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The Effect of Airlines' Green Image on the Egyptian Air Travelers' Behavioural Intentions to Adopt Green Practices

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Abstract

Air travellers are becoming increasingly climate-conscious around the world. The growing trend of environmental awareness after COVID-19 pandemic, along with the recognition of the carbon footprint of flying, have derived many airlines in the world aviation market to focus on building a green image in the context of integrating sustainability in their marketing strategies. This research aims to explore how an airlines' green image can affect the behavioural intentions of Egyptian air travelers to adopt green practices and strengthen the airline's competitive advantage. Additionally, this research contributes to the image enhancement of the Egyptian flag carrier, Egypt air. In this regard, a quantitative approach will be adopted using an online semi-structured questionnaire in order to investigate the effect of the green image of airlines on the behavioral intentions of the Egyptian air travelers to adopt green practices. Finally, it was concluded that the relatively high Egyptian passengers' awareness of the negative environmental impacts of aviation industry should motivate Egyptair and other airlines operating in the Middle East to make initiatives concerning the green aviation at the purpose of gaining a competitive advantage and good reputation through enhancing their green image.

1. Introduction

Global warming, pollution and other environmental issues have had a growing concern in tourism industry which is responsible for 8% of the global carbon emissions (Wong et al., 2020, P. 86). Aviation is one of the significant tourism sub-sectors contributors in climate change due to mainly the carbon dioxide emissions (Air Transport Action Group, 2020; Wong et al., 2020; Thummala & Hiremath, 2022).

Accordingly, commitment to improve environmental sustainability has become essential (Sarkar, 2012; Mayer, 2013; Hagmann et al., 2015). The majority of airlines around the world are committed to work toward de-carbonization to reach a net-zero emission in 2050. In this regard, older aircraft retirements, increasing fleet efficiency and employing technology have been critical issues in aviation industry in order to offset its negative environmental impacts and mitigate the emissions (Air Transport Action Group, 2020; Hinkel, 2022; Thummala & Hiremath, 2022).

In addition to that, the outbreak of the COVID-19 pandemic in 2020 has caused a dramatic shutdown in air traffic growth with 16% expected reduction in 2050 compared to forecasts before the pandemic (Air Transport Action Group, 2020, P.2).

On the other side, air travellers are being increasingly climate-conscious around the world; which have resulted in a responsible behaviour towards environment (Hagmann et al., 2015; Thummala & Hiremath, 2022). They are becoming eager to purchase green and environmentally-friendly products (Mayer et al., 2019; Wong et al., 2020; Qiu et al., 2021).

For instance, Turkish customers with high environmental awareness tend to purchase green products and services according to the study of Emekci (2019). Similarly, Niu, Liu, Chang & Ye (2016) confirmed in their study that passengers in Taiwan prefer to travel with airlines that implement environmentally-friendly activities. On contrary, some studies confirmed that the raising customers' environmental awareness isn't always reflected in their actual behaviour (Mayer et al., 2019).

Mayer (2013) and Szuster (2019) discussed the necessity of launching green marketing campaigns in the air transport industry which aims to offer a greener air service through making modifications to airlines' traditional marketing mix. This would be beneficial for the airlines, making them attractive to passengers who are willing to act green and expect airlines to be proactive to climate change.

Some studies confirmed that employing green marketing strategy encourages adoption of passengers' green practices behaviours (Wong et al., 2020). However, green marketing in aviation industry enables airlines to announce their environmental initiatives, based on green supply that supports sustainability with environmentally-friendly products and services, meeting the green needs and expectations of protecting the environment (Mayer, 2013; Szuster, 2019; Wong et al., 2020).

Generally, prior literature regarding the environmental issues in air transport is mainly focused on the environmental impacts of aviation. Moreover, studies concerning passengers' behavioural intentions to adopt green practices are limited and not fully investigated, especially in Egypt. For addressing this research gap, the study attempts to investigate the Egyptian air travelers' behavioural intentions towards adopting green practices.

In this regard, this research aims to explore how an airlines' green image can affect the behavioural intentions of Egyptian air travelers to adopt green practices and strengthen the airline's competitive advantage. A quantitative approach adopts using an online semi-structured questionnaire in order to investigate the effect of the green image of airlines on the behavioral intentions of the Egyptian air travelers to adopt green practices based on the Theory of Planned Behaviour (TPB). Accordingly, the research hypotheses are the following:

H1: Attitude towards adopting green practices has a positive effect on the Egyptian travellers' behavioural intention to adopt green practices.

H2: Subjective norm to adopt green practices has a positive effect on the Egyptian travellers' behavioural intention to adopt green practices.

H3: Perceived behavioural control to adopt green practices has a positive effect on the Egyptian travellers' behavioural intention to adopt green practices.

H4: The green image of the airline has a positive effect on the Egyptian travellers' behavioural intention to adopt green practices.

1.1 Importance of Research

The study provides better understanding of the Egyptian passenger's behavioural intentions towards green practices adoption, which could be beneficial for airlines, allowing airlines to develop their marketing strategies to enhance efforts of environmental protection and consequently attract environmentally responsible air travellers. Additionally, this research contributes to the image enhancement of the airlines operating in Egypt.

2. Literature Review

2.1 Airline's Green Image

The growing trend of environmental awareness after COVID-19 pandemic, along with the recognition of the carbon footprint of flying, have derived many airlines in the world aviation market to focus on building a green image in the context of integrating sustainability in their marketing strategies (Mayer et al., 2019; Wong et al., 2020; Qiu et al., 2021; Neureiter & Matthes, 2022).

Generally, the airline's green image reflects the perceptions of an airline in the passengers' minds that associates the airline to environmental commitment. It is vital for developing a green airline's brand and has a significant impact on airline selection, giving an airline a competitive advantage and reputation of being socially responsible through green practices (Lee et al., 2010; Mayer et al., 2012; Mayer, 2013; Wong et al., 2020; Qiu et al., 2021; Neureiter & Matthes, 2022). Moreover, passengers have high willingness to pay for an airline with a green image (Lee et al., 2010; Hagmann et al., 2015; Qiu et al., 2021)

Some airlines improve their green image

through employing specific guidelines in their planning strategies for developing an environmentally-friendly airline. It is worth mentioning that successful green image needs an effective communication that is based on addressing green products, prices and services' emotional and functional benefits (Lee et al., 2010; Aidah, 2016; Chew et al., 2016).

Hence, green marketing mix is essential in building the airline's green image through creating a link between developing airlines' green products, their price, their green distribution channels, along with communicating their green initiatives (Mayer et al., 2014; Alghanmi, 2019; Mayer et al., 2019).

2.2 Practices of Airline's Green Marketing

Generally, some airlines have chosen to adopt green actions on managerial level, for example, setting environmental commitment in their corporate missions through environmental goals and programs for reducing carbon footprints, developing environmental policies in the workplace, making audits of environmental practices, rewarding employees for their environmental commitment, employing technologies for handling air pollution and recycling paper, along with supporting environmental projects financially. At the same time, airlines that embrace green actions tend to integrate green practices in their marketing mix in order to enhance green image and reduce carbon footprints (Aidah, 2016; Chew et al., 2016; Mayer et al., 2019; Thummala & Hiremath, 2022).

Regarding green products and services, airlines can improve their environmental performance and educate customers to be environmentally-friendly. Airlines can offer green products through introducing newer fuel-efficient aircraft with lower noise and carbon emissions, serving green in-flight products, such as, recycled organic products and eliminating free meals to reduce food waste, along with offering online check-in and electronic boarding pass (Sarkar, 2012; Mayer, 2013; Mayer et al., 2014; Aidah, 2016; Chew

et al., 2016; Mayer et al., 2019; Air Transport Action Group, 2020; Wong et al., 2020; Thummala & Hiremath, 2022)

Nevertheless, green products have a higher price due to the higher production costs (Sarkar, 2012; Mayer, 2013; Mayer et al., 2014; Air Transport Action Group, 2020). Generally, green airline pricing practices can be in the form of offering carbon off-setting programs, in which passengers offset their flights' carbon emissions by paying higher prices which are distributed for environmental issues through environmental organizations (Mayer et al., 2019; Szuster, 2019; Hinkel, 2022; Thummala & Hiremath, 2022).

Furthermore, consumers are willing to pay higher prices for products with an additional value, including protecting environment (Aidah, 2016; Chew et al., 2016). However, the study of Aidah (2016) concluded that majority of airlines have not involved passengers in conserving the environment and have not adopted carbon offsetting programs. Concerning the green distribution for airlines, it could be reflected in offering electronic paperless tickets (Mayer, 2013).

On the other hand, stating airlines' environmental efforts and communicating the environmental benefits enhance airline's green image, credibility and trustworthiness (Mayer et al., 2014; Mayer et al., 2019; Hinkel, 2022). For instance, using various communication channels such as onboard magazines and media advertising to announce to the environmental benefits of each green practice to the public (Wong et al., 2020).

Green communication is crucial for airlines' green image. In this context, the study of Mayer (2013) and Alghanmi (2019) mentioned the green communication as an effective element in the green marketing mix in the context of building a green image, discussing the effectiveness of providing passengers with information about the airlines' environmentally-friendly products, especially fleet renewal.

Hence, it is better for airlines to be transparent in communicating their actual environmental actions that have been done to position the airline as being a sustainability-committed corporation, exploiting sustainability as a competitive advantage, not merely a moral task. However, many airlines that have introduced a green marketing mix have been accused of greenwash (Wong et al., 2020).

Accordingly, for generating a green image, airlines need to show their environmental commitment (Mayer et al., 2019). Airlines should focus on avoiding greenwashing and overstating environmental claims as it destroys the airlines' value and brand image. Furthermore, the perceived greenwashing can cause flight shame in which the passengers' negative feelings towards flying due to its carbon footprints (Mayer, 2013; Mayer et al., 2014; Moussaoui, 2021; Neureiter & Matthes, 2022).

Consequently, green marketing campaigns give an airline a good reputation in terms of being socially responsible. Moreover, positioning airlines with a green image can positively affect customers' perception of the airlines' brand, green needs and purchasing behaviour (Alghanmi , 2019; Mayer et al., 2019; Wong et al., 2020). Meanwhile, other costumers believed in other studies that announcing companies' environmental concerns is exploited for merely improving their image (Mayer, 2013).

On the other side, regarding passengers' willingness to adopt green practices, various studies confirmed the positive attitude of passengers towards the environment (Mayer et al., 2019; Hinkel, 2022). Nevertheless, the study of Mayer, Ryley, and Gillingwater (2019) confirmed that positive attitude towards green practices does not necessarily have a positive effect on green behaviour and their willingness to pay higher fares.

Additionally, the same study concluded that passengers confirmed that the most effective green airline practice is serving routes using newer aircraft. Furthermore, in some studies, customers suggested that reduce air travel is one of the best ways to reduce negative environmental impacts of aviation industry (Mayer, 2013).

2.3 Airlines Adopting Green Practices in the World Aviation Market

There are many airlines that have taken the environmental issues to the strategic level in terms of the airline's visions and goals, such as Scandinavian airline. Virgin Atlantic and EasyJet, for example, have adopted a green marketing mix that enabled these airlines to gain a green image through focusing on green marketing messages (Mayer, 2013; Mayer et al., 2014; Aidah, 2016; Mayer et al., 2019). Moreover, British airways have launched the initiative of setting carbon offsetting program (Szuster, 2019; Hinkel, 2022).

Additionally, Egyptair's green plans involve replacing single-use plastic with eco-friendly materials on-board and at airports. In this regard, Egyptair had launched eco-friendly trips and green service flights with a 40 % discount in the first year of 2022, including Eco-friendly products for the first time in Africa. The first flight was from Cairo to Paris, followed by the second flight from Cairo to Athens. Moreover, in the late of 2022, Egyptair operated the first flight from Charles de Gaulle to Sharm El-Sheikh International airport powered by Sustainable Aviation Fuel (SAF) (Ahram Online website, 2023).

3. Research Methodology

This research aims at investigating the effectiveness of introducing the green image of airlines on the Egyptian air travellers' behavioural intention to adopt green practices. Consequently, this research can be considered a descriptive–exploratory research that adopts a quantitative approach by developing and distributing an online questionnaire, using a survey method for collecting the primary data required for testing the research hypotheses.

3.1 Research Design

Following the study of Wong, Ming Sia and Yew Ling (2020) that investigated the effect of perceived sacrifice on the passengers' green adoption behavioural intentions, this research relied on the Theory of Planned Behaviour (TPB) to investigate the influence of the airline green image on the behavioural intention amongst the Egyptian air travelers regarding the green practices adoption.

However, employing TPB in the field of green practices adoption in the airline industry is relatively limited. Generally, TPB is mostly applied in researches predicting environmentally-friendly behaviours, for instance, researches concerning behavioural intention towards recycling (Valois et al., 2015), saving water (Fielding et al., 2012; Cooper, 2017), buying green products (Hossain & Lim, 2016), or green practices at workplace (Blok et al., 2015; Liao et al., 2018).

According to various studies including the study of Truong (2014) and Wong, Ming Sia and Yew Ling (2020), TPB is one of the most adopted theories to predict behavioural intentions and behaviours in social marketing. Generally, beavioural intentions reflect the likelihood of performing specific behaviour in a specific situation, the stronger the intention, the higher likelihood the behaviour will be practiced.

This theory suggests three main determinants influencing the one's behavioural intention towards the behaviour: (a) attitude, the degree to what extent a specific behaviour is favourable for an individual; (b) subjective norm, the degree of the power that social pressures (opinions of parents, friends, etc.) have on an individual to perform a specific

behaviour; and (c) perceived behavioural control, the perception of an individual regarding the degree of difficulty of a specific behaviour.

Nevertheless, the model can be extended to include new variables due to the insufficiency of some existing constructs when predicting a specific behavioural intention such as green practices adoption (Truong, 2014; Wong et al., 2020). In this regard, an airline green image has been added as an independent construct to the basic TPB model of three main independent constructs: attitude, subjective norm and percieved behavioural control (Wong et al., 2020).

3.2 Sampling Design

The target population was both actual and potential Egyptian air travelers in order to investigate the effectiveness of airline's green image on their behavioural intention to adopt green practices in their future flights, whether they have flown before or not. In this regard, an online questionnaire was distributed among a sample of Egyptian citizens.

The study employed a snowball sampling technique due to its effectiveness in saving cost and time. It is a Non-probability sampling method that based on asking the first few samples reached by the researchers to nominate others with the same traits to take part in the research until obtaining the sufficient sample size, which provides the researcher a better communication with the samples (Naderifar M et al., 2017; Ganesha & Aithal, 2022).

The survey was conducted in January 2022. The total received questionnaires were 105; only 103 of them were valid for analysis due to duplication and missing data (validity percent 98.1%). Statistical Package for Social Sciences, IBM SPSS Statistical program (Version 25) was used for multiple regression analysis.

Regarding the sample size, the study relied on 'Sample-To-Variable ratio' rule/guideline, which suggests 5:1 as a minimum observation-to-variable ratio, however, 15:1 or 20:1 ratios are more preferred. This means each independent variable in the model requires from 5 to 20 respondents, with a minimum of five subjects per each independent variable for multiple regression analysis according to Tabachnick and Fidell (1989).

Additionally, exploratory analyses require a sample with a minimum of 50, whereas regression analysis mostly needs from 50 samples to 100 samples (Hair et al., 2018; Memon et al., 2020). Accordingly, the appropriate sample size in this research should range from 50 to 100. Hence, the used sample size in this exploratory research is within the acceptable range.

3.3 Questionnaire Design

The questionnaire of this research was adapted from prior literature (Mayer, 2013; Wong et al., 2020; Nekmahmud et al., 2022; Yfantidou et al., 2022). The items of questionnaire to measure the first three independent variables, attitude, subjective norm and perceived behavioural control were adapted from Kim, Njite & Hancer (2013) according to Wong (2020) and Yfantidou (2022).

On the other hand, attitude is a three-item scale, subjective norm is a two-item scale, perceived behavioural control is a two-item scale, and Four-item scale for behavioural intention that was adapted from Kim & Han (2010) according to Wong (2020). Meanwhile, the items of questionnaire to measure the fourth independent variable, the airline green image with the seven-item scale, were adapted from Mayer (2013); Nekmahmud (2022) and Yfantidou (2022). Nevertheless, items of the questionnaire were adjusted to be more suitable to the current study's context.

Additionally, the questionnaire was divided into three main sections; the first section was concerned with respondents' demographic characteristics. The second section was allocated to indicate green practices that could be adopted by the Egyptian air travelers including (a) online ticket purchase, check-in and boarding pass; (b) extra payment for environmental purposes and organic meal onboard; and (c) air travel elimination for trips that could be reached by bus/car. Additionally, respondents were asked whether they have flown before or not and which are the most appropriate green practices they could adopt to eliminate airline's environmental impacts.

Furthermore, the third section was developed to attain data about perceptions of respondents towards adopting green practices in light of assessing the factors affecting Egyptian air travellers' behavioural intention to adopt green practices. In this regard, the five-point Likert scales were employed to measure the constructs, ranging from '1=strongly disagree', '2=disagree', '3=neither agree nor disagree', '4=agree' and '5=strongly agree'. The constructs are attitude towards green practices adoption, subjective norm to adopt green practices, perceived behavioural control to adopt green practices, airline green image and behavioural intention to adopt green practices.

3.4 Data collection

Prior to publishing the online questionnaire, a pilot study was conducted with experts in the travel industry field at the purpose of identifying potential problem areas with the full-scale research design and evaluating the questionnaire. Afterwards, the respondents were informed by the purpose and the context of the study, clarifying their right to withdraw from participating in the survey. Moreover, consents were obtained from each respondent before their participation in the survey after they were guaranteed that there is no collection for personal information.

On the other side, self-administered questionnaires have an advantage of reducing interviewer bias (Wong et al., 2020). Furthermore, for gaining honest real perceptions from respondents, they were informed that there are no right answers, encouraging them to fill the survey as honest as possible. Eventually, a total of 105 questionnaires had been distributed.

4. Results and Discussion

The research results will be introduced and discussed in this section in the context of testing the research hypotheses.

Table 1: Profile of Respondents

	Gender	***Freq.***	***%***
1.	Male	46	44.7
2.	Female	57	55.3

	Age	***Freq.***	***%***
1.	18-26 years (GEN Z)	19	18.4
2.	27-42 years (GEN Y)	57	55.3
3.	43-58 years (GEN X)	16	15.5

Job		***Freq.***	***%***
1.	Governmental	48	46.6
2.	Private Sector Business	31	30.1
3.	Own Business	8	7.8
4.	None	16	15.5

	Marital Status	***Freq.***	***%***
1.	Single	36	35.0

Table 1: Profile of Respondents

4.	59-77 years (Baby boomers)	10	9.7
5.	Above 77 years(Silent Gen)	1	1.0

	Education Qualifications	***Freq.***	***%***
1.	Secondary Education	2	1.9
2.	Bachelor Degree	59	57.3
3.	Master Degree	18	17.5
4.	Doctoral Degree	24	23.3

2.	Married (No children)	8	7.8
3.	Married with children	48	46.6
4.	Not married (divorced/widow)	11	10.7

Percentages are calculated based on the total number of respondents (n=103).

According to table (1), which demonstrates the demographic data of the respondents, the sample was represented by close percentages of males (45%) and female (55%). Almost half of the sample (55%) was from generation Y 'millennials', from 27 to 42 years. The results also showed that 57% of the sample held a bachelor's degree, while 23% held a doctoral degree. However, 47% of the sample had a governmental job, whereas 30% worked in the private sector. Moreover, 47% of the sample were married and had children, while 35% were single.

It is worth mentioning that respondents' demographic data will be employed in the extended interaction multiple regression model to investigate the effect of the statistically significant factors on the Egyptian travellers' behavioural intentions to adopt green practices based on their demographic profile.

Table 2: Green Practices Adoption

	How many times did you travel by air?	***Freq.***	***%***
1.	Haven't flown	17	16.5
2.	once	5	4.9
3.	twice	18	17.5
4.	more than twice	63	61.2

	The most appropriate green practices you could adopt to eliminate airline's environmental impacts	***Freq.***	***%***
1.	Purchase an electronic ticket	92	*89.3*
2.	Use of electronic boarding pass	79	*76.7*
3.	Make an online check-in	80	*7.7*
4.	Pay an extra fee for environmental purposes	22	*21.4*
5.	Pay higher for an organic meal onboard	32	*31.1*
6.	Eliminate air travel for trips that could be reached by bus/car	42	*40.8*

Percentages are calculated based on the total

Table 2: Green Practices Adoption

number of respondents (n=103).

According to the results demonstrated in table (2), more than 80% of the respondents have flown before with more than 60% of them have flown more than twice. The results also clarified that the most acceptable green practices to be adopted by Egyptian air travellers were an online air ticket purchase with the highest percentage nearly 90%, followed by using online boarding bass with a percentage of 77%.

Meanwhile, partly supporting the study results of Mayer (2013) concerning air travel elimination, 41% of respondents would eliminate their air travel for destinations that could be reached via road trips. Nevertheless, paying for organic meals onboard had a percentage of only 31%. Regarding paying extra fees for environmental purposes, this practice had only a percentage of 21%, while the lowest percentage (8%) was for making an online check-in. This is unlike the results of various studies that confirming the customers' willingness to pay for environmentally-friendly products (Aidah, 2016; Chew et al., 2016; Mayer et al., 2019; Wong et al., 2020; Qiu et al., 2021).

Table 3: Factors affecting Egyptian air travellers' behavioural intentions to adopt green practices

	Factors	Overall Agreement *(n=103)*										Mean♦	Std. Deviation	P-Value@
		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree				
		F.	%	F.	%	F.	%	F.	%	F.	%			
	Attitude towards green practices adoption													
1.	For me, adopting green practices to protect environment would be useful for conserving natural resources and reducing pollution.	0	0.0	0	0.0	4	3.9	26	25.2	73	70.9	**1.33**	**.549**	**.957**
2.	I feel positive when adopting green practices to protect environment.	0	0.0	0	0.0	5	4.9	32	31.1	66	64.1	**1.41**	**.585**	**.385**
3.	I prefer to fly with airlines that offer free food on board even if this would lead to food waste.	14	13.6	23	22.3	18	17.5	26	25.2	22	21.4	**2.82**	**1.36**	**.210**
	Subjective norm to adopt green practices													
1.	My family and friends think that I should be willing to adopt green practices to protect environment when traveling by air.	1	1.0	7	6.8	38	36.9	35	34.0	22	21.4	**2.32**	**.921**	**.028***
2.	Most of airline passengers that I know adopt green practices on a regular basis when traveling by air.	2	1.9	23	22.3	41	39.8	23	22.3	14	13.6	**2.77**	**1.01**	**.150**
	Perceived behavioural control to adopt green practices													
1.	I would prefer to use environmentally-friendly/ recycled products onboard.	0	0.0	1	1.0	8	7.8	40	38.8	54	52.4	**1.57**	**.680**	**.031***
2.	I can afford slightly higher price for environmental-friendly products onboard	8	7.8	21	20.4	21	20.4	30	29.1	23	22.3	**2.62**	**1.25**	**.009****
	Airline's green image													
	Green Product													
1.	Airline using newer fuel-efficient aircraft to protect environment would make me more motivated to adopt green practices.	0	0.0	1	1.0	7	6.8	42	40.8	53	51.5	**1.57**	**.666**	**.079**
2.	Airline eliminating free meals to reduce waste onboard, would make me more motivated to adopt green practices.	2	1.9	20	19.4	16	15.5	35	34.0	30	29.1	**2.31**	**1.15**	**.731**

Table 3: Factors affecting Egyptian air travellers' behavioural intentions to adopt green practices

Factors	Overall Agreement *(n=103)*										Mean♦	Std. Deviation	P-Value@
	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree				
	F.	*%*	*F.*	*%*	*F.*	*%*	*F.*	*%*	*F.*	*%*			
3. Airline offering organic products (e.g. meals), would make me more motivated to adopt green practices.	0	0.0	4	3.9	12	11.7	41	39.8	46	44.7	***1.75***	***.813***	***.036****
Green Pricing													
4. Airline charging extra fees for environmental purposes (e.g., planting trees to store carbon), would make me more motivated to adopt green practices.	7	6.8	21	20.4	17	16.5	32	31.1	26	25.2	***2.52***	***1.26***	***.527***
Green Communication													
5. Airline having a positive attitude towards the environment would make me more motivated to adopt green practices.	0	0.0	0	0.0	5	4.9	40	38.8	58	56.3	***1.49***	***.592***	***.605***
6. Airline stating its environmental efforts and benefits achieved would make me more motivated to adopt green practices.	0	0.0	0	0.0	5	4.9	40	38.8	58	56.3	***1.49***	***.592***	***.976***
Green Distribution													
7. Airline offering electronic tickets to save papers would make me more motivated to adopt green practices	0	0.0	0	0.0	4	3.9	35	34.0	64	62.1	***1.42***	***.569***	***.325***

♦ Rating was given on a 5-point scale; whereas (1='Strongly Disagree'; 5='Strongly Agree').

@ Probability value is calculated using the "One-Sample *T*-test," where * shows a *significant* value at the 0.05 (* P < 0.05, ** P< 0.01, *** P < 0.001) confidence level (2-tailed).

Regarding factors affecting the Egyptian air travellers' behavioural intention to adopt green practices, table 3 demonstrates that respondents had a positive attitude towards green practices adoption. In this regard, around 95% of the total sample agreed that they feel positive when adopting green practices to protect environment and it would be useful for conserving natural resources and reducing pollution, which is consistent with the studies of Mayer, Ryley and Gillingwater (2019) and Hinkel (2022). At the same time, around 47% of the total sample agreed that they prefer to fly with airlines that offer free food on board even if this would lead to food waste, while 36% were against that.

However, unlike the results of Wong, Ming Sia and Yew Ling (2020), the study results show that there is no significant relationship between the respondents' positive attitude towards green practices adoption and their behavioural intention to adopt green practices with a significance level of (P = 0.517). Nevertheless, this result resembles perfectly the results of Gillingwater (2019).

On the other hand, regarding the second factor, subjective norm, around half of respondents (55%) agreed that their family and friends think that they should be willing to adopt green practices when traveling by air with a percentage of 37% for neutral answers. Similarly, 40% of respondents were also neutral towards the statement that most of airline passengers that they know adopt green practices on a regular basis when traveling by air, while only 35% agreed and 24% disagreed with this statement. However, neutral answers may indicate the unpopularity of green practice behaviour among Egyptian air passengers to

be discussed with others unlike passengers in turkey and Taiwan who have higher level of environmental awareness (Mayer et al., 2019).

Nevertheless, consistent with the results of Wong, Ming Sia and Yew Ling (2020), the study results revealed that there is a partly significant relationship between the respondents' subjective norm for green practices adoption and their behavioural intention to adopt green practices with a significance level of ($P<0.05$) for the family and friends' positive opinion that respondents should be willing to adopt green practices when traveling by air; which confirms the positive effect of friends and family on the Egyptian air travelers behavioural intention to adopt green practices.

Concerning the factor of perceived behavioural control, above 90% of the sample agreed that they would prefer to use environmentally-friendly and recycled products onboard, confirming the results of Mayer (2019). Meanwhile, around half of respondents agreed that they can afford slightly higher price for environmental-friendly products onboard, however, 21% were neutral towards this statement and 27% disagreed. However, neutral answers here may indicate that their willingness to pay higher for these environmentally-friendly and recycled products depends on the amount needed to be paid, confirming the conclusions of Aidah (2016).

In this regard, confirming the findings of Wong, Ming Sia and Yew Ling (2020), the results show that there is a significant relationship ($P<0.05$) between the respondents' perceived behavioural control and their behavioural intention to adopt green practices with a higher significance level of ($P<0.01$) for the possibility of affording slightly higher price for environmental-friendly products onboard; which reflects the positive effect of the Egyptian air travelers' preference to use recycled products onboard and their willingness to pay higher for these products on their behavioural intention to adopt green practices.

Adding to that, the fourth factor, the airline's green image, which was divided into the 4 Ps of marketing mix, confirming the results of Mayer (2013) respondents agreed that green airline products would make them motivated to adopt green practices when using newer fuel-efficient aircraft to protect environment (93%), offering organic products and meals (85%), and eliminating free meals to reduce waste onboard (63%). Noticeably, only 16% of the sample disagreed with eliminating free meals to reduce waste onboard would motivate them to adopt green practices. These percentages indicate the relatively high awareness regarding organic meals and recycled products.

Nevertheless, nearly half of respondents (56%) agreed that airline green pricing would make them motivated to adopt green practices when an airline includes an extra charge for environmental purposes, meanwhile, 28% of the sample disagreed. Similarly, the study of Mayer, Ryley, and Gillingwater (2019) confirmed the same results. Moreover, 17% of respondents were neutral regarding the effectiveness of adding extra charges to the air ticket price for environmental purposes on motivating them to adopt green practices.

On the other side, supporting the conclusions of the study of Mayer (2013); Alghanmi (2019) and Wong, Ming Sia and Yew Ling (2020), the results indicate that around 95% of respondents agreed that they would be motivated to adopt green practices by the airline's green communication as a part of an airline green image, including declaration of airlines' positive attitude towards the environment and announcing their environmental efforts and achieved benefits. Similarly, the same percentage of the sample agreed that they would be motivated to adopt green practices by the airline's green distribution in the form of offering electronic tickets to save papers. Hence, it can be concluded that the airline green image

would motivate Egyptian passengers to adopt green practices with less a relatively less effectiveness to the green pricing.

Nevertheless, there is only a significant relationship between the airline green product, mainly organic products and meals onboard, and the Egyptian air travellers' behavioural intention to adopt green practices with a significance level of (P=0.036). Otherwise, all other elements represent the airline green image don't have an effect on behavioural intention for green practices adoption.

However, it is worth noticing that the possibility of affording slightly higher price for environmental-friendly products onboard had the highest significance level (P<0.01) among the statistical significant factors, at the same time, the airline green pricing in the form of including an extra charge for environmental purposes had no significant relationship with the Egyptian air travellers' behavioural intention to adopt green practices.

Accordingly, this means that the Egyptian air travelers have behavioural intention to pay slightly for organic meals and recycled products to protect environment, but not to pay an extra charge for funding the airline to develop environmental projects such as planting trees, especially when the extra charge is not specified, or not be a slight amount.

Furthermore, it is worth mentioning that the perceived behavioural control to adopt green practices had the highest statistical significance level compared to the other statistical significant factors, subjective norm and an airline green image (table 4).

Table 4 : Hypotheses Testing Results

Hypothesis	Test Result
H1: Attitude towards adopting green practices has a positive effect on the Egyptian travellers' behavioural intention to adopt green practices.	Hypothesis Not supported
H2: Subjective norm to adopt green practices has a positive effect on the Egyptian travellers' behavioural intention to adopt green practices.	Hypothesis partly supported
H3: Perceived behavioural control to adopt green practices has a positive effect on the Egyptian travellers' behavioural intention to adopt green practices.	Hypothesis supported
H4: The green image of the airline has a positive effect on the Egyptian travellers' behavioural intention to adopt green practices.	Hypothesis partly supported

After testing the significance of factors affecting the behavioural intentions of the Egyptian air travelers to adopt green practices, the below extended interaction multiple regression model was incorporated to investigate the effect of the statistically significant factors on the Egyptian travellers' behavioural intentions to adopt green practices based on their demographic profile.

Table 5: The relationship between the statistically significant factors influencing the Egyptian travellers' behavioural intentions to adopt green practices based on their demographic profile

Dimensions		Demographic Information							
		Gender		*Age Range*		*Educational Qualifications*		*Marital Status*	
		t	*Sig.*[@]	*f*	*Sig.*[@]	*f*	*Sig.*[@]	*f*	*Sig.*[@]
Subjective norm to adopt green practices									
1.	My family and friends think that I should be willing to adopt green practices to protect environment when traveling by air.	.561	**.576**	.323	**.748**	-.326	**.745**	.170	**.865**
Perceived behavioural control to adopt green practices									
1.	I would prefer to use environmentally-friendly/ recycled products onboard.	1.659	**.100**	2.080	**.040***	2.171	**.032***	2.080	**.040***
2.	I can afford slightly higher price for environmental-friendly products onboard	.856	**.394**	2.357	**.020***	2.533	**.013***	2.357	**.020***
Airline's green image (green product)									
1.	Airline offering organic products (e.g. meals), would make me more motivated to adopt green practices.	-1.745	**.084**	-1.330	**.187**	-1.461	**.147**	-1.694	**.093**

[@] Probability value is calculated using "Independent Samples *t*-test/One-way ANOVA" where * shows a *significant* value at the 0.05(* P < 0.05, ** P< 0.01, *** P < 0.001) confidence level (2-tailed).

Table (5) revealed that demographic characteristics: (a) age range (P<0.05); (b) educational qualifications (P<0.05); and (c) marital status (P<0.05), except for gender (P=0.247), have an impact only on the statistically significant relationship between the perceived behavioural control to adopt green practices and behavioural intentions of the Egyptian air travelers to adopt green practices.

Table 6: The significant relationship between the perceived behavioural control to adopt green practices and the Egyptian travellers' behavioural intentions to adopt green practices based on their age range

Dimensions		Demographic Information							
		GEN Z		*GEN Y*		*GEN X*		*Baby boomer*	
		t	*Sig.*[@]	*f*	*Sig.*[@]	*f*	*Sig.*[@]	*f*	*Sig.*[@]
Perceived behavioural control to adopt green practices									
1.	I would prefer to use environmentally-friendly/ recycled products onboard.	.136	**.892**	3.722	**.000*****	1.566	**.121**	2.619	**.010***
2.	I can afford slightly higher price for environmental-friendly products onboard	3.506	**.001****	2.332	**.022***	2.185	**.031***	.445	**.657**

[@] Probability value is calculated using "Independent Samples *t*-test/One-way ANOVA" where * shows a *significant* value at the 0.05 (* P < 0.05, ** P< 0.01, *** P < 0.001) confidence level (2-tailed).

Table 7: The significant relationship between the perceived behavioural control to adopt green practices and the Egyptian travellers' behavioural intentions to adopt green practices based on their education level

Dimensions	Demographic Information						
	Bachelor		*Master*		*PHD*		
	t	*Sig.*[@]	*f*	*Sig.*[@]	*f*	*Sig.*[@]	
Perceived behavioural control to adopt green practices							
1. I would prefer to use environmentally-friendly/ recycled products onboard.	3.484	**.001****	1.615	**.110**	1.593	.115	
2. I can afford slightly higher price for environmental-friendly products onboard	3.312	**.001****	1.476	**.143**	1.444	.152	

[@] Probability value is calculated using "Independent Samples *t*-test/One-way ANOVA" where * shows a *significant* value at the 0.05 (* P < 0.05, ** P< 0.01, *** P < 0.001) confidence level (2-tailed).

Table 8: The significant relationship between the perceived behavioural control to adopt green practices and the Egyptian travellers' behavioural intentions to adopt green practices based on their marital status

Dimensions	Demographic Information							
	Single		*Married with no childern*		*Married with children*		**Not married**	
	t	*Sig.*[@]	*f*	*Sig.*[@]	*f*	*Sig.*[@]	*f*	*Sig.*[@]
Perceived behavioural control to adopt green practices								
1. I would prefer to use environmentally-friendly/ recycled products onboard.	1.274	**.206**	.895	**.373**	4.590	**.000*****	2.017	**.047***
2. I can afford slightly higher price for environmental-friendly products onboard	3.790	**.000*****	1.763	**.081**	1.787	**.077**	1.535	**.128**

[@] Probability value is calculated using "Independent Samples *t*-test/One-way ANOVA" where * shows a *significant* value at the 0.05(* P < 0.05, ** P< 0.01, *** P < 0.001) confidence level (2-tailed).

Table 6,7 and 8 revealed that generation Y and baby boomers with mainly bachelor degree have the preference to use environmentally-friendly organic meals and recycled products onboard. They also are married with children, widows, or divorced. Additionally, generations X, Y, and Z who are single with bachelor degree have the willingness to pay slightly higher air ticket price for environmentally-friendly organic meals and recycled products onboard.

5. Managerial Implications

According to the study results, the relatively high Egyptian passengers' awareness of the negative environmental impacts of aviation industry should motivate the national flag carrier, Egyptair and other airlines operating in the Middle East to make initiatives concerning the green aviation at the purpose of gaining a competitive advantage and good reputation.

These initiatives need positioning the airlines with an effective green image through employing the green marketing mix. In this regard, airlines need an effective green communication, announcing their real environmental achievements without overstating in order to avoid greenwashing and losing credibility.

Moreover, declaring the green products used by the airline, especially when replacing the current fleet with a newer fuel-efficient aircraft would be beneficial for enhancing the airlines' green image. Adding to that, encouraging online check-in and boarding pass, along

with introducing paperless tickets and in-flight recycled and organic products would motivate the demand of Egyptian passengers who are willing to pay slightly higher for these products.

On the other hand, the word of mouth among friends and relatives regarding the effectiveness of adopting green practices would be very crucial due to the significance of subjective norms on the Egyptian air travelers behavioural intentions to adopt green practices. Nevertheless, carbon offsetting programs for offset carbon mitigation through charging passengers would not be acceptable among the majority of Egyptian passengers; since the perceived behavioural control has a significant effect on their behavioural intentions. Hence, it can be implemented later after spreading more environmental awareness.

Furthermore, as discussed earlier in literature review, Egyptair has already made initiatives for operating green flights with considerable discounts. Accordingly, for the purpose of enhancing the green image and raising environmental awareness among Egyptian passengers, the Egyptian flag carrier and other airlines need operating more of these environmentally-friendly flights.

The airline green marketing campaigns encouraging using organic meals and recycled products are better to be directed to Egyptian passengers who are not single and belong to generation Y and baby boomers; since they have the higher preference to use environmentally-friendly organic meals and recycled products onboard. Meanwhile, airline green marketing campaigns encouraging paying slightly higher for having organic meals would be more effective if they are directed to the single Egyptian passengers who belong to generations X, Y, and Z who have higher willingness to pay slightly higher for green products.

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تأثير الصورة الخضراء لشركات الطيران على النوايا السلوكية للمسافرين المصريين لتبني الممارسات الخضراء

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الملخص

يتزايد وعي المسافرين جوا بالمناخ في جميع انحاء العالم. فقد أدي كلاً من الاتجاه المتزايد للتوعية البيئية بعد جائحة كورونا إلى جانب إدراك تأثير البصمة الكربونية التي تنتج عن السفر جوا، إلى تركيز العديد من شركات الطيران حول العالم على بناء صورة خضراء، و ذلك في سياق دمج عنصر الاستدامة في الإستراتيجيات التسويقية الخاصة بهم.

يهدف هذا البحث إلى إلقاء الضوء على أهمية بناء الصورة الخضراء لشركات الطيران و اكتشاف مدى تأثير تلك الصورة على النوايا السلوكية للمسافرين المصريين لتبني الممارسات الخضراء في المستقبل و تعزيز الميزة التنافسية لشركات الطيران. بالإضافة الي ذلك، يساهم البحث في تحسين صورة شركة الطيران الوطنية المصرية، مصر للطيران. سيعتمد البحث على المنهج الكمي عن طريق توزيع استمارات استبيان عبر الإنترنت، و ذلك من أجل اكتشاف مدى تأثير الصورة الخضراء لشركات الطيران على النوايا السلوكية للمسافرين المصريين بتبني الممارسات الخضراء. و قد توصل البحث إلي أن تزايد الوعي لدي المسافرين المصريين بالأثار البيئية السلبية لصناعه الطيران من شأنه أن يدفع الشركة الوطنية، مصر للطيران، و باقي شركات الطيران العاملة في منطقة الشرق الأوسط بالقيام بمبادرات تحفز الطيران الأخضر، و ذلك من أجل اكتساب ميزة تنافسية و سمعه جيده من خلال تحسين الصورة الخضراء لشركات الطيران.