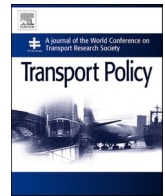




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Cruise transport service usage post COVID-19: The health belief model application

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ARTICLE INFO

Keywords:

Cruise transport
COVID-19
Health belief model
Perceived value
Trust

ABSTRACT

This study investigates the key psychological factors that influence customer's intention to use cruise services post COVID-19. A theoretical model grounded on consumer and health-driven theories (i.e. perceived value, perceived trust and health belief model) is developed. A survey questionnaire is designed and administered to 376 Chinese consumers. The theoretical model was tested via structural equation modelling. Results reveal that the constructs of the health belief model (i.e. perceived benefits, perceived health threat, self-efficacy and cues to action) have a significant effect on customers' perceived value towards cruise services. Perceived value then has direct and indirect effects on customers' cruise intention through perceived trust. This study enhances academic research by justifying customers' intention to use cruise services via consumer and health-belief viewpoints and provides implications for cruise management and policy formulation.

1. Introduction

Passenger shipping exists as early as the 1800s and has developed rapidly over the decades. It has transformed into the modern cruise industry that we know today by the 1960s (Leppert, 2019). Its sole purpose has evolved from transporting passengers place-to-place into an all-inclusive multi-billion tourism industry that targets tourists seeking luxury with leisure (Micallef, 2020). Passenger shipping is famous for providing entertainment and leisure-centric services onboard cruise operators for people of all ages. Most activities occur within the floors of the vessel as it travels for weeks between different ports of call (Lau and Yip, 2020). Some even extend their outreach onshore by providing optional landside excursions for passengers to explore local sites as their vessel calls along the course of their journey (Lopes and Dredge, 2018).

The 2019 Cruise Trends and State of the Cruise Industry Outlook report from the Cruise Lines International Association (CLIA) forecasted that 2019 would see about 30 million passengers boarding cruise ships compared to 28.2 million in 2018 (Thompson, 2019). This is a far cry from the 2009 actual passenger numbers of merely 17.8 million (Cruise Lines International Association, 2019). This illustrates a significant rise in the customers' usage of cruise services over the last decade, depicting a strong development of the Cruise sector until the end of 2019, that is,

quickest tourism sector expansion (Tsekoura, 2020).

However, the promising industry outlook suddenly went abrupt during the first quarter of 2020 with the emergence of the Coronavirus pandemic (Berti, 2020). The pandemic only came into prominence in the global cruise industry in February 2020 as the first few cases of infected cruise passengers were reported on board the Diamond Princess near Yokohama Port, Japan (Nakazawa et al., 2020). The cruise ship embarked on a 25-day ordeal, from February 4, as the Japanese health officials required 2-week quarantine for the cruise ship and sequentially conducted evacuations for infected passengers to the nearest medical facilities in Yokohama (Nakazawa et al., 2020). Eventually, by February 28, the total cases onboard Diamond Princess climbed to 712, with 14 fatalities (Berti, 2020). Since then, an increasing number of cruise ships have suffered a similar fate worldwide, as more ports in Asia and other regions closed their doors to prevent the undesirable import of the virus.

The COVID-19 outbreak has devastating repercussions for the entire cruise industry because of the three main factors: characteristic of cruise ships, global politics and the psychological impacts on passengers. The confined space of a cruise ship amplifies the spread of the coronavirus as passengers are often near each other within the ship's interior (Mallapaty, 2020; Yazir et al., 2020). This gravely threatens the health of unsuspecting passengers that may already be in contact with

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<https://doi.org/10.1016/j.tranpol.2021.08.002>

Received 5 April 2021; Received in revised form 19 July 2021; Accepted 9 August 2021

Available online 11 August 2021

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contaminated surfaces. Furthermore, if a ship is suspected to be infected by a virus, nearby countries may practise their jurisdiction to ban it from docking to avoid virus transmission amongst the local inhabitants (Mahbubani, 2020). On top of being quarantined offshore in their respective cabins for 2 weeks, being turned away from several ports would further delay the disembarkation process for passengers, extending their time living in isolation. Stranded passengers may feel trapped as the longer they isolate, their feelings of fear and anxiety increase, due to high future uncertainties regarding their health and safety concerns, thus adversely impacting their mental health (Nakazawa et al., 2020). Without mental health recovery from the traumatic experience, they may become fearful and would less likely to use cruise services in the future (House, 2017). Therefore, by understanding the psychology of affected cruise customers during the COVID-19 pandemic, this study seeks to find cognitive factors that will help enhance their perception of the cruise industry post COVID-19, thus influencing their intention to use cruise services again.

The harsh disruption of the cruise industry due to the pandemic paves the way for cruise operators to attract consumers by gaining their trust to use the cruise service again post COVID-19 period. This is under the assumption that people would still be hesitant to use cruise services post COVID-19. Nevertheless, this study argues that attracting customers is challenging for cruise operators because they would have to fully internalise the psychological factors that would influence consumer's intention to use cruise services, especially after a dire pandemic. The 'new norm' practices that people have become used to during the pandemic would certainly spill over even during the post COVID-19 period as people would still be wary of their environment's cleanliness and avoid crowded and confined areas to reduce the transmission of germs and viruses.

From reviewing existing research on the factors influencing customers' intention to use cruise services, this study observed the following research gaps. Firstly, most research before COVID-19 focused on proposing various business and marketing strategies (e.g. enhancing their brand loyalty by providing loyalty programs for regular cruise users) that cruise operators can undertake to capture customer's attention to use their services (Ahn and Back, 2019; Chua et al., 2017; Lobo, 2008). They mostly dove into the constructs of improving product and service quality to satisfy customer's expectations, ameliorate their perceived price, quality and value, and strengthen customer loyalty. Secondly, COVID-19 is still unfolding as of the date of this study, and thus, research on the pandemic and its effects on consumerism in the cruise industry is still insufficient. However, the pandemic has certainly heightened the interests and concerns of cruise operators worldwide towards the issue of health crisis and its consequences on preventing customers from using their services. This requires more research on the adverse impacts of such health scares on customers' intention to use cruise services. Instead, previous studies have concentrated more on the health preventive measures and improvement of crisis management onboard cruises from the perspective of cruise operators (Chiou et al., 2020; Liu-Lastres and Johnson, 2019; Liu-Lastres et al., 2019). They failed to consider customers' worries and anxieties regarding the health threat posed by a health crisis that prevents them from taking cruise services in the first place. The psychology of customers must be understood during and after a devastating pandemic as it allows for the realisation of the entire extent of their concerns hindering them from boarding cruise ships again. Therefore, this would eventually enable operators to make more informed future management decisions by addressing the actual pressing problem that customers face when they decide to use cruise services.

By advancing the theoretical research on consumer and health-driven theories, this study investigates the key psychological factors that would influence future customers' intention to continue using cruise services after experiencing the full brunt of the COVID-19 pandemic. This study looks into the application of consumer theories of perceived value and trust and the health-driven theory of the health

belief model.

Classical consumer theories are proven to be effective in highlighting changes in consumer behaviours according to the prevailing factors affecting their decision to use a service or product (Zhang and Chang, 2020). Primarily, as a basis, the perceived value theory is an effective concept to understand customers' perception of the merit of a particular service and whether the service meets their expectations (Kopp, 2020). The theory also helps in explaining the reasons why customers consume such a service in general, enabling service firms to understand customer patterns and adopt different strategies to attract even more customers. However, given the unforeseen circumstance of the COVID-19 pandemic, a critical element of trust exists, which cruise companies must address to attract more customers to use their services following the future demise of the pandemic. With the health crisis still fresh in people's minds, many would be hesitant to use cruise services due to the high uncertainties and the health-associated risks aboard enclosed cruise ships. Thus, the concept of trust is relevant in evaluating future cruise customers' intention to use cruise services, especially post COVID-19, because it will take time for customers to fully trust the measures undertaken by cruise companies and the crews' ability to ensure their health is protected. Customers would only have the confidence and courage to use cruise services like before when cruise companies can produce trustable health safety measures. Nevertheless, this study argued that such a scenario would not be simple. Thus, this study suggested the application of the health belief model in accessing the cognitive factors that could affect customers' overall intention to use cruise services post COVID-19. The model provides a clearer depiction of the customer's perspective of the benefits, barriers, threats, self-efficacies and cues to action associated with taking cruise services post COVID-19. The balance of these respective key psychological factors would elaborate or describe their state of mind and would allow cruise companies to gain the real insights into implementing relevant measures to enhance value, gain the trust of customers and eventually influence their intention to use cruise services.

The remainder of this study is organised accordingly. Section 2 analyses the HBM, perceived value and trust theories and proposes a comprehensive theoretical model to describe and elaborate on the psychological factors influencing customers' intent to use cruise services post COVID-19. Section 3 elaborates on the research method conducted to obtain, organise, illustrate and analyse the data. Section 4 presents and reviews the overall results. Finally, Section 5 summarises the key findings, discusses the implications of the theories and provides recommendations for future research.

2. Literature review

2.1. Theoretical model and arguments

This study establishes and evaluates two classical consumer theories and one health-driven theory in explaining customers' intention to use of cruise services post COVID-19. These theories are centred on cognitive factors that deal with customers' feelings and thoughts about using cruise services post COVID-19. These theories can be interpreted by identifying basic assumptions of each theory through their representative constructs and their respective contributions to the theoretical model of this study. This is shown in Table 1.

By deriving from the interpretation of the theories, this study developed a theoretical model (Fig. 1) that illustrates the correlations of the representative constructs and their impacts on customers' intention to use cruise services.

As observed in Fig. 1, this study suggests that the constructs of the health belief model (Sulat et al., 2018), which consist of perceived threat, perceived benefits and barriers, self-efficacy and cues to action can lead to the development of customers' positive perceived value in cruise services post COVID-19. Historically, the theory advocates that an individual's belief in a personal threat, that is, viruses or illness,

Table 1
Assumptions, representative constructs and contribution to theoretical model.

Theory's characteristics	Perceived Value Theory	Trust Theory	Health Belief Model
Assumptions	Customers' overall positive perception of the value of the service (i.e. cruise services) can lead to influencing their intention to use a service	Customer's confidence in the performance of a future service (i.e. cruise services) can influence their intention to use a service, even when using the service has perceived disadvantages	Adopted to understand the psychology of customers during a post pandemic period, that is, post COVID-19, through its representative constructs
Representative Constructs	Perceived Value	Trust	Perceived Threat, Perceived Benefit and Barriers, Self-efficacy and Cues to action
Contributions to Theoretical Model	Explains how customers' value perception of cruise services in fulfilling a new set of customer expectations after a pandemic, that is, post COVID-19, can result in their use intensification for a service	Explains how customer's trust in cruise service post pandemic in adopting strict health safety measures that are reliable and fool-proof, can result in their intention to consume	Define how the representative constructs can induce the formation of positive perceived value of customers by mitigating the negative impacts of the disadvantages of using cruise services postpandemic, that is, unforeseen new viruses

combined with an individual's belief in the performance of endorsed health action will forecast the possibility of individual exhibiting the action. Recently, the health belief model has been incrementally applied to other types of tourism that are facing similar personal health safety implications to individuals in the tourism industry (Ban and Kim, 2020; Huang et al., 2020). This model is applicable in the context of this study as avoiding cruise services during the post COVID-19 period can be considered a health safety behaviour. This is because, the uncontrollable nature of the virus itself and the high uncertainty of the reliability of

cruise services in the future can cause customers to remain adamant to use cruise services, thus hindering them to do so (Kai, 2020).

In view of the suitability of the health belief model in the context of this study, the combined evaluation of the associated representative constructs of the model depicts cruise customers' perceived value. Perceived value is most commonly defined by traditional sources as the customer's overall judgement of the utility of a product or service with respect to the perception of its benefits and the sacrifices made to obtain it (Heinonen, 2004). The value of a product or service can be further derived from the multi-dimensional perceived value structure; functional value (i.e. performance and quality), economic value (i.e. transactional), social value (i.e. customer self-concept) and emotional value (i.e. internal affection and feelings) (Grace and Iacono, 2015). In other words, it involves the product or service evaluation of the customer before deciding to use the product or service. Such evaluation from customers usually comprises of weighing the positive and negative aspects of using a product or service. Considering the future context of the post COVID-19 world, understanding the customers' perception of the benefits of future cruise services is of utmost importance as the actual performance of the cruise services can only start once the pandemic is deemed over. Fundamentally, a positive perceived value from customers can be achieved when the advantages outweigh the disadvantages of using cruise services post COVID-19. According to the theoretical model of this study, the representative constructs under the health belief model can affect customers' perceived value of future cruise services because they can alter customers' assessment of the advantages and disadvantages when using cruise services post COVID-19 (Sulat et al., 2018). As illustrated in Fig. 1, the construct of perceived barrier and perceived threat is akin to the customers' assessment of the disadvantages in using cruise services posts COVID-19. Meanwhile, the constructs of customers' perceived benefits and cues to action (i.e. self-motivation and external influence) can affect customers' assessment of the advantages of using cruise services post COVID-19. Finally, self-efficacy (i.e. confidence in overcoming service barrier) can influence customers' assessment of both the advantages and disadvantages as it takes time and effort for customers to pick up the habit of practising self-protection measures, which in itself assist in enhancing the advantages of using cruise services. Moreover, the construct of self-efficacy also mirrors the customers' confidence in using cruise services post COVID-19, which enables the lowering of the disadvantages associated with using them. The aforementioned arguments are represented by H₁ to H₄ in Fig. 1.

Additionally, in accordance with the perceived value theory, this

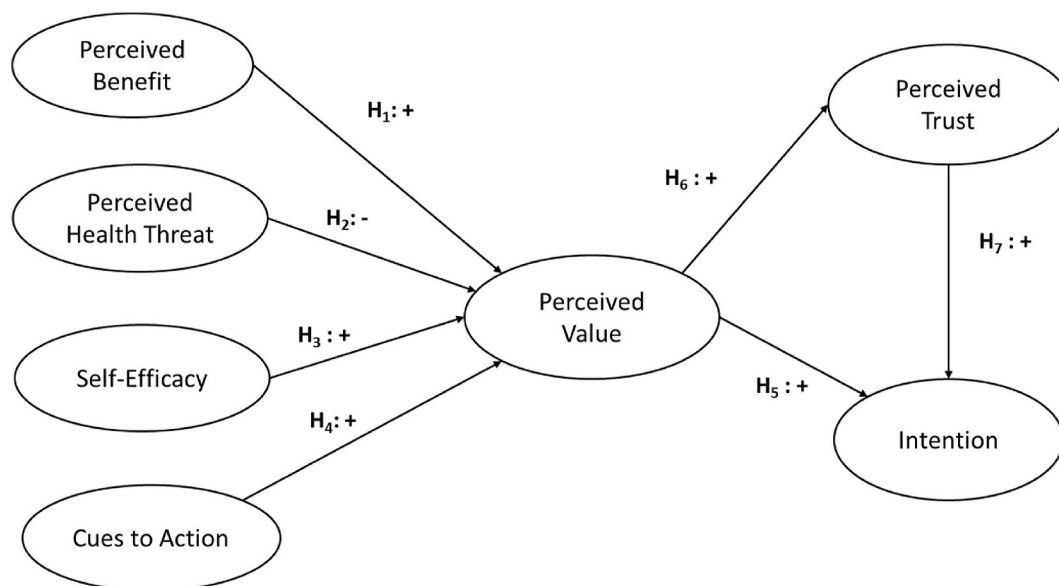


Fig. 1. The theoretical model.

study suggests that positive perceived value has a direct effect on customers' intent to use cruise services post COVID-19 (i.e. H₅). Customers are seen as intelligent beings that will most likely use cruise services post COVID-19 when the perceived benefits offset perceived barriers for using cruise services. The theoretical model of this study also suggests that the positive perceived value of customers can lead to their intention to use cruise services through their perceived trust towards cruise operators (i.e. H₆ and H₇). In the context of this study, trust is defined as the exchange of a party's confidence with another party's integrity and reliability (de Matos and Rossi, 2008; Morgan and Hunt, 1994). Particularly, the cruise customers' confidence in the integrity and reliability of the health-protection measures undertaken by cruise operators post COVID-19 to eliminate any future health scare onboard cruises. With the trust for cruise operators, customers will be confident to consider and take the necessary steps to use their services and thus would encourage their intention to use cruise services post COVID-19 (H₇).

2.2. Determinants of customers' perceived value towards cruise services post COVID-19

The COVID-19 pandemic is still fresh in our minds; hence, no prior studies have investigated the determinants of customers' perceived value towards cruise services specifically targeted for the post COVID-19 period. Instead, past research has emphasised more on the general idea of passengers' actual consumption experience onboard cruise operators, that is, physical on-board environment, and how it positively or negatively affects their psychology and intention to use cruise services in the future (Calza et al., 2020). Further, such studies focused on addressing the advantages and disadvantages of commercial and business aspects of cruise operators, how they affect customers' affective satisfaction and eventually their perceived value (Chua et al., 2017).

Despite such antecedents adhering to the general concept of perceived value theory, that is, customers weighing of advantages and disadvantages of using cruise services, they mainly failed to realise the importance of the health perspective of cruise customers in forming their overall value perception of cruise services, especially after living through a global health crisis, that is, COVID-19. Thus, the specific constructs of the health belief model are suggested to be more all-encompassing and can give a clearer picture of the construction of future cruise customers' perceived value of cruise services post pandemic. Such constructs include perceived benefit and barrier, perceived threat, self-efficacy and cues to action (Sulat et al., 2018). The subsequent sections explain the impacts of each construct on customers' perceived value of cruise services post COVID-19.

2.2.1. Evaluation of perceived benefit/barrier on customers' perceived value of cruise services

In this study, perceived benefit is seen as the customers' confidence in how much they can positively gain from using a service (i.e. cruise service) (Gong et al., 2019). Such confidence relates to the attractiveness and enjoyment of using cruise services post COVID-19 and the ability to fulfil the different dimensions of customers' perceived value (i.e. functional, economic, social and emotional value). The following are some of the advantages: being able to have fun and enjoy (i.e. emotional value) the entertainment and leisure options onboard after quite a significant period, meeting customers' fulfilment of their travel needs (i.e. functional value) and the ability to reunite with family and friends after going through the extensive pandemic period (i.e. social value). Perceived barrier can be seen as the belief of the physical and cognitive disadvantages of the proposed action of taking cruise services post COVID-19 (Sulat et al., 2018). The physical and cognitive disadvantages relate to the obstacles and disincentives of using cruise services post COVID-19. The obstacles may include higher complexity and costs of administrative duties that customers may have to perform beforehand, the uncertainty of the new measures and procedures of cruise operators

and the presence of the negative memory of the devastating cruise industry during the COVID-19 period leading to fear of contracting new infectious diseases like COVID-19.

The balance between the perceived benefit and perceived barrier of future cruise operators during the post COVID-19 period would form the customers' first impression and perception of the cruise operators value and worth. The positivity or negativity of the customers' perceived value will depend on which construct outweighs the other.

A customer's positive perceived value entails perceived benefits outweighing the perceived barriers of using cruise services (Sumaedi et al., 2012). Customers may see the demise of the COVID-19 pandemic as an opportunity for them to get back on board their trusted cruise operators (Han and Hyun, 2019) to satisfy their long-overdue travel and social needs (i.e. functional and social value) after being deprived of cruising since the pre-pandemic period. Furthermore, due to prior positive experiences, some customers would tend to have a better value perception of the services and measures that would be undertaken by the cruise operators and would take the necessary procedures to minimise their probability of getting sick onboard (Holland, 2020). This minimises their perception of the barriers of using the cruise services as they anticipate experiencing the benefits associated with using cruise services based on its various utilities, leading to a positive impact on their perceived value.

However, a customer's negative perceived value entails a higher perceived barrier than perceived benefit of using cruise services. Many customers may still be unfamiliar with the cruise environment and may tend to derive their perception of the value of cruise operators from external sources, such as family, friends and global news (Chua et al., 2017). Equip with the knowledge from external sources, they may tend to perceive more danger and hazard from using cruise services (Holland, 2020) due to several major incidents of cruise vessels being isolated at sea, for example, Diamond Princess during the pandemic itself. Such interpreted knowledge may lead to them having negative imagery of the cruise operators leading to a higher perceived barrier, thus negatively affecting the customers' perceived value of using cruise services post COVID-19. Hence, the subsequent hypothesis is suggested.

H1. Perceived benefit of cruise services has a positive impact on customers' perceived value of cruise services post COVID-19

2.2.2. Impact of perceived threat on customers' perceived value of cruise services

In this research report, the perceived threat is characterised by an agglomeration of cruise customers' perception of the repercussions (i.e. severity and susceptibility) of using cruise services post COVID-19 (Sulat et al., 2018). The severity and susceptibility relate to the chances and repercussions of using cruise services post COVID-19. Such repercussions may include getting infected by new unknown infectious diseases, getting stranded on cruise vessels due to vessel isolation and deaths on board.

The COVID-19 pandemic outbreak in China in late 2019 is deemed one of the most widespread and difficult pandemics to control due to its severity and high susceptibility of transmission between humans (Jordan et al., 2020). Firstly, note that the COVID-19 pandemic can be transmitted by air with the presence of minute water droplets from the respiratory system of individuals (Morawska and Milton, 2020). Previous studies have shown that the mortality rate caused by the COVID-19 pandemic thus far (i.e. ~0.5%–1.0 %) has surpassed the mortality rates caused by the common flu (i.e. ~0.1 %) (Jordan et al., 2020; Mahase, 2020). Some of those who have contracted the COVID-19 virus were not even aware of their condition; that is, they are asymptomatic carriers who are not showing signs of an acute respiratory syndrome (Bai et al., 2020). Such a feature of the pandemic further heightened the susceptibility of the virus as it can be transmitted unknowingly to other unsuspecting individuals via asymptomatic means (Yu and Yang, 2020). Furthermore, older individuals and those with previous existing medical

conditions are more susceptible to the COVID-19 viral infection (DeCaprio et al., 2020). However, the virus also affects younger individuals who are evidently healthy (Godri Pollitt et al., 2020). These illustrate the high degree of risks of the presence of an infectious disease such as the COVID-19 on the health of individuals.

With the high uncertainty of a possible relapse of the coronavirus strain or an impending new strain of virus, customers may still be reluctant to use cruise services as soon as the COVID-19 pandemic ends. This is because they may feel that the cruise travel industry would never return to its original state and thus perceive that their travel needs, that is, enjoyment from social gatherings/functions and leisure purposes, cannot fully be met due to the restrictions of the added health safety measures on board post COVID-19. Therefore, this study will focus on the perceived health threat of future unforeseen new strains of infectious diseases, that is, viruses/influenzas, that can harm customers' perceived value in using cruise services post COVID-19.

H2. Perceived health threat from infectious diseases has a negative impact on customers' perceived value of cruise services post COVID-19

2.2.3. Impact of self-efficacy on customers' perceived value of cruise services

In this research report, self-efficacy is defined as the confidence of cruise customers in overcoming the barriers of using cruise services post COVID-19 (Champion and Skinner, 2008). Ultimately, self-efficacy involves customers' belief that they can allocate and obtain relevant resources confidently (Yuen et al., 2020) to overcome any health fears by clarifying and understanding the latest measures and procedures undertaken by cruise operators to prevent the future spread of diseases onboard cruise vessels.

In this respect, ensuring sufficient assisting resources, such as awareness campaigns, exhibitions and education, is essential to rapidly improve customers' confidence in using cruise services post COVID-19 (Champion and Skinner, 2008). Equivalently, national tourism organisations can also do their part in promoting the use of cruise services post COVID-19. They can also guarantee the protection of customers' health onboard cruise operators through advertisements, such as, transparent flow of information about the necessary procedures to undertake before and when using cruise services (Tay, 2020). Apart from boosting the confidence of cruise customers, the availability of such means would attract customers' attention by forming an awareness of the use of cruise services. This enables customers to be more aware of the enhanced measures and procedures undertaken by cruise operators to ensure the health safety of its passengers. This would positively affect customers' perceived value as with greater awareness, customers will be able to have peace of mind and may be tempted to fulfil their leisure needs (i.e. functional value). Customers would be able to let loose and enjoy their time on board the cruise without having any worries (i.e. emotional value). Customers may also be confident enough to encourage their friends and family to use cruise services (i.e. social value), allowing cruise travelling to be more accepted by society. Therefore, the following hypothesis is suggested.

H3. Self-efficacy has a positive impact on customers' perceived value of cruise services post COVID-19

2.2.4. Impact of cues to action on customers' perceived value of cruise services

In this study, cues to action refer to the turning point that generates the willingness and intent of customers to use cruise services post COVID-19 (Champion and Skinner, 2008). Such cues can be internal, for example, customers' may be reminded of their past cruise vacations and holidays, which they have been longing to experience again. Cues can also be sparked from external influences such as cruise associations and interest groups that promote cruise travel as an attractive and safe luxury lifestyle option, gives necessary guidance, or develop attention pertaining to the use of cruise services post COVID-19 (Raamkumar

et al., 2020).

This study suggests that customers who acquire positive experiences onboard cruise operators pre COVID-19 would have a higher probability of having a higher positive perception of the value of cruise services even during the post COVID-19 period. This agrees with the cognitive dissonance theory, which is defined as the tendency for individuals to find consistency within their own judgements and views (Yuen et al., 2016). Despite the inherent disadvantages and risks associated with using cruise services post COVID-19, customers with prior positive experiences may still have a positive perception of the value of cruise services as they would expect cruise operators to take the necessary measures to ensure the health safety of cruise passengers. Thus, having a more positive perceived value of cruise services post COVID-19 is in-line with customers' previous judgement that using cruise services generates positive outcomes. They will be more willing to participate and immerse themselves (i.e. emotional value) in the leisure and entertainment activities onboard (i.e. functional value) even with the presence of safety restrictions. Additionally, the influence of cruise customers that are 'ready' to use cruise services post COVID-19 can encourage other customers to be more willing to follow suit and attain social acceptance (i.e. social value) (Badrinarayanan and Sierra, 2018). Hence, the following hypothesis is created.

H4. Cues to action have a positive impact on customers' perceived value of cruise services

2.3. Direct impact of perceived value on customers' intention to use cruise services post COVID-19

In the context of this study, cruise customers' positive perceived value is assumed to directly lead to their intention to use cruise services post COVID-19. A positive perceived value of a service, that is, cruise service, can have a strong impact on the behavioural intention of customers (de Oliveira Santini et al., 2018; Kim et al., 2017). When customers can realise the various utilities (i.e. emotional, functional, social and economic values) from using cruise services post COVID-19 according to its antecedents as stated previously, they would feel more self-motivated to take on the necessary steps to experience the effects of the utilities in reality (i.e. intention to use).

The theoretical model of this study bases itself on the future outlook of customers' intention to use cruise services post COVID-19. Thus, customers would have a positive value perception for future cruise services if cruise operators transparently disclose their proposed health safety measures publicly to garner social acceptance via word-of-mouth (i.e. social value). In addition, the creation of positive value perception is achieved by building stronger customer relations by re-educating them on the emotional and functional perks of cruise tourism (i.e. having fun/leisure and travel needs) via email or online exhibitions (Basaran and Aksoy, 2017). When one or more dimension of perceived value is recognised by customers, these would enhance their value perception of cruise services post COVID-19, leading to their intention to use cruise services. Therefore, the subsequent hypothesis is proposed.

H5. Perceived value has a positive influence on customers' intention to use cruise services post COVID-19

2.4. The indirect impact of perceived value on customers' intention to use cruise services post COVID-19

This study also suggests the indirect impact of customers' positive perceived value on customers' intention to use cruise services post COVID-19 through the concept of trust. Trust is defined as the exchange of one party's confidence with another party's integrity and reliability (de Matos and Rossi, 2008). In the context of this study, the trust concept is referred to the cruise customers' perceived trust towards cruise operators post COVID-19.

Trust can be derived from psychology and emotional segments of an

Table 2
Measurement items of each construct.

Construct	ID	Measurement Item	Central Themes	Adapted Source
Perceived benefit (PBB)	PBB 1	I will be able to interact with my family and friends	Social benefit	Han and Hyun (2019)
	PBB 2	Travelling with cruise line is truly a joy.	Emotional benefit	
	PBB 3	Compared to the price I pay for a cruise; I think I will receive good value while using cruise services.	Economic benefit	
	PBB 4	Using cruise services post COVID-19 will compensate for what I miss in my daily life during the COVID-19 pandemic period	Functional benefit	
Perceived health threat (PHT)	PHT 1	The chances of me getting infected by a new unknown infectious disease is higher if I use cruise services post COVID-19	Susceptibility (External)	Huang et al. (2016)
	PHT 2	In view of my health status, I am more susceptible to contract new unknown infectious diseases	Susceptibility (Self)	
	PHT 3	The thought of having an infectious disease like COVID-19 is terrifying	Severity (Physical)	
	PHT 4	I fear any long-term economic losses/effects due to being contracted by an unknown infectious disease	Severity (Economic)	
Self-efficacy (SEL)	SEL 1	I am confident that I can protect myself from getting infected by an infectious disease on board cruises		Fisher et al. (2018)
	SEL 2	I am fully equipped and able to perform all safety precautions required by the cruise operator		
	SEL 3	I would get assistance from others when I have difficulties performing safety precautions.		
	SEL 4	I am fully aware of what to do if an outbreak occurs on board		
Cues to action (CUE)	CUE 1	My family and friends will support me if I use cruise services.	External cues	Wong et al. (2020)
	CUE 2	I am highly encouraged by the government to use cruise services post COVID-19	External cues	
	CUE 3	I will only use cruise services post COVID-19 if I am given adequate external information about the existing safety precautions	External cues	
	CUE 4	I will only use cruise services post COVID-19 if more people are using cruise services again	External cues	
	CUE 5	Personal experience with cruise services prompted me to use it again	Internal cues	
Perceived value (VAL)	VAL 1	I think that cruise services will still be reasonably priced as before COVID-19 pandemic	Economic value	Yuen et al. (2019)
	VAL 2	As a whole, cruise services will still be pleasant post COVID-19, just like before	Economic value	
	VAL 3	Compared to the time and effort I spent on cruise services post COVID-19; I believe I will receive good value	Functional value	
	VAL 4	After weighing in the benefits and barriers, I feel that using cruise services post COVID-19 would still have positive effects on the tourism industry and society	Social value	
Perceived trust (TRU)	TRU 1	I believe that cruise operators will conduct effective health protection measures to ensure good hygiene on board	Competency	Yuen et al. (2018)
	TRU 2	I am confident that the crew members are knowledgeable and ready to deal with any types of health scare on board by implementing sustainable shipping practices	Expertise	
	TRU 3	I trust that I will genuinely be well taken care of by the cruise operator if an outbreak were to occur	Benevolence	
	TRU 4	I believe that the cruise operator will be able to handle any health emergencies ethically	Integrity	
	TRU 5	My trust in cruise services will be based on the reliability of safety measures of cruise operator.	Reliability	
Intention to use cruise services post COVID-19 (INT)	INT 1	I intend to use cruise services post COVID-19		Zhao et al. (2018)
	INT 2	I consider the use of cruise services my first choice for my next holiday option		
	INT 3	I will recommend my friends and family to use cruise services post COVID-19		
	INT 4	I will spread positive things about cruise services to my family and friends post COVID-19		

individual's service experience (Isaeva et al., 2020; Luo and Zhang, 2016). Assessing the psychology-based trust involves customers making logical decisions to trust a service (i.e. weighing the advantages and disadvantages of using a service), whereas emotional-based trust relates to the emotional relationships between customers and service providers, that is, cruise services (Isaeva et al., 2020; Şengün and Wasti, 2011). The impact of perceived value on customers' trust towards cruise operators can be further elaborated by both the psychological and emotional segments of a person's service experience. For the theory, customers' psychological and emotional trust towards cruise operators can be created by weighing the perceived advantages and disadvantages of using cruise services post COVID-19. This is linked with the previous hypotheses that customers' positive perceived value can be formed when their perceived benefits and self-efficacy exceed their perceived health threats of using cruise services post COVID-19. The antecedents of the perceived value match with the factors affecting customers'

psychological trust towards a service, that is, cruise operators; hence, a positive value perception of the cruise services post COVID-19 can induce the customers to trust cruise operators. Therefore, the subsequent hypothesis is proposed.

H6. Perceived value has a positive influence on customers' trust towards cruise operators post COVID-19

Customers can only experience cruise services at the point of purchase in the future, that is, post COVID-19; therefore, the element of trust towards cruise operators is greatly needed to spur them to actually use the services when the opportune time comes (Wu et al., 2018). The customers' need to trust cruise operators signifies the imperfect information that exists between both the parties (Forgas-Coll et al., 2014). In this context of this study, the imperfect information would also include the customers' uncertainty of the cruise operators' future actions in ensuring the health protection of the customers. With the establishment

of trust, it would allow customers to lower their perception of the disadvantages of the performance of the cruise operators (Forgas-Coll et al., 2014), leading to the customers' having more confidence to use their services.

Some studies have examined the influence of customers' trust on their intention to use cruise services. Some research has looked into the huge role of trust in affecting customers' intentions to use cruise services again (Han et al., 2018). Additionally, some have also dove into the argument that customers' trust in a service provider can lead to their intention to use their services (Wu et al., 2018). In the case of this study, customers' trust in the future actions of cruise operators in dealing with health protection concerns would assist in influencing customers' intention to use cruise services post COVID-19. Therefore, the subsequent hypothesis is suggested.

H7. *Trust has a positive influence on customers' intention to use cruise services post COVID-19*

3. Methodology

3.1. Measurement items

To express and define the constructs of the suggested theoretical model, measurement items are first formed. Table 2 depicts each measurement item of the constructs, their central themes and respective adapted references.

3.2. Survey design and administration

For data collection, we have integrated the established measurement items within a survey questionnaire. The survey contains three distinct components. The first component constitutes the introduction of the survey that includes the background and aim of the research project. The second component involves questions relating to the demographic of respondents such as their age, gender, estimated monthly income and educational level. Additionally, we also included questions with relations to respondents' prior usage of cruise services and their current living proximity to a cruise terminal. Lastly, the third component is composed of the measurement items as depicted in Table 2. The respondents were requested to rate every item according to the Likert scale (scale from 1 to 9). Furthermore, the questionnaire also affirms the confidentiality of respondents and seeks for utmost honesty from them.

The questionnaire was administered mainly to target a sampling frame of citizens residing in China. China was selected for administering the survey questionnaire as it is the top source country in Asia for global cruise passenger travel before the COVID-19 pandemic (Sun et al., 2019). Also, the current situation in China has been rather stable with its people abiding strictly to health safety regulations and domestic cruise travel reviving (Jin et al., 2021).

To affirm that the survey could be fathomed fully by the Chinese respondents, the authentic English version was translated into the Chinese language by an expert translator. To ensure that a similar essence is preserved post-translation, the Chinese version was consequently translated back into English by a separate translator. The two English versions were then cross checked for the identification of any disparities. Successively, some alterations were done to the Chinese version based upon comments and deliberations with the translator. The finalised version of the questionnaire was then sent to an established survey site in China called Wen Juan Xing (www.wjx.cn). The survey link was disseminated via Chinese WeChat groups across several tourism-related industries and through Chinese social media sites (i.e. Weibo). E-cash vouchers were distributed to those that partook in the survey. This study involves the usage of cruise services; hence, there are no age limits for this survey, and people of all ages are permitted to complete the survey to avoid sampling bias and ensure that the responses are representative of China's population. The survey was opened to receive responses

within a six-week period, spanning over two months from December 2020 to January 2021. A total of 603 completed survey responses were received. However, only 376 passed the validation tests, which require respondents to answer three attention check questions – attention filter, trap question and reverse question.

3.3. Demographics of respondents

Table 3 depicts the demographic profile of the 376 respondents. The gender percentage split of male (49.94 %) and female (51.06 %) respondents was roughly equal. Its evenness is substantially similar to the 2019 statistics reported by the China Statistical Yearbook 2020 but with different majorities, male (51.09 %) and female (48.91 %) (China, 2020b).

In terms of the respondents' age, slightly more than 57 % of the respondents are under 40 years old. This is marginally higher than the 2019 national average of about 51 % (China, 2020c). In terms of education, more than 70 % of the respondents are currently taking their undergraduate and graduate studies. This was similarly reported nationally by the World Education Services (WES) in 2019 (77 %) (Mini Gu et al., 2019). For the estimated monthly income of the respondents, their average income amounted to about 10,715.25 CNY per month, which is higher than the population parameter of 7451.75 CNY that excludes those working for urban private institutions (China, 2020a). The difference may be attributed to the respondents living in urban areas who are working for private entities instead in China. Finally, regarding the availability of cruise terminals near residential areas, the proportion is rather equal. This is highly desirable as an almost equal sub-groups of respondents would ensure a clear difference in their responses (Krueger et al., 2016). As a whole, the aforementioned contrasts give a sense of affirmation about the representation of the respondent sample.

4. Results and discussion

This part is further branched out into 3 sub-parts. The first subpart is the measurement model analysis where the fit, reliability and validity of the measurement items illustrated in Table 2 are analysed, and any common method bias within the survey data is investigated. The second sub-part introduces and elaborates the structural model, and the last sub-part scrutinises the mediating impacts and elaborates the direct, indirect and the total impacts of external variables on customers' intention to use cruise services.

4.1. Measurement model analysis

To assess the overall fit of the theoretical model as seen from Fig. 1 and determine the validity and reliability of the measurement items, the confirmatory factor analysis was conducted. The standardised factor loadings (λ), average variance extracted (AVE) and composite reliability (CR) of the constructs are presented in Table 4.

This study's theoretical model's fit indices are presented in Table 4 footnotes. The fit indices comprise the chi-square fit index χ^2/df (degrees of freedom) = 1.84, comparative fit index (CFI) = 0.975, Tucker-Lewis index (TLI) = 0.968, root mean square error of approximation (RMSEA) = 0.053 and standardised root mean square residual (SRMR) = 0.065. In all, the numerical results meet the cut-off threshold stated by Hu and Bentler (1999), thus proving a good model fit.

To access the reliability of the measurement items, CR was utilised. As shown in Table 4, the CRs of the respective items range between 0.871 and 0.939, well on top of the permissible cut-off, 0.700 (Hair et al., 2010). This demonstrates internal consistency, which reveals that the items can represent their loaded constructs reliably.

The validity of measures is assessed on the basis of both convergent and discriminant validity. The AVE and squared correlation of the constructs are presented in Table 5. Firstly, all of the AVE numerical are above the recommended value of 0.50 which suggests presence of

Table 3
Respondents' demographic profile.

Characteristics	Observations	Frequency (n = 376)	Percentage (%)
Gender	Male	184	48.94
	Female	192	51.06
Age	≤20 years	20	5.32
	21–30 years	115	30.59
	31–40 years	83	22.07
	41–50 years	102	27.13
	51–60 years	49	13.03
Monthly Income (CNY)	≥60 years	7	1.86
	0	49	13.03
	≤3000	36	9.57
	3001–5000	62	16.49
	5001–9000	90	23.94
Education Level	9001–15,000	61	16.22
	>15,000	78	20.74
	Junior High School and below	6	1.60
	Technical	16	4.26
	Secondary School		
	Junior College	65	17.29
Prior experience of using cruise services	Senior High School	16	4.26
	Undergraduate	206	54.79
	Post-graduate	67	17.82
Availability of cruise port/terminal in residential area	Yes	124	32.98
	No	252	67.02
	Yes	189	50.27
	No	187	49.73

convergent validity (Kline, 2010). Additionally, the AVEs of either two of the constructs are more than their respective square correlations. The discovery reveals that the measurement items are more correlated with their loaded constructs, implying discriminant validity.

These data were obtained from one source; thus, common method bias may influence the results' validity. To investigate for common method bias, Harman's single factor test via principal component analysis was adopted to determine whether single factors are responsible for most of the variance (i.e. >50 %) within the theoretical model (Podsakoff et al., 2003). The measurement items were loaded onto a single factor, where the variance in the single factor model was around 38 %. This shows that common method bias is a huge matter of concern in this research.

Overall, the results illustrate an acceptable fit of the theoretical model and reliability and validity of its related measurement items. Moreover, common method bias is not a pressing problem. Thus, the research can continue with the formal testing of the structural model.

4.2. Structural model analysis

Fig. 2 presents the standardised estimated correlations of the constructs shown in Fig. 1 and their respective squared multiple correlations (R²). It represents the full structural model estimation of the theoretical model. Additionally, control variables (age, education and experience) are incorporated to control for their impacts on customers' intention to use cruise services post COVID-19. Such variables are proposed to influence the usage of cruise services post COVID-19 (Jones, 2011). The purpose of including control variables is to minimise spurious estimation of the model's parameters. For example, the estimates of the effect of perceived value and perceived trust on customers' intention to use cruise services would be inflated if the control variables are omitted, leading to inaccurate results. The control variables which include age, education and experience are information obtained from the survey (refer to Table 3). Both age and education are interval scales whereas experience is a dichotomous scale with '0' representing 'no prior experience using cruise services' and '1' representing 'have experience using cruise services'.

Table 4
Confirmatory factor analysis results.

Construct	Item	λ	AVE	CR
Perceived benefit (PBB)	PBB1	0.759	0.630	0.871
	PBB2	0.824		
	PBB3	0.852		
	PBB4	0.733		
Perceived health threat (PHT)	PHT1	0.810	0.686	0.897
	PHT2	0.856		
	PHT3	0.809		
	PHT4	0.838		
Self-efficacy (SEL)	SEL1	0.822	0.669	0.890
	SEL2	0.835		
	SEL3	0.839		
	SEL4	0.773		
Cues to action (CUE)	CUE1	0.743	0.599	0.881
	CUE2	0.852		
	CUE3	0.712		
	CUE4	0.828		
	CUE5	0.724		
Perceived value (VAL)	VAL1	0.770	0.687	0.891
	VAL2	0.848		
	VAL3	0.799		
	VAL4	0.892		
Perceived trust (TRU)	TRU1	0.841	0.669	0.910
	TRU2	0.865		
	TRU3	0.879		
	TRU4	0.741		
	TRU5	0.754		
Intention (INT)	INT1	0.824	0.794	0.939
	INT2	0.903		
	INT3	0.907		
	INT4	0.926		

Note: Model fit indices: $\chi^2/df = 1.84$, ($p < 0.05$); CFI = 0.975; TLI = 0.968; RMSEA = 0.053; SRMR = 0.065.

In all, the model fit indices as seen at the bottom of Fig. 2 show that the structural model acquires a good fit. Moreover, the squared multiple correlation (R²) of the endogenous latent variables (i.e. perceived value, perceived trust and customers' intention to use cruise services post COVID-19) are larger than 0.26, which implies substantial adequacy in the explanatory power of the model (Cohen et al., 2013).

Fig. 2 proves that the health belief model constructs of perceived benefits, perceived health threat, self-efficacy and cues to action have significant impacts on customers' perceived value towards cruise services post COVID-19. Hence, H₁ to H₄ are accepted. They justify the huge proportion of the variance in customers' perceived value towards cruise services (R² = 0.793), which outperforms previous models (R² = 0.358) (Calza et al., 2020). Such improvements are expected due to the expansion of existing research that mostly focuses on the health preventive measures and improvement of crisis management onboard cruises (Chiou et al., 2020; Liu-Lastres and Johnson, 2019; Liu-Lastres et al., 2019). Instead, this study considers the incorporation of the health belief model that deals with the point-of-view of customers and society on their perception of the value of cruise services with the presence of infectious disease pandemic. The standardised impacts (β) of the four constructs are 0.767, -0.439, 0.365 and 0.209, respectively.

Table 5
AVE and squared correlations of the constructs.

	PPB	PHT	SEL	CUE	VAL	TRU	INT
PPB	0.630	0.042	0.061	0.042	0.572	0.020	0.013
PHT		0.686	0.061	0.071	0.430	0.006	0.007
SEL			0.669	0.029	0.186	0.009	0.001
CUE				0.599	0.076	0.013	0.088
VAL					0.687	0.549	0.383
TRU						0.669	0.296
INT							0.794

Note: main diagonal contains AVE values and off diagonal contains squared correlations.

According to the perceived value theory, customers' positive perceived value is created when perceived benefits exceed perceived barriers of using cruise services (Sumaedi et al., 2012). Thus, perceived barriers that relate to the obstacles and disincentives of using cruise services post COVID-19 would harm customers' perceived value in cruise services. On the flipside, customers' confidence in achieving a positive outcome, which relates to emotional (e.g. fun and enjoyable), functional (e.g. entertainment, leisure and meeting customers' travel needs), social (e.g. reunite with family and friends on board) and economic value (e.g. cruise services still affordable as pre COVID-19) (Grace and Iacono, 2015) of using cruise services would have a positive impact on customers' perceived value. Likewise, possessing positive cues from customers' past experiences and strong recommendations from cruise associations, interest groups and other confident cruise customers can lead to social acceptance and thus improving customers' perceived value of using cruise services post COVID-19 (Raamkumar et al., 2020). Lastly, self-efficacy, which involves customers' belief in allocating and attaining relevant resources confidently (Yuen et al., 2020) and their confidence in using cruise services would influence their perceived value on cruise services. The results prove that having enough assisting resources to spread awareness and normalising the use of cruise services post pandemic within society allow for customers to positively perceive the value of using cruise services post COVID-19.

Fig. 2 also reveals that perceived value has a substantial, direct impact on customers' intention to use cruise services ($\beta = 0.513, p < 0.05$). Hence, H₅ is accepted. This agrees with the perceived value theory and current studies that propose that having a positive perceived value can have a strong impact on customers' behavioural intention to use cruise services post COVID-19 (Kim et al., 2017) and assist them in realising the various utilities (i.e. emotional, functional, social and economic values) that are associated with using cruise services. These would enhance customers' self-motivation to take the necessary steps to experience the utilities in reality, which results in their intention to use.

Moreover, perceived value does have a direct impact on customers' perceived trust towards cruise operators post COVID-19 ($\beta = 0.764, p < 0.05$) and that their perceived trust has a direct impact on their intention to use cruise services post COVID-19 ($\beta = 0.138, p < 0.05$). Hence, H₆ and H₇ are accepted. This discovery proposes an indirect impact that perceived trust has on customers' intention to use cruise services. The

positive correlation between perceived value and perceived trust conforms to trust theory, which narrates that trust can be derived from psychology (making logical decisions to trust a service) and emotional (emotional relationships between customers and service providers) segments of a person's service experience. In this respect, perceived value is considered a crucial antecedent of perceived trust as it is a perception that expresses the conclusion of customers' assessment of cruise services; assist in making logical decisions (i.e. weighing perceived benefits and barriers and perceived health threats) and forming emotional bonds with cruise operators (i.e. self-efficacy and cues to action). Furthermore, perceived value justifies more than 58 % of the variance in customers' perceived trust towards cruise operators ($R^2 = 0.584$), which demonstrates the effectiveness of perceived value in justifying customers' perceived trust (Fig. 2).

The positive correlation between perceived trust and customers' intention to use cruise services follows trust theory, which postulates that customers will exude more confidence in using cruise services post COVID-19 if trust is established because of the lowering perception of the disadvantages of the cruise operators' performance.

Altogether, with the incorporation of control variables (i.e. 'experience', 'age' and 'education'), both perceived value and perceived trust explain around 40 % of the variance of customers' intention to use cruise services post COVID-19 ($R^2 = 0.405$). The standardised impacts of 'experience', 'age' and 'education' are 0.052 ($p > 0.05$), 0.087 ($p > 0.05$) and 0.067 ($p > 0.05$), respectively. The impact of 'experience' on customers' intention to use cruise services is less significant. This result is slightly unexpected, especially for customers that had negative experiences using cruise operators during the onset of the COVID-19 pandemic in early 2020, as they would have a clearer awareness of the disadvantages of using cruise services and could be open to using cruise services in the future when cruise operators step-up their health protection measures. The less significant finding for 'age' is also unexpected as seniors would be more wary to use cruise services for fear of contracting any infectious diseases due to their compromised immune system due to their old age. The less significant impact of 'education' on customers' intention to use cruise services post COVID-19 is also surprising as this means that customers that possess higher education would be more vigilant in using cruise services in the future even with the knowledge of both the advantages and disadvantages of using cruise

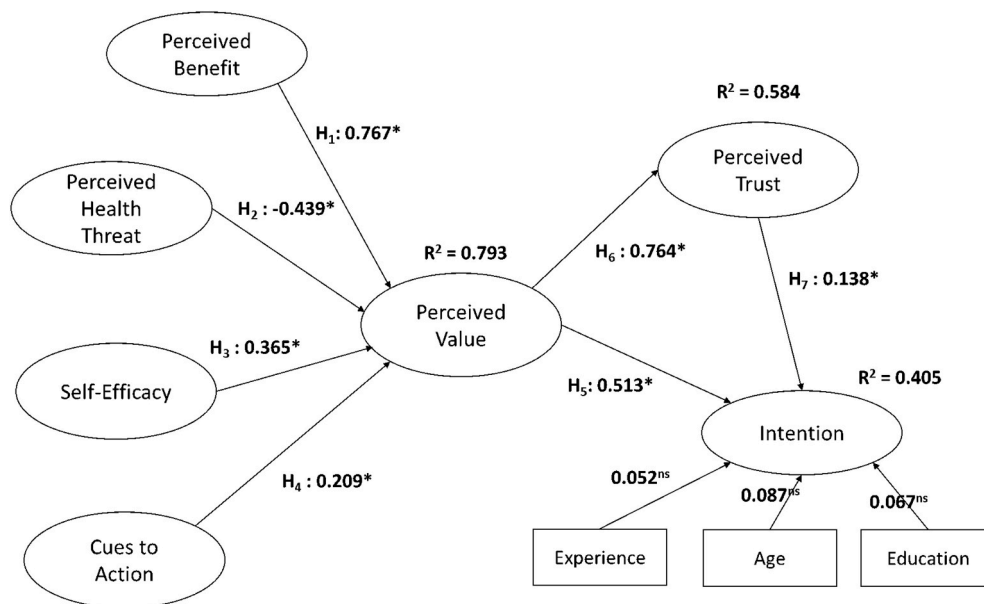


Fig. 2. Parameter Estimation of the Suggested Theoretical Model

Note: * indicates that path is statistically significant ($p < 0.05$), ns indicates not statistically significant; Model fit indices: $\chi^2/df = 1.763$ ($p < 0.05$); CFI = 0.969; TLI = 0.958; RMSEA = 0.060; SRMR = 0.071.

services post pandemic. Nonetheless, note that the relationships between inherent constructs and intention of using cruise services are stronger than those between demographic profile and the intention of using cruise services.

4.3. Direct, indirect and total effect analysis

Table 6 demonstrates the effects of exogenous variables on the endogenous variables. In terms of the direct effects, the main predictors of perceived value in descending order are perceived benefits ($a_{11} = 0.767$), perceived health threat ($a_{21} = 0.439$), self-efficacy ($a_{31} = 0.365$) and cues to action ($a_{41} = 0.209$). The sole direct predictor of perceived trust ($a_{52} = 0.764$). Finally, the main predictors of the customers' intention to use cruise services post COVID-19 are perceived value ($a_{53} = 0.513$) and perceived trust ($a_{63} = 0.138$).

In terms of the indirect effects, perceived benefits have the most significance on customers' intention to use cruise services ($b_{13} = 0.474$). This is subsequently ensued by perceived health threat ($b_{23} = 0.271$), self-efficacy ($b_{33} = 0.226$), cues to action ($b_{43} = 0.129$) and perceived value ($b_{53} = 0.105$). It can be interpreted by Fig. 2 that the four health belief model constructs on customers' intention to use cruise services are wholly transmitted via perceived value and partly via perceived trust.

As for the total effects, perceived value has the biggest total effects ($c_{53} = 0.618$) on customers' intention to use cruise services. This is ensued by perceived benefits ($c_{13} = 0.474$), perceived health threat ($c_{23} = 0.271$), self-efficacy ($c_{33} = 0.226$), perceived trust ($c_{63} = 0.138$) and cues to action ($c_{43} = 0.129$).

5. Conclusion

5.1. Summary of findings

This study initiated two consumer theories and one health-driven theory to investigate the factors that affect customers' intention to use cruise services post COVID-19. The aforementioned theories are perceived value theory, trust theory and the health belief model. The combination of these theories has formed a theoretical model unique for this study. Consequently, a survey questionnaire was produced and administered online targeting the Chinese market. A total sample size of 376 respondents was collated, and data attained were analysed through structural equation modelling. The results illustrate a substantial effect of the health belief model constructs, namely, perceived benefits, perceived health threat, self-efficacy and cues to action, on customers' intention to use cruise services post COVID-19. Subsequently, customers' perceived value towards cruise services has both direct and indirect effects on customers' intention to use cruise services through customers' perceived trust towards cruise operators. The suggested theoretical model can justify about 40.5 % of the variance of customers' intention to use cruise services, emphasising its explanatory power.

5.2. Theoretical contributions

This theoretical study has made a substantial input to academic research. Foremost, this study endeavours to justify customers' intention to use cruise services post COVID-19 from the consumer and belief viewpoints. It fuses consumer and belief theories consisting of perceived value theory, trust theory and the health belief model to comprehend the factors affecting customers' intention to use cruise services post COVID-19. The results unveil that these theories are interdependent, and they produce innovative justifications to customers' intention to use cruise services post COVID-19. This enhances theoretical research on cruise services that mainly concentrates on health crisis and its effects on customers' intention.

Secondly, this study also contributes to the theoretical research by adopting the health belief model to illustrate customers' perceived value towards cruise services, especially with the presence of the COVID-19

Table 6
Direct, indirect and total effects.

Exogenous (i)	Endogenous (j)		
	Perceived Value (1)	Perceived Trust (2)	Intention to Use Cruise Services (3)
Direct effects (a_{ij}) of			
Perceived benefits (1)	0.767	–	–
Perceived health threat (2)	0.439	–	–
Self-efficacy (3)	0.365	–	–
Cues to action (4)	0.209	–	–
Perceived value (5)	–	0.764	0.513
Perceived trust (6)	–	–	0.138
Indirect effects (b_{ij}) of			
Perceived benefits (1)	–	0.586	0.474
Perceived health threat (2)	–	0.335	0.271
Self-efficacy (3)	–	0.279	0.226
Cues to action (4)	–	0.160	0.129
Perceived value (5)	–	–	0.105
Perceived trust (6)	–	–	–
Total effects (c_{ij}) of			
Perceived benefits (1)	0.767	0.586	0.474
Perceived health threat (2)	0.439	0.335	0.271
Self-efficacy (3)	0.365	0.279	0.226
Cues to action (4)	0.209	0.160	0.129
Perceived value (5)	–	0.764	0.618
Perceived trust (6)	–	–	0.138

pandemic as of the date of this study. Related studies have only considered constructs of improving product and service quality to satisfy customer's expectations and ease their perceived value towards cruise services. The addition of the health belief model broadens current research by incorporating health-related constructs such as customers perception on the benefits and barriers of using cruise services post pandemic (i.e. perceived benefits) and customers' preparedness from infectious diseases (i.e. self-efficacy). Also, the health belief model regards the avoidance of using cruise service posts COVID-19 as health safety behaviour, which addresses important problems on the uncertainty of the cruise operators' reliability post pandemic and threats associated with future unknown infectious diseases. Thus, this study has produced a more comprehensive justification of the key psychological factors that would influence future customers' intention to continue using cruise services.

Thirdly, this study has assisted theoretical research by providing better nomological insights into the interdependent nature of the psychological factors influencing customers' intention to use cruise services post pandemic. Essentially, the health belief constructs only serve as the precursor of the creation of perceived value. Perceived value is created when perceived benefits exceed perceived barriers of using cruise services post COVID-19. The analysis of the benefits and barriers is based on the weighing of perceived benefits and barriers, perceived health threat, self-efficacy and cues to action. Furthermore, as depicted from the study, the creation of perceived value is crucial to affecting customers' trust towards cruise operators and their intention to use cruise services.

5.3. Policy implications

This study can advise policymakers concerning attracting more customers to use cruise services after the devastating effects of COVID-19 on the cruise industry. In terms of the rankings of the determinant factors, resources should be primarily allotted to restore customers' positive perceived value. Ultimately, a positive perceived value can be achieved by enhancing health protection measures, competency of

cruise operators and transparency of communicating such measures to the public. These concerns should be incorporated within the framework of cruise associations and operators to open up the cruise industry post COVID-19. Additionally, awareness, education campaigns and public exhibitions should be set up to spread the aforementioned aspects to rapidly enhance customers' perception of the benefits of using cruise services post COVID-19 and their overall value perception.

Policymakers should concentrate on gaining the trust of customers towards cruise operators post COVID-19. Trust is defined as the exchange of a party's confidence with another party's integrity and reliability (de Matos and Rossi, 2008; Morgan and Hunt, 1994); hence, an enhancement of the cruise operators' reliability of providing full health protection measures and its integrity in providing transparent information regarding such measures should be implemented. Such enhancements by policymakers and cruise operators are greatly desired to gain customers' confidence in cruise operators and their services post pandemic. Moreover, confidence can be cultivated by convincing customers that using cruise services post pandemic will be a similar experience as it was during the pre-pandemic era and that cruise operators are still competent in realising customers' utilities (i.e. emotional/social/functional/economic values) when they use their services. These can be attained via fitting governing measures for the whole cruise industry to meet high health protection standards and promoting the cruise industry through public education.

Cruise operators and policymakers should also fixate their attention on managing customers' weightage of perceived benefits and perceived barriers. Cruise operators can execute this by reversing negative perceptions of customers by providing detailed information about the relevant steps they undertook to ensure full health protection for their customers, redesign the blueprint of cruise ships and its functions to accommodate social distancing and emphasise the functional (i.e. leisure needs) and social value (i.e. family/friend reunions) of using cruise services post pandemic.

Subsequently, cruise operators and policymakers can concentrate on lowering the perceived health threat of using cruise services. For example, some strategies can include the using track and trace systems, implementing mandatory health insurance for staff and customers, conducting preboarding health screening and increasing medical facilities and staff onboard (Yazir et al., 2020). By providing foolproof health protection measures, cruise operators will help alleviate customers' concerns over the contraction of future unknown infectious diseases. Hence, such issues need to be looked into when designing health protection measures. Moreover, trial operations of cruise operations before reopening to the public are pertinent to ensure clear communication of health measures within the cruise companies and provide a sense of preparedness for the onboard crew.

Lastly, cruise operators and policymakers should also focus on improving customers' self-efficacy and cues to action in using cruise services post COVID-19. An active presence on social and mainstream media (i.e. television and newspapers) on the milestones set by cruise companies and associations in terms of their adoption of health protection measures and training of crew members would assist in encouraging the use of cruise services post COVID-19, thus enhancing external cues to influence motivation for customers' intention to use cruise services (Tsai and Bui, 2021). Moreover, cruise companies' innovative ideas of providing interesting and fun activities for customers can assist in improving internal cues to influence motivation for customers' intention. For the enhancement of self-efficacy, cruise tourism can be promoted as a viable vacation option for families and vacationers of all ages. Moreover, it can be marketed as a positive reminder for those that have used cruise services pre-pandemic. Additionally, sufficient resources should be put into setting up roadshows for cruise companies to get them closer to the public to share their respective health protection measures that are in place to gain customers' confidence in using cruise services.

5.4. Limitations and recommendations

Despite this study's contributions, it has a few limitations. Firstly, the outcome of the survey questionnaire of this study may be restricted by the narrow sample of respondents from China, which limits the setting of this study. Hence, the results may not be suitable for other countries due to different circumstances. The use of cruise services could be more appropriate for people living near cruise terminals such as Shanghai. Future research could cross-validate their suggested research model to various other coastal settings globally.

Additionally, the methods for administering the survey and coverage for this study are limited to the respondents that completed the survey via online means. This omits any physical interactions with the respondents and creates a challenge to decipher between respondents that have prior cruise service experience and those who do not. This may lead to the formation of non-response-bias of the theoretical model as the respondents might have similar characteristics such as acquiescence and altruism. Moreover, the respondents may be biased to the accepted social mind sets. Furthermore, the survey questionnaire for this study was not administered physically due to the observance of social distancing; therefore, future research could look into conducting physical surveys and custom interviews to collect the most honest data they could receive.

Finally, this study has mainly focused on the psychology and behaviour of cruise customers. Future research can concentrate on the operations of cruise ships. This can include utilising the automatic identification system (AIS) to study the mobility of cruise ships. Undoubtedly, the COVID-19 pandemic would have a negative impact on the supply of cruise services (Millefiori et al., 2020). Using AIS can assist in predicting the overall supply of cruise services as well as the shifts in supply patterns across the world (Santos et al., 2021). Accordingly, suitable supply management strategies such as purchasing or scrapping cruise ships, and adjusting cruise itineraries can be employed by cruise operators to efficiently match supply with demand. This could improve the profitability of cruise services.

CRedit author statement

Kum Fai Yuen: Conceptualization, Methodology, Supervision, Project administration **Muhammad Syukri Bin Saidi:** Investigation, Data Curation, Writing – Original Draft, Writing - Review & Editing **Xiwen Bai:** Writing – Original Draft, Writing – Review & Editing **Xueqin Wang:** Software, Writing - Original Draft, Writing – Review & Editing.

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