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COVID-19 AND FLOWER TRADE AT THE FLOWER CAPITAL OF BANGLADESH

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Abstract

Flower industry in Bangladesh is emerging as a new and profitable sector of having potential economic growth and employment opportunities with minimum investment. The study was conducted at Jhikargachha - the flower capital of Bangladesh - to investigate the effect of COVID-19 on flower trade. Data were collected from 60 respondents on 11 selected characteristics through an interview schedule during 5 January to 7 March 2021. Though the majority of the respondents (41% - 75%) was young having secondary education, small-family and farm, they were inexperienced and untrained regarding flower cultivation and trade. However, more than three-fifths of them perceived the effect COVID-19 on flower cultivation and trade clearly. The celebration of national days in a limited scale or in online affected the flower trade to a high extent (95%) followed by less social gatherings (94.33%), and less marriage ceremonies (94%). Average price of rose, tuberose, gerbera, gladiolus, marigold, and gypsy decreased significantly due to COVID-19 in 2020 compared to 2019. Flower sales dropped by up to 100% during the Independence and National Day (26 March), Bengali New Year Day (14 April) and National Mourn Day (15 August) in 2020 due to complete lockdown. Ensuring transport, marketing and storage facilities of flowers may minimize the devastating effect of such a disaster. The family size of the respondents showed a positive and annual income had a negative significant relation with their perception regarding effect of COVID-19 on flower trade. Overall, COVID-19 collapsed the flower trade at the flower capital in Bangladesh. Development of future policies and setting up of strategies are required to mitigate the upcoming disasters in future.

Keywords: COVID-19, Flower business, Pandemic, Flower sale, Flower price, Bangladesh

Introduction

A flower is a bloom or blossom that symbolizes purity and beauty. They are the wonderful gift of nature that beautify our surroundings and affect our environment. In Bangladesh, flowers are extensively used in various national and social functions throughout the year. Bangladesh observes national days such as International Mother Language Day (21 February), Birthday of The Father of Nation Bangabandhu Sheikh Mujibur Rahman (17 March), the Independence and National Day (26 March), National Mourn Day (Death Anniversary of Bangabandhu Sheikh Mujibur Rahman, 15 August), Martyred Intellectuals Day (14 December), and Victory Day (16 December) that requires flowers. Bangladeshi also celebrate other social events such as New Year Day (1 January), First Day of Spring i.e. *Pahela Falgun* (13 February), Valentine's Day (14 February), and Bengali New Year Day (14 April) which cannot be completed without flowers. One can use flowers in religious and medicinal purpose, wedding, birthday, interior decoration, self-adornment, meeting as well as extraction of essential oils for soap and cosmetics industries. The major commercial flowers of Bangladesh are roses, marigolds, tuberoses, gerberas, and gladioluses. The area under commercial flower cultivation is about 6,000 ha that engages about 20 million people for their livelihood. The annual turn out of floriculture industry is BDT 1,200 crore per year with an annual growth rate of 10% per year (Habibulla, 2019). Demand of flowers is increasing day by day in Bangladesh (Khan et al., 2021) that makes flower a business commodity. Moreover, rapid economic growth of the country changes the taste of life and causes rise of affluent class of people that increases the demand of fresh flowers. In fact, the commercial production of flowers has increased dramatically in the last decade as the use of flowers has increased (Tazuddin, 2021).

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Flower is not only a local business commodity now rather it has export potentiality (Biswas et al., 2022). In 1991, the government of Bangladesh listed flowers as an exportable item (Mim, 2020) and since then, Bangladesh exported flowers and floral products to several countries including India, Italy, Portugal, Saudi Arabia, Germany, France, Denmark and Britain. According to Export Promotion Bureau (EPB), the country's export earnings from cut flower and foliage for the July to January period of the fiscal year 2018-2019 touched $3.98 million. However, the flower traders in Bangladesh face various problems such as lack of transportation and storage facilities, vulnerable marketing system, lack of loan provision and lack of awareness of framers for flower production (Rahman, 2009).

The outbreak of novel coronavirus affected all the business sectors in Bangladesh including the flower trade. The Jhikargachha Upazila of Jashore district is considered as the flower capital of Bangladesh. Flowers are extensively cultivated and traded at Godkhali, Panisara, Navaron, and Sayedpara of Jhikargachha. The villages of this Upazila are used to get crowded of florists since early morning till evening before the outbreak of COVID-19. However, there had been a pin-drop silence during the lockdown. Farmers could not sell even a single stick of rose or tuberose during strict lockdown period. They were impotent and were compelled to use mature flowers as the cattle feed. The worth of flower market in Bangladesh is about BDT 1,500 crore and the flower framers faced a net loss of BDT 300 crore as they did not able to sell the flowers during COVID-19 particularly spring of 2020 (Sarker, 2020) and another report claimed that the net loss was BDT 400 crore (Halder, 2020). However**,** the president of Bangladesh Flower Society claimed that the loss is at least BDT 450 crore and only Godkhali – the flower capital of Bangladesh – shares a loss of about BDT 100 crore (TBS, 2020).

Though our farmers are constantly confronted with challenges such as low rainfall, price fluctuations, and rising debts, and have learned how to deal with these issues over time, they were unaware of a new challenge like COVID-19 that had a devastating impact on rural livelihood and economy in Bangladesh (Das et al., 2020). COVID-19 badly affected the agriculture sector of Bangladesh resulting in a huge decrease in the price of agricultural commodities like crops, vegetables, and fishes (Gautam et al., 2022). It resulted in instant decrease in flower demand by 50% (Bulgari et al., 2021; Mandal et al., 2021). The demand of flowers decreased drastically at the local, national, and international markets due to complete lockdown or limited working hours, instantaneous job loss, lack of social gatherings and online sales, and possibility of corona virus infection from the flowers (Mitra et al., 2022). COVID-19 incurred an enormous negative effect on the agriculture sector and a combined action of government and the peoples can minimize it in the future in Bangladesh (Sarwar et al., 2021). Flowers in Bangladesh are mainly sold in big cities like Dhaka, Chattogram, Rajshahi and Khulna. However, the nationwide lockdown broken down the transportation system. As the farmers did not get the minimum price of flowers, they had to throw the flowers to the dust bin or used them as animal feed resulting in tremendous financial loss. Though a good number of researches are available regarding effect of COVID-19 on flower business in Bangladesh, our study focused on how this trade is affected at the capital (Godkhali) of flower production. Therefore, the objectives of this study are (1) to determine the perception of the respondents regarding the effect of COVID-19 on flower trade; (2) to identify the effect of COVID-19 on prices and sales of flowers; (3) to seek suggestions from the respondents to minimize the effect of COVID-19 like pandemic; and (4) to explore the relationship between selected characteristics of the respondents and their perception.

Methodology

Selection of study area

The geographic boundaries within research conducted is referred to as the study area. The majority of the flowers in Bangladesh come from Jashore. Many flower traders are found at the Jhikargachha market, mainly small stall vender, and many wholesalers. Moreover, Godkhali, Panisara, Navaron, and Sayedpara are main areas of flower business and cultivation in Jashore and therefore, all of these localities in Jashore district were chosen as research areas to conduct the research appropriately.

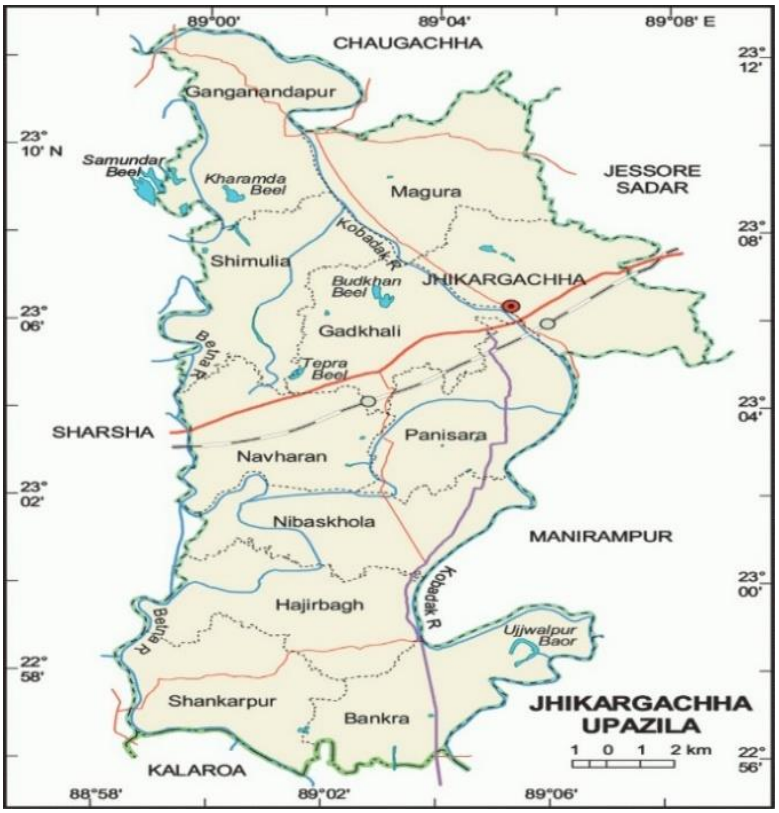

Figure 1. Map of Jhikargachha Upazila (study area) of Jashore district in Bangladesh (Shaibur et al., 2022).

Population and sampling

The flower farmers and traders from Godkhali, Panishara, Navaron, and Sayedpara of Jhikargachha, Jashore were considered as population for this study. A number of 60 (40 flower cultivators + 20 flower traders) respondents were selected as sample following accidental sampling method.

Research instrument

An interview schedule was carefully constructed with keeping the objectives in mind in order to acquire accurate and trustworthy information from the flower farmers and traders. To collect data, simple and direct questions as well as several scales were used. The interview schedule was pretested and modified accordingly for its final form.

Method and time of data collection

The 60 respondents were interviewed face to face to obtain the data. The researcher initially introduced himself to the flower farmers and shop owners and gave them a brief explanation of the study's goal. Then the researcher asked flower farmers and shop owners to supply the information specified in the interview plan. The data was gathered with great attention and caution. When a respondent had a problem for comprehending the questions, they were clarified. In order to obtain genuine and meaningful information from the respondents, the researcher took appropriate attempts to create rapport with them. Each interview schedule was examined and validated for correct data capture once the interview was completed. During the interview, all of the respondents cooperate nicely. All information was collected from the respondents from 5 January to 7 March 2021.

Specification and measurement of variables

Specification and measurement of variables are critical tasks in survey research. An independent variable and a dependent variable are frequently present in a well-organized survey investigation. The dependent variable and independent factors for this study were chosen after a thorough review of related papers and consultation with

experts. The seven selected attributes of flower farmers and businessmen were considered as the study's independent variables which are (a) age [years], (b) educational qualifications [schooling years], (c) family size [number], (d) farm size [ha], (e) experience in flower cultivation and business [years], (f) annual income [BDT '000'], and (g) training [scores].

Farmer's perception regarding the effect of COVID-19 on flower cultivation and business was treated as dependent variable. A number of 14-statements related to effect of COVID-19 on flower cultivation and business were incorporated in the interview schedule to identify the perceptions. Each of the respondents was asked to indicate extent of agreement and disagreement with the statements as strongly agree (5), agree (4), undecided (3), disagree (2) and strongly disagree (1). To determine the perception score of the respondents, all the score obtained against 14-statement were added. Based on perception score the respondents were grouped into five categories. The perception score of a respondent could range from 14-70 and classified them into five categories based on scores; such as very low (up to 14), low (15-28), medium (29-42), high (43-56), and very high (57-70).

For comparing among the 14-statements, a perception index (PI) was calculated using following formula-

$$\% \text{ PI} = \frac{\text{OPIS}}{\text{HPPIS}} \times 100$$

Where,
PI = Perception Index
OPIS= Observed Perception Index Score
HPPIS = Highest Possible Perception Index Score
$OPIS = N_{sa} \times 5 + N_{ag} \times 4 + N_{ud} \times 3 + N_{da} \times 2 + N_{sda} \times 1$
Where,
N_{sa} = Number of respondents express their opinion as strongly agree
N_{ag} = Number of respondents express their opinion as agree
N_{ud} = Number of respondents express their opinion as undecided
N_{da} = Number of respondents express their opinion as disagree
N_{sda} =Number of respondents express their opinion as strongly disagree

In addition, data were collected on price of flowers (rose, tuberose, gladiolus, gerbera, marigold, and gypsy) and ornamental plants (thuja) before COVID-19 and during the pandemic and compared between them. Data were also recorded on sales (BDT) of flowers on different national and social days (14th February–Valentine's Day, 21st February – International Mother Language Day; 17th March – Birthday of Bangabandhu Sheikh Mujibur Rahman (The Father of the Nation), 26th March – the Independence and National Day of Bangladesh, 14th April – Bengali New Year Day, 15th August – National Mourning Day [Death Anniversary of Bangabandhu Sheikh Mujibur Rahman], 14th December – Martyred Intellectuals Day, 16th December – The Victory Day of Bangladesh) before COVID-19 and after the pandemic.

Data processing and analysis

Data were coded after collection for processing and analysis. Standard units were converted from local units. To make tabulation easier, the researcher copied data to a master sheet. The SPSS application was used to compute the necessary tabulations. For ranking and purposes, certain statistical and mathematical analysis was also performed. For clarity, statistics such as number, citation, percentage, range, mean, and standard deviation were used to describe the research's selected independent and dependent variables. The relation between dependent and independent variables was determined using Pearson's Moment Correlation Coefficient ('r').

Results and Discussion

The results are presented under four sections: (1) perception of flower farmers and retailers about the effect of COVID-19 in flower business; (2) effect of COVID-19 on flower prices and sales; (3) strategies to overcome COVID-19 like disasters in flower business; and (4) socioeconomic characteristics and their relations with the farmers and retailers perception.

Perception of flower farmers and traders about the effect of COVID-19 on flower business

The perception of flower farmers and retailers about the impact of COVID-19 on flower cultivation and retailing were evaluated (Table 1). More than three-fifths (63.3%) of the respondents had high perception followed by one-fifth (21.7%) very high and only 15% had medium perception about the effect of COVID-19 on flower cultivation and business (Table 1).

Table 1. Effect of COVID-19 on flower business as perceived by the flower farmers and retailers

Category	Score	Respondents (N = 60)		Range	Mean	Standard deviation
		Number	Percentage			
Very low	≤14	0	0			
Low	15-28	0	0			
Medium	29-42	9	15			
High	43-56	38	63.3	39-62	51.15	5.67
Very high	57-70	13	21.7			
Total		60	100			

There are no respondents with low or very low perception. In fact, Bangladesh is a hazard-prone country due to her geographical location, land characteristics, multiplicity of rivers, monsoon climate and the intensity of hazards are increasing day by day due to climate change. Floods, cyclones, storm surge, riverbank erosion, and salinity intrusion are common issues in Bangladesh (Masum, 2019). Therefore, the farmers of Bangladesh are well experienced about the natural calamities (as nature itself is the trainer); they are substantially adaptive to local disasters (Gray and Muller, 2012) and possess a clear perception about the effect of any natural hazards like COVID-19, which is reflected here.

According to the flower farmers and retailers, the celebration of national days in a limited scale or in online affected the flower business to a high extent (95%) followed by less social gatherings (94.33%), decreased number of marriages (94%), limited flower production due to fear of rotting (88.33%), less number of birthday celebrations (86.67%) and so on (Table 2). On the contrary, high price of flower due to unavailability is identified as a minor cause that affected the flower business during the study period. Bangladesh started its first general lockdown on 23 March 2020 that extended to 30 May and later on imposed strict lockdown from June that gradually extended to August 2020. From the beginning of September, restrictions on public movement were officially lifted with conditions that extended up to December 2020.

Therefore, Bangladesh experiences a sort of lockdown almost throughout the year 2020 (except January - mid-March and last half of December) that does not allow observing national and social days including marriage ceremonies and birthdays. Flowers being the part and parcel of such observations in Bangladesh, the trade has been severely affected as little or no flower has been traded during this period.

Table 2. Relative position of the statements relative to effect of COVID-19 on flower cultivation and trade

Perceptions of the respondents on the effect of COVID-19 on flower cultivation and trade			
Statement	OPIS	Perception Index	Rank Order
Fear of rotting encourages limited flower production.	265	88.33%	4th
Scarcity of labor due to COVID-19.	179	59.67%	10th
Due to labor scarcity, wages were higher amid COVID-19.	189	63.00%	9th
Unavailability of flower transport facilities.	241	80.33%	8th
High cost of transport.	167	55.67%	12th
Lack of availability of flowers in the market.	173	57.67%	11th
Unavailability of flowers increases flower price.	86	28.67%	14th
High price of flowers caused by unavailability and high cost of transport.	92	30.67%	13th
Purchasing capacity of consumers decreases.	256	85.33%	7th
Low demand of flowers due to decreased number of marriages.	282	94.00%	3rd
Low demand of flowers due to a smaller number of social gatherings.	283	94.33%	2nd
Low sale of flowers as the national days were celebrated in a limited scale or in online.	285	95.00%	1st
A smaller sale of flowers due to embargo on celebration of *Pohela Baisakh* (14th April).	259	86.33%	6th
Low flower demand due to a smaller number of birthday celebrations.	260	86.67%	5th

OPIS= Observed Perception Index Score

Effect of COVID-19 on flower prices and sales

The mean price of flowers has been compared between before COVID-19 (2019) and during COVID-19 (2020) to identify the effects of COVID-19 pandemic on flower business. Mean price of all flowers and ornamental plants (thuja) decreased significantly due to onset of COVID-19 in 2020 compared to the previous year i.e. 2019 (Table 3). The mean price of a single stick of rose, tuberose, gerbera, and gladiolus were 6.49, 7.66, 11.32, and 9.19 Tk. (BDT) respectively before COVID-19 and decreased to 1.78, 3.59, 4.37, 3.03 Tk. respectively. The price of a single thuja (*Thuja orientalis*) plant decreased to 33 Tk. in 2020 from 48 Tk. in 2020, though not significant. The price of marigold ("1000" loose flower) and gypsy (a bundle) decreased to at least two-thirds during COVID-19 than before COVID-19 (Table 3). Thus, COVID-19 decreased flower price by at least 32% (thuja) and at most 72% (rose). The price of marigold decreased by 71% followed by gypsy (67%), gladiolus (67%), gerbera (61%) and tuberose (53%) (Table 3). Similar results were reported from another study which summarized that the prices of rose, gerbera, tuberose and marigold decreased by more than 80% and for gladiolus, it was 96% due to COVID-19 (Mitra et al., 2022). The differences in price-decrease may be due to location of business. The later study considered whole Bangladesh whereas our study was confined only Godkhali area. It also implies that average selling price of flowers were higher in Godkhali compared to Bangladesh which might be due to availability of tourists at Godkhali.

Table 3. Comparison of mean prices (BDT) of flowers before and during COVID-19

	Rose[1]	Tuberose[1]	Gerbera[1]	Gladiolus[1]	Thuja[2]	Marigold[3]	Gypsy[4]
Before	6.49[a]	7.66[a]	11.32[a]	9.19[a]	48.57	439.81[a]	34.74[a]
During	1.78[b]	3.59[b]	4.37[b]	3.03[b]	33	126[b]	11.2[b]
% Decrease	72.57	53.13	61.40	67.03	32.06	71.35	67.76
t-value	9.94	8.78	10.61	10.77	1.91	7.58	6.28
P	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	<0.01

[1] Single flower stick, [2] single plant, [3] 1000 loose flowers of marigold, [4] a bundle of gypsy flowers

COVID-19-imposed lockdown in 2020 decreased flower sales largely in Bangladesh. Cent percent sales decrease was observed in Independence Day (26 March), Bengali New year day (14 April), National Mourn Day (15 August) in 2020 due to lockdown (Table 4). Flowers' sales decreased by 43% on 17 March and 60% on 14 December in 2020 compared to 2019, which was again the effect of COVID-19. In Bangladesh, first COVID-patient was identified on 8 March 2020 that affected celebration of Birthday of the Father of the Nation on 17 March. Though restrictions on movement of people has been lifted on September 2020, the Martyred Intellectual Day was observed on a limited scale that contributed to the less use of flowers in 2020. The differences of flower sales at 14 February, 21 February, and 16 December were low between 2019 (before lockdown) and 2020 (during lockdown) because of either no lockdown (no lockdown on 14 and 21 February in 2020) or due to withdrawal of lockdown (mid-December). COVID-19 significantly decreased flower sales for all the national and social days except 14 and 16 December as there was no lockdown at that time (Table 4). Bangladesh has a long floricultural history due to its suitable climate (Mitra et al., 2022; Laboni et al., 2019; Islam and Rahman, 2013) and cultural heritage where wide use of flowers in various national, social, and cultural events increased demand of flowers largely (Khan et al., 2021).

Table 4. Comparison of average sales of flowers (BDT) during different national and social days in Bangladesh before (2019) and during (2020) COVID-19 pandemic

	14th Feb[A]	**21st Feb[B]**	**17th Mar[C]**	**26th Mar[D]**	**14th Apr[E]**	**15th Aug[F]**	**14th Dec[G]**	**16th Dec[H]**
Before	93,800[a]	1,02,600[a]	23,571[a]	45,300[a]	64,291[a]	31,443[a]	14,660	42,474
During	86,964[b]	89,846[b]	13,525[b]	0[b]	0[b]	0[b]	5,813	36,374
% Decrease	7.28	12.43	42.62	100	100	100	60.35	14.36
t-value	3.13	3.32	2.58	2.34	2.85	2.95	1.83	1.70
P	<0.01	<0.01	0.025	0.023	<0.01	<0.01	0.10	0.09

[A] = Valentine's Day, [B] = International Mother Language Day, [C] = Birthday of Bangabandhu Sheikh Mujibur Rahman, [D] = Independence Day, [E] = Bengali New Year Day, [F] = National Mourn Day (Death Anniversary of Bangabandhu Sheikh Mujibur Rahman), [G] = Martyred Intellectual Day, [H] = Victory Day in Bangladesh.

Strategies to overcome COVID-19 like disasters on flower trade

The possible strategies to avoid COVID-19 like disasters in future were suggested by the flower farmers and retailers. The respondents ranked ensuring 'transportation facilities' as the number one to minimize the effect of COVID-19 or such disasters followed by establishing marketing facilities (2nd), storage facilities (3rd) and availing government support (4th) (Table 5). Lack of storage facilities and transport facilities, poor marketing system and arrangement of loan are considered as the major problems of cultivation and business of agricultural commodities in Bangladesh including flowers (Khan et al., 2021; Kabir et al., 2015, Khan et al., 2003). It is essential to formulate proper policies like easy and low interest financial support to minimize the devastating impact of COVID-19 (Haque et al., 2022; Chakma et al., 2021).

Table 5. Ways of minimizing the effects of COVID-19 or such type of disasters on flower trade in future

Ideas	**Agree (%)**	**Rank order**
Increasing facilities of storage	71.7%	3rd
Transportation facilities	78.3%	1st
Marketing facilities	73.3%	2nd
Government support	30%	4th

Socioeconomic characteristics and their relations with the respondents' perception about the effect of COVID-19 on flower trade

The socioeconomic characteristics of the respondents were (a) age, (b) educational qualifications, (c) experience in flower cultivation and business, (d) family size, (e) farm size, (f) annual income, and (g) training (Table 6). The age of the respondents varies from 18-75 years with a mean 39 years. About a half (46.6%) of the respondents were young aged, 41.7% had secondary level of education and more than a half (53.3%) of the respondents had low experience in flower cultivation and business (Table 6). The family size (number of family member) of the respondents varies from 2-6 with a mean 4.25 and more than a half (55%) of the respondents maintained a small family having up to 4 members and majority of respondents (61.6%) are small farmer. The annual income of the respondents varies from Tk. 50000-2100000 (BDT) and 40% of the respondents had medium annual income (Tk. 200,000 – 400,000). Among the respondents, three-fourths (75%) did not have any training on flower cultivation and business. Another study reported that 71% respondents were of middle aged and 93% did not receive any training regarding effect of COVID-19 in private nursery business (Chakma et al., 2021).

Table 6. Socioeconomic characteristics of flower farmers and retailers

Characteristics	Highest category	Key findings
Age	Young	Majority (46.6%)
Educational qualification	Secondary level (6-10)	Highest proportion (41.70%)
Experience	Low experience (up to 10)	Majority (53.3%)
Family size	Small sized (up to 4)	Majority (55%)
Farm size	Small (0.21-1.00 ha)	Highest proportion (61.6%)
Annual income	Medium income (201-400 "000" BDT)	Majority (40%)
Training	No training (1)	Most (75%)

The relationship between perception (dependent variable) and respondents' attributes (independent variables) were evaluated through Pearson's Product-moment Correlation Co-efficient "r" (Table 7). Among the seven selected attributes, family size showed a significant positive and annual income showed a significant negative relationship with the perception suggesting that the more the family member, the higher (clearer) the perception and the more the annual income, the lower the perception. The higher number of family members may provide an opportunity of more interactions within family members as well as outside the family members that may ensure better perception regarding flower trade. However, a member of a wealthy family may not pay that much attention on what's going on around may result poor perception. Family size also showed a significant positive relationship

with problem confrontation of the flower traders at Khulna city (Kabir et al., 2015). The respondents' experience had a positive and age, education, farm size, and training had a negative but insignificant relation with the perception of the respondents suggesting that there is essentially no relation with age, educational qualification, farm size, farming experience, and training of respondents with their perceptions.

Table 7. Relationship between selected characteristics of the respondents and their perception

Independent variables (Selected characteristics)	Dependent variable	Correlation Coefficient (r)
Age	Perception	-0.044
Education		-0.092
Experience		0.071
Family size		0.305*
Farm size		-0.208
Annual income		-0.388**
Training		-0.054

*Significant at 5% level ($P \leq 0.05$); **Significant at 1% level ($P \leq 0.01$)

Conclusion

Most of the respondents of the study belong to the young age group having secondary level of education, low farming experience with small farm, small family, medium income and without training. More than 60% of the respondent had a high (clear) perception regarding effect of COVID-19 on flower trade and they considered that the flower sales decreased during the pandemic due to limited or online celebration of national days along with less social gatherings including marriages. The price of flowers, on an average, decreased by at least 60% and the sale of flowers decreased to zero between March and August in 2020 in Bangladesh. Improving of the transport, marketing, and storage facilities may help to minimize the drastic effect of such a disaster in this sector. Though the higher family size of the respondents had a positive impression on the perception of the respondents, higher annual income exerted a negative effect. Overall, the respondents had a fair perception regarding the effect of COVID-19 on flower trade at the flower capital of Bangladesh and the higher the family size of the respondents, the clearer the perception. Online or limited scale celebration of national days, low number of social gatherings and marriages mostly affected the flower trade. The prices as well as sales of flowers decreased significantly due to COVID-19 imposed lockdown and improved transportation, marketing and storage facilities can mitigate the unprecedented disaster like COVID-19 in Bangladesh. A holistic approach including govt. and non-govt. organizations along with researchers, academicians, extension agents, and international organizations can minimize such a sudden shock in this sector. We need to develop future policies, plan accordingly and set up future strategies to escape and/or minimize upcoming unspecified disasters in future.

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Conflict of Interest

The authors declare no conflict of interest.

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