some insightful suggestions for businesses and government. Even though there is a huge potential and established s-commerce network in Saudi Arabia that provide digital services to the populace, there are many challenges in the way of going online and effectively proliferating to the nook and corner of the country. Businesses require focusing on the development of such products that can gain active customer participation.

Appendix A. Survey Items

Performance expectancy
I find social commerce sites are very useful in the online purchasing process. Using social commerce sites increases my chances of achieving things that are important to me in the online purchasing process. Using social commerce sites helps me accomplish things more quickly in the online purchasing I can save time when I use social commerce sites in the online purchasing process.

Effort expectancy
Learning how to use social commerce sites for online purchases is easy for me. My interaction with social commerce sites for online purchases is clear and understandable. I find social commerce sites for online purchases are easy to use. It is easy for me to become skillful at using social commerce sites for online purchases.

Social influence
People who are important to me think that I should use social commerce sites for online purchases.   People who influence my behavior think that I should use social commerce sites for online purchases.   People whose opinions that I value prefer that I should use social commerce sites for online purchases.

Facilitating Conditions
I have the resources necessary to use social commerce sites for online purchases.   I have the knowledge necessary to use social commerce sites for online purchases.   I feel comfortable using social commerce sites for online purchases.

Hedonic Motivation
Using social commerce sites for online purchases is fun.   Using social commerce sites for online purchases is enjoyable.   Using social commerce sites for online purchases is very entertaining.

Price Value
Social commerce is reasonably priced.   Social commerce is a good value for the money.   At the current price, social commerce provides a good value.

Habit
The use of social commerce sites for online purchases has become a habit for me.   I am addicted to using social commerce sites for online purchases.   I must use social commerce sites for online purchases.   Using social commerce sites for online purchases has become natural to me.

Purchase Intentions
I intend to continue using social commerce in the future.   I will always try to use social commerce in my daily life.   I plan to continue to use social commerce frequently.

Trust
Promises made by social commerce sites are likely to be reliable.   I do not doubt the honesty of social commerce sites.   I expect that the advice given by social commerce sites is their best judgment.   I believe social commerce sites have my information safety in mind.   Social commerce sites give me the impression that they keep my private information safe.   Social commerce sites (such as Facebook, MySpace, Twitter, or others) are trustworthy.

Recommendations and Referrals
I feel my friends' recommendations are generally frank.   I feel my friends' recommendations are generally reliable.   Overall, my friends' recommendations are trustworthy.   I trust my friends on social commerce sites and share my status and pictures with them.

Forums and Communities
I feel my friends on forums and communities are generally frank.   I feel my friends on forums and communities are reliable.   Overall, my friends on forums and communities are trustworthy.   I trust my friends on forums and communities and share my status and pictures with them.

Rating and Reviews
I feel my friends' ratings and reviews are generally frank. I feel my friends' ratings and reviews are reliable. Overall, my friends' ratings and reviews are trustworthy. I trust my friends' ratings and reviews and share my status and pictures with them.
Use Behavior How often do you use social commerce websites for online purchases? (i) Never used. (ii) Once. (iii) 2–5 times. (iv) Once a month. (v) Twice a month. (vi) Once a week. (vii) More than once a week.

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