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The hunger report part II: Targeting specific needs in the wake of COVID-19

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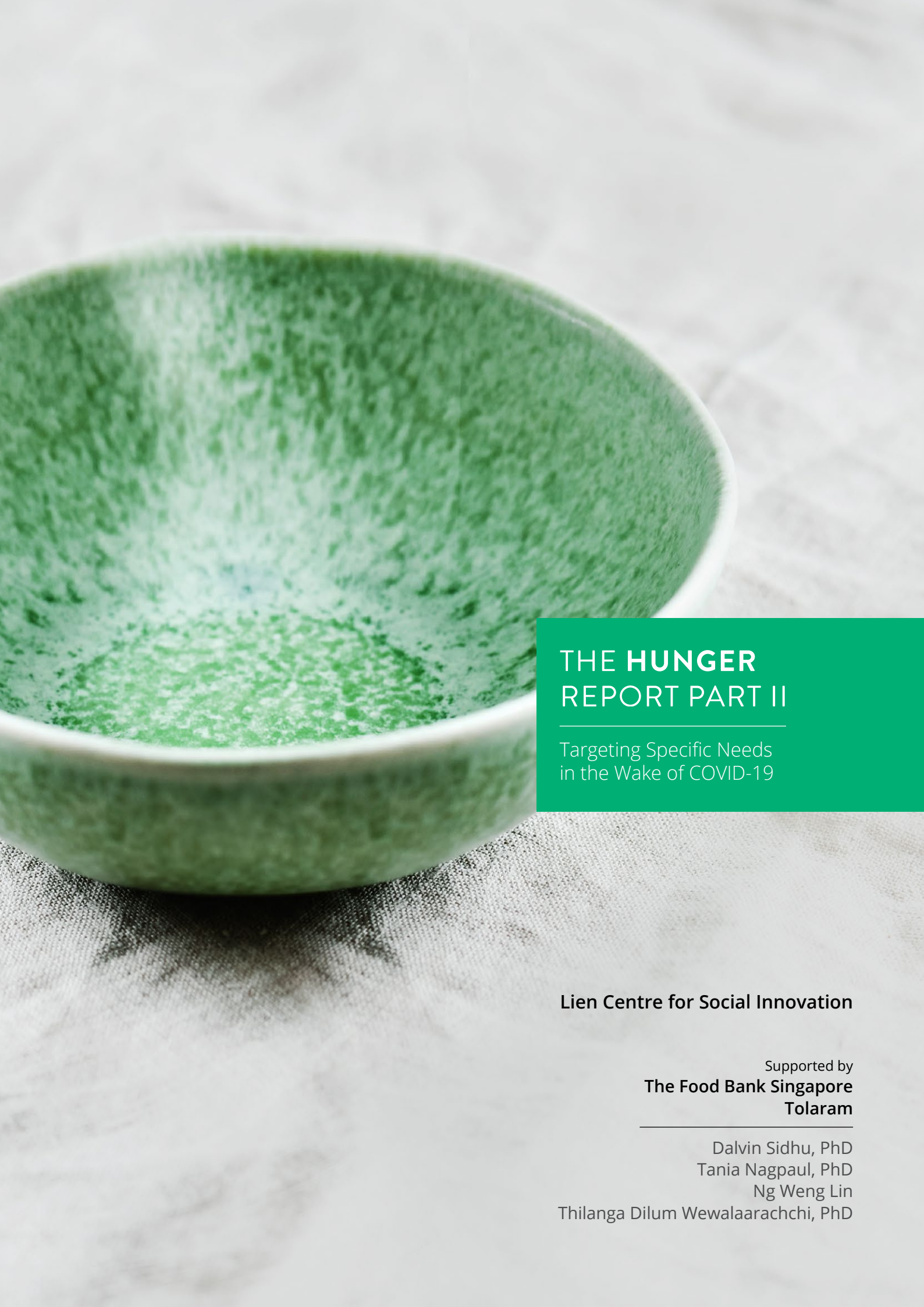
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THE HUNGER REPORT PART II

Targeting Specific Needs
in the Wake of COVID-19

Lien Centre for Social Innovation

Supported by
**The Food Bank Singapore
Tolaram**

Dalvin Sidhu, PhD
Tania Nagpaul, PhD
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Research Team

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Social Innovation



Tolaram

ABOUT THIS REPORT



The Hunger Report Part II: Targeting Specific Needs in the Wake of COVID-19 is the first intervention study of its kind in Singapore, delving into how the food situation of previously identified food-insecure households has changed during the COVID-19 pandemic. Through surveys, this report reveals the impact COVID-19 has had on a small sample of food-insecure families in Singapore. The authors also administer a Needs Toolkit to understand the unique needs and preferences of each food-insecure household. They then explore the impact of autonomy in food support through an intervention element in the study.

The study also makes recommendations on the actions needed to bring about positive and sustainable change in the food support ecosystem in Singapore.

When we started working on the Hunger Report Part I in 2018, the world was a very different place from what it is now. From the first Hunger Report published in 2020, we saw 10.4% of the population face some form of food insecurity, which was worrying.

Seeing how the pandemic has swept the world by storm, we decided in 2020 to follow up closely with The Hunger Report Part II to better understand how mindsets and needs have shifted in the midst of this crisis. The findings from this report have validated The Food Bank Singapore's on-the-ground sentiments that in a time of chaos and crisis, people seek comfort in consuming what they prefer, and through these times, they still wish to be accorded the respect to be able to make their own choices. While this is not an entirely new phenomenon, the pandemic expedited this thought process.

– Nichol Ng, co-founder of The Food Bank Singapore

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ABOUT THE FOOD BANK SINGAPORE

Established in 2012, The Food Bank Singapore (FBSG) is Singapore's first food bank, and it aims to be the prevailing centralised coordinating organisation for all food donations in Singapore.

Driven by its mission to eradicate food insecurity of all forms in Singapore by 2025, the registered charity bridges potential donors and member beneficiaries by collecting and redistributing donated food. Its members are registered charity organisations or special organisations with a designated meal programme for low-income and underprivileged individuals and families.

Through a network of more than 300 such organisations of all sizes, FBSG serves more than 100,000 families and over 300,000 people with all kinds of food—from fresh to cooked.



Among its many initiatives are:

- **Bank Boxes**, placed in buildings across Singapore to encourage regular food donations from the public.
- **Food drives for corporations**, to generate food donations, as well as raise awareness about food insecurity and food wastage.
- **The Food Pantry 2.0**, which dispenses food aid through 30 vending machines that are accessible 24/7. The distribution of food is decentralised and provides beneficiaries with a range of food items at their convenience.
- **Feed The City**, which aims to feed people in need by providing them with the option of cooked meals at their preferred F&B outlet and timing.

In Singapore, FBSG has become the voice of food resource planning and management and works closely with government agencies to address issues on the ground. It also helps food banks around the region to collectively combat food insecurity, an issue that its founders—Nichol Ng and Nicholas Ng—are passionate about.

Thanks to their network and experience in the food industry, FBSG can provide insight and better access to obtaining sources of excess food.

In Singapore, FBSG has become the voice of food resource planning and management and works closely with government agencies to address issues on the ground.



ABOUT TOLARAM

Tolaram also champions initiatives that promote community development, education and healthcare, and is honoured to be a partner of The Food Bank Singapore in its mission to eradicate food insecurity in Singapore.

Tolaram is a Singapore-headquartered enterprise focused on building businesses that propel growth and elevate communities. Since 1948, Tolaram has transformed from a single retail shop to a business that reaches over one billion consumers across Asia, Africa, Europe, and South America. It is Africa's largest consumer goods company with leading consumer brands in noodles, pasta, cooking oil, dairy, cereal, snacks, beverages, oral care, personal care, and home care. Its global partners include Indofood, Arla, Kellogg's, Colgate-Palmolive, and Kimberly-Clark.

Tolaram believes that businesses must serve society and are committed to responsible stewardship. It is structured as a trust, and Ishk Tolaram Foundation is the single largest beneficiary. Beyond creating employment and positively impacting livelihoods, Tolaram champions initiatives that promote community development, education and healthcare. Across the geographies where it operates, Tolaram partners with governments, community organisations and food banks to support food needs of local communities. In Nigeria, Tolaram donated food products and US\$2.5 million towards relief packages during the lockdown. In Estonia, Tolaram partners with Mother Teresa's Home to provide warm meals to the homeless. And in Singapore, Ishk Tolaram Foundation has supported more than 1,000 people with food relief since the start of the pandemic. Tolaram is honoured to be a partner of The Food Bank Singapore in its mission to eradicate food insecurity in Singapore.

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The Lien Centre for Social Innovation (LCSI) was commissioned by The Food Bank Singapore (FBSG), and supported by Tolaram, to explore the impact of COVID-19 on food-insecure households in Singapore.

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We would like to extend our sincere thanks to all the households that took the time to participate in this study. Their insights and sharing have provided a detailed picture of the impact COVID-19 has had on their food situation and psychological well-being. We remain humbled by their generosity and openness.

We thank our field interviewers—Yahti, Yuan Xuan, Cristine and Audrey—who helped with the data collection on the ground and connecting with identified households.

Finally, we thank our colleagues in LCSI, especially Ho Han Peng and Shirley Pong, for their encouragement and support throughout this project.

EXECUTIVE SUMMARY

This report provides an update of [The Hunger Report](#), a nationally representative study published in 2020 that explored the issue of food insecurity in Singapore. Despite Singapore being ranked by the Economic Intelligence Unit as being the most food-secure nation in the world on the Global Food Security Index in 2019, [The Hunger Report](#) found that 10.4% of the 1,200 surveyed households experienced food insecurity at least once in the last 12 months at the time of the survey's completion.

In the wake of the COVID-19 pandemic, we present an updated report on the food security situation of a proportion of previously identified food-insecure households derived from [The Hunger Report](#). In addition, this study also seeks to put into action the recommendation made in the original report about tackling the misalignment of food support services through an intervention, which included (1) administering a Needs Toolkit to understand the unique food needs and preferences of each household, and (2) meeting their food needs through appropriate food support for a period of two months.

Given the unprecedented changes brought about by COVID-19 on livelihoods and access to food, the first phase of this study focused on determining the impact of the

pandemic on Singaporean households on a portion previously identified as "food insecure" in 2019. Interestingly, over 44% of the sampled households improved on their food security status, and about 20% of these previously food-insecure households are now deemed food secure. This development is likely due to an increase in Singaporeans seeking aid, plus an increase of food support efforts on the ground during this period. However, it should also be noted that the food security of 10.2% of households was exacerbated during the COVID-19 pandemic.

The original report, with its research conducted in 2019, highlighted misalignments in food support based on factors like one's ability to cook, time constraints, mobility issues, cultural mismatches, and dietary restrictions. For this updated report with research conducted in 2021, a targeted Needs Toolkit was administered to the food-insecure households to ascertain their unique needs and food support preferences. Participants were subsequently offered two months' worth of appropriate food support as either cooked meals or supermarket vouchers, based on their responses to the toolkit. The majority of them chose the latter. After this intervention, households reported better food security scores, lower psychological distress, and a vast improvement in food support satisfaction levels.

Recommendations discussed in the report include the following:

Need for Autonomy in Singapore's Food Support Model

This study highlights the importance of understanding the specific needs of food-insecure households and the value of autonomy in food support. These households were empowered to choose the type of food support they could receive and the freedom to purchase their own groceries after they were issued supermarket vouchers. This approach allows food needs to be met more appropriately while affording these households a sense of dignity and ownership. Food support should thus aim to be more flexible and autonomous. Other than supermarket vouchers, a stored-value card system could also be introduced, where beneficiaries can use cards with a stored value to buy food items from supermarkets, coffee shops, and food courts.

Partnerships in the Food Support Ecosystem

An analysis of receipts from the households who chose the supermarket vouchers option showed that 18.6% of their groceries expenditure was on non-food items such as toiletries and cleaning materials. Other beneficiaries of food support have also expressed a similar need for such non-food items, which can be expensive. While food support organisations may find it challenging to provide such an array of support, this can be overcome through partnerships between various charities and private and public organisations. Such collaborations will allow different organisations to share their resources for the common good by providing beneficiaries all across Singapore with more holistic and targeted support.



01

BACKGROUND



This study provides an update of [The Hunger Report](#), an original nationally representative study published by SMU's Lien Centre for Social Innovation (LCSI) and The Food Bank Singapore (FBSG) in 2020, which found that 10.4% of the sampled households experienced food insecurity. As defined by local research on the phenomenon, food security is achieved "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (Glendinning et al., 2018; Nagpaul et al., 2020). In contrast, household food insecurity comes about when a household does not have or is not confident of having "economic and physical access to sufficient, acceptable food for a healthy life".

In the aftermath of Singapore's "circuit breaker" period during the COVID-19 pandemic, the authors sought to determine whether families who were already food insecure faced greater challenges in having their food needs met adequately. The study provides an updated food security status report based on the food-insecure families identified from [The Hunger Report](#), in a bid to understand the impact of COVID-19 in a local context.

Furthermore, in order to make an attempt to address the recommendation of the 2020 report, which was to resolve the misalignment in food support services, the authors also sought to understand the specific support requirements of food-insecure families through the administration of a Needs Toolkit and meet these food support needs for a period of two months. The objective of this was to ascertain the impact of food support on beneficiaries when they are given the autonomy to choose the type of food support rendered to them.

In the aftermath of Singapore's "circuit breaker" period during the COVID-19 pandemic, the authors sought to determine whether families who were already food insecure faced greater challenges in having their food needs met adequately.



The Impact of COVID-19

The COVID-19 pandemic has had rippling effects on economies and societies. Many countries have had to make tough choices between lives versus livelihoods. The public health consequences of the pandemic are well documented (Ansah et al., 2021; Kreutz et al., 2020). Also, some studies have systematically looked at its effects on economic and societal variables such as employment and working life (Weber et al., 2021), transport (Musselwhite et al., 2020) and education (Jung et al., 2021). However, fewer empirical investigations have closely examined the pandemic's impact on food insecurity levels of vulnerable families.

A projected estimate of the impact of the pandemic on global poverty and food security suggests that almost 150 million people will fall into extreme poverty and food insecurity (Laborde et al., 2020). The United Nations' World Food Programme estimates that 272 million people are already or at risk of becoming acutely food insecure in the countries where it operates. The World Bank issued a brief stating that a significant number of people are either running out of food or reducing their consumption (in 48 countries) as a result of the disruptions caused by the COVID-19 pandemic.

In the United States (US), Escobar et al. (2021) have shown that food insecurity among Latin families in the Greater Bay Area of California was exacerbated as a result of the COVID-19 pandemic. Specifically, they reported that food insecurity was on the rise among families with children, and a reported history of COVID-19 infection was significantly associated with food insecurity. On the east coast in Vermont, a similar study revealed via a statewide population survey that there was nearly a one-third increase (32.3%) in household food insecurity since COVID-19, with 35.5% of food-insecure households classified as newly food insecure (Niles et al., 2020).

In a similar vein, Nguyen et al. (2021) tracked among 529 mothers in 26 districts of India's largest state, Uttar Pradesh, the impact of COVID-19 on household food insecurity and child feeding practices. This study found a sharp increase in household food insecurity, which rose from 21% in December 2019 to 80% in August 2020, with 62% of the households going from food secure to food insecure over this period. Furthermore, households that were consistently insecure across the two measurement periods engaged in coping strategies, such as reducing other essential non-food expenditures, borrowing money to buy food, or selling jewellery to obtain foods.



In Wuhan, China, where the COVID-19 virus was first identified in December 2019, a group of researchers embarked upon a study to assess household food insecurity in the city at the time of the pandemic. It was found that pandemic-induced lockdown measures had a huge negative impact on household food security (Zhang et al. 2021).

It is clear from the above that the COVID-19 pandemic has pushed families across different parts of the world into a state of food insecurity or has perpetuated food concerns among those who were previously identified as food insecure.

In Singapore, Beyond Social Services published a qualitative study on 54 public rental flat residents, four stakeholders working on the ground providing food aid, and a focus group involving eight members (Chok, 2021). It was found that the pandemic had exacerbated the phenomenon of food insecurity. More specifically, participants in the study shared their cognitive processes or strategies in acquiring, preparing and consuming food on a daily basis.

The study's practical significance is rooted in the fact that it aims to make a modest beginning in attempting to fill the support gap prevalent in the food support space, by providing food-insecure households autonomy in deciding the type of support they would like to receive.

This study assesses the impact of COVID-19 on previously identified food-insecure families in the local context. More specifically, we ask: *has the food situation of food-insecure families worsened as a result of the COVID-19 pandemic?* It is critical to investigate the food statuses of food-insecure households as they were already in a vulnerable position to begin with, as identified in 2019 (pre-COVID-19 era). In addition, this study also acts on the most urgent recommendation made in [The Hunger Report](#) about tackling the misalignment of food support services—the Needs Toolkit, which was developed to enable an accurate assessment of a family's needs and preferences pertaining to food. Based on the toolkit's assessment, each participating household was provided with appropriate food support for a period of two months. The study makes important theoretical contributions to the food insecurity literature as this is the first time an intervention study in the context of food insecurity was carried out in Singapore.

The study's practical significance is rooted in the fact that it aims to make a modest beginning in attempting to fill the support gap prevalent in the food support space, by providing food-insecure households autonomy in deciding the type of support they would like to receive.

This study was conducted in two phases with the following objectives:

Phase 1: What is the impact of the COVID-19 pandemic on food insecurity in Singapore?

Phase 2: How can the unique needs of food-insecure families be met?

The first phase aimed to explore and ascertain the impact of the COVID-19 pandemic on food-insecure households in Singapore. The authors sought to determine whether families who were already food insecure would face greater challenges in having their food needs met adequately, and they provide an updated food insecurity status report on the previously identified food-insecure families.

The second phase puts into action the most urgent recommendation made in [The Hunger Report](#), which was tackling the misalignment of food support services through the administration of a Needs Toolkit. As highlighted in the report, food support did not reach where it was required the most, and there was evidence to suggest that food support, when rendered, had a tendency to be incongruent with the

unique needs of food-insecure households. For example, dry rations, such as rice, were given to an elderly person living alone who did not have the means to cook. Other misalignments related to mobility issues, time constraints, cultural mismatch, and dietary restrictions.



PHASE 1: WHAT IS THE IMPACT OF THE COVID-19 PANDEMIC ON FOOD INSECURITY IN SINGAPORE?

02



This section provides details on how this study was conducted in Phase 1. It first explains how the participants—food-insecure households—were selected and the surveys administered and then provides data analysis and its findings.

Sampling of Participants

As the focus of this study was to explore the impact of the COVID-19 pandemic on food-insecure households, purposive sampling was adopted. More specifically, food-insecure households were identified through [The Hunger Report](#), a nationally representative study published by FBSG and LCSi in 2020. The report found that 10.4% of Singaporean households experienced food insecurity at least once in the 12 months at the time of the survey's completion (Nagpaul et al., 2020). Food-insecure households that were identified in [The Hunger Report](#) and consented to be contacted for future research were invited to participate in the current study with the aim of ascertaining the impact of the COVID-19 pandemic on their food insecurity status. A total of 145 households that were identified as food insecure in [The Hunger Report](#) were contacted. Of these 145 households, 59 participated in the current study—a participation rate of 40.7%.

Food-insecure households that were identified in [The Hunger Report](#) and consented to be contacted for future research were invited to participate in the current study with the aim of ascertaining the impact of the COVID-19 pandemic on their food insecurity status.



Survey Instrument

In order to compare data from [The Hunger Report](#) to ascertain the impact of the pandemic on food-insecure households, the same survey instrument—the Household Food Security Survey Module (HFSSM)—was utilised to determine the current food security status of participating food-insecure households. The HFSSM comprises 18 items, including a ten-question portion that measures food security among adults in the household (“Adult Food Security Scale”) and an eight-question portion that measures food security among children in the household (“Child Food Security Scale”).

The HFSSM had been utilised by the Health Canada (2004) study through the Canadian Community Health Survey (CCHS), which provided for the first time, national and provincial estimates of income-related food security at the household, adult and child level in Canada.

In addition, the Kessler Psychological Distress Scale (Kessler et al., 2002), which was utilised in [The Hunger Report](#), was also administered to determine changes in psychological well-being, if any.

Data Analysis

Determining food security status

The food insecurity status was determined utilising the same method as [The Hunger Report](#). As introduced in the previous section, the HFSSM was used to determine a household’s food security status, which took into account the number of food-insecure conditions reported in the HFSSM. Table 1

describes the categorisation of food security status applied to this study.

Other than determining the food security status of the households by affirmative tabulation of each raw score, the scale score from each HFSSM question was also tabulated. An analysis of the raw scores will allow for deeper insight into the changes in the levels of food security that otherwise would not have been captured with broad categorisations.

Tables 2 and 3 illustrate the mean scores of the adults and children, respectively, on the food security scale, as well as their corresponding food security status. The mean scores are derived from the sample (n = 1,206) of [The Hunger Report](#) as it was imperative to contextualise the scores to the local national study on the phenomenon instead of using the scores from the CCHS (Health Canada, 2004).

In the CCHS (Health Canada, 2004), the adult food security scale scores were estimated based on the maximum likelihood method through utilising English and French sub-samples. Hence, this may not be reflective of the scores and thresholds in the Singaporean context. In the current study, mean food security scale scores were used to determine food security status instead of the maximum likelihood method because of the highly centralised distribution around the mean. The maximum likelihood method is a method of estimating the maximum parameters of a given distribution in a dataset and cannot be utilised should there be highly centralised distributions around the mean.

Table 1: Categorisation of Food Status According to Affirmative Responses in the Household Food Security Survey Module



 Food Security Status		
Category Labels	Category Description	
	10-Item Adult Food Security Scale	8-Item Child Food Security Scale
Food secure (FS)	No indication of difficulty with income-related food access 0 or 1 affirmative response	No indication of difficulty with income-related food access 0 or 1 affirmative response
Moderately food insecure (MFI)	Indication of compromise in quality and/or quantity of food consumed 2 to 5 affirmative responses	Indication of compromise in quality and/or quantity of food consumed 2 to 4 affirmative responses
Severely food insecure (SFI)	Indication of reduced food intake and disrupted eating patterns ≥6 affirmative responses	Indication of reduced food intake and disrupted eating patterns ≥5 affirmative responses

Table 2: Adult Food Security Scale Score and Food Security Status


 Adult Food Security			
AFSRS ¹	Mean Adult Food Security Scale Score (2019)	Standard Error	Adult Food Security Status
0 ²	—	Food secure
1	9.17	.063	
2	10.16	.085	Food insecure, moderate
3	11.04	.178	
4	11.68	.151	
5	13.39	.279	
6	13.95	.214	Food insecure, severe
7	15.68	.429	
8	17.15	.689	
9	18.09	.879	
10	17.20 ³	.573	

¹ AFSRS = Adult Food Security Raw Score (Number of Affirmed Responses)

² Scale scores are not determined for households that reported no food-insecure conditions (raw score = 0).

³ The mean scale score for 10 affirmative responses (raw score = 10) is lower than that of 9 affirmative responses (raw score = 9) because of the different permutations of affirmative responses, which were defined as “sometimes true” and “always true”.

Table 3: Child Food Security Scale Score and Food Security Status

 Child Food Security			
CFSRS ¹	Mean Child Food Security Scale Score (2019)	Standard Error	Child Food Security Status
0 ²	—	Food secure
1	8.00	.000	
2	9.19	.101	Food insecure, moderate
3	10.29	.360	
4	11.67	.667	
5	12.20	.583	
6	12.33	.333	Food insecure, severe
7	14.00	.707	
8	17.67	2.03	

¹ CFSRS = Child Food Security Raw Score (Number of Affirmed Responses)

² Scale scores are not determined for households that reported no food-insecure conditions (raw score = 0).

Findings

This section documents the findings from Phase 1 of the study, which looks to ascertain the impact of the COVID-19 pandemic on previously identified food-insecure families.

Descriptive Results

Table 4 documents the socio-demographic profile of the current sample split by their food status in 2021 (n = 59). It should be noted that in 2019, none of these 59 households sampled here were classified as food secure. In splitting these socio-demographic variables by food status, one can gather insights into how many households were able to cross over to the food secure category from 2019 to 2021.

However, these statistics are not generalisable to the larger population in Singapore as they constitute a sub-sample of [The Hunger Report](#).

Interestingly, as depicted in Table 4, 100% of the households (n = 12) who were food secure constituted household sizes of one to four persons and had heads of the household who were unemployed. More than half of those who were in the “food secure” category (n = 7 out of 12) either had no household income or a household income of less than S\$1,000.



Table 4: Descriptive Results of Participants (n = 59)

Demographic Variable	Food Security Status		
	Food secure N (% of total)	Food insecure N (% of total)	Total N (% of total)
Age			
18–35	3 (5.1%)	12 (20.3%)	15 (25.4%)
36–50	0 (0%)	10 (16.9%)	10 (16.9%)
51–65	1 (1.7%)	13 (22.0%)	14 (23.7%)
66–80	8 (13.6%)	9 (15.3%)	17 (28.8%)
> 80	0 (0%)	3 (5.1%)	3 (5.1%)
Total	12 (20.3%)	47 (79.7%)	59 (100%)
Household Size			
1–4 persons	12 (20.3%)	37 (62.7%)	49 (83.1%)
5 or more persons	0 (0%)	10 (16.9%)	10 (16.9%)
Total	12 (20.3%)	47 (79.7%)	59 (100%)
Housing Type			
1-Room HDB	2 (3.4%)	14 (23.7%)	16 (27.1%)
2-Room HDB	4 (6.8%)	17 (28.8%)	21 (35.6%)
3-room HDB	2 (3.4%)	6 (10.2%)	8 (13.6%)
4-room HDB	4 (6.8%)	7 (11.9%)	11 (18.6%)
5-Room HDB/Executive Flats	0 (0%)	3 (5.1%)	3 (5.1%)
Total	12 (20.3%)	47 (79.7%)	59 (100%)

Marital Status			
Married	5 (8.5%)	20 (33.9%)	25 (42.4%)
Single	4 (6.8%)	14 (23.7%)	18 (30.5%)
Divorced	0 (0%)	9 (15.3%)	9 (15.3%)
Separated	0 (0%)	1 (1.7%)	1 (1.7%)
Widowed	3 (5.1%)	3 (5.1%)	6 (10.2%)
Total	12 (20.3%)	47 (79.7%)	59 (100%)
Employment Status			
Employed (Full-time)	0 (0%)	13 (22.0%)	13 (22.0%)
Employed (Part-time)	0 (0%)	9 (15.3%)	9 (15.3%)
Self-employed	0 (0%)	3 (5.1%)	3 (5.1%)
Unemployed	12 (20.3%)	22 (37.3%)	34 (57.6%)
Total	12 (20.3%)	47 (79.7%)	59 (100%)
Ethnicity			
Chinese	5 (8.5%)	27 (45.8%)	32 (54.2%)
Malay	5 (8.5%)	16 (27.1%)	21 (35.6%)
Indian	2 (3.4%)	3 (5.1%)	5 (8.5%)
Others	0 (0%)	1 (1.7%)	1 (1.7%)
Total	12 (20.3%)	47 (79.7%)	59 (100%)
Educational Qualifications			
Below secondary	5 (8.5%)	13 (22.0%)	18 (30.5%)
Secondary	4 (6.8%)	8 (30.5%)	22 (37.3%)
Post-secondary	2 (3.4%)	8 (13.6%)	10 (16.9%)
Diploma (Polytechnic)	1 (1.7%)	4 (6.8%)	5 (8.5%)
University and above	0 (0%)	4 (6.8%)	4 (6.8%)
Total	12 (20.3%)	47 (79.7%)	59 (100%)
Monthly Household Income (S\$)			
No income	5 (8.5%)	13 (22.0%)	18 (30.5%)
Below 1,000	2 (3.4%)	7 (11.9%)	9 (15.3%)
1,000–1,999	2 (3.4%)	10 (16.9%)	12 (20.3%)
2,000–2,999	1 (1.7%)	6 (10.2%)	7 (11.9%)
3,000–3,999	1 (1.7%)	4 (6.8%)	5 (8.5%)
4,000–4,999	0 (0%)	1 (1.7%)	1 (1.7%)
5,000–5,999	1 (1.7%)	3 (5.1%)	4 (6.8%)
6,000–6,999	0 (0%)	1 (1.7%)	1 (1.7%)
7,000–7,999	0 (0%)	1 (1.7%)	1 (1.7%)
Declined to Respond	0 (0%)	1 (1.7%)	1 (1.7%)
Total	12 (20.3%)	47 (79.7%)	59 (100%)

Change in the Classification of Food Security Status

As depicted in Table 5, 20.3% (n = 12) of the households that were previously assessed to be “Food Insecure” (FI) in 2019 have now been assessed as “Food Secure” (FS) based on their responses to the HFSSM. Upon further analysis, it was found that 58.3% (n = 7) of the households in the FS category in 2021 had been “Severely Food Insecure” (SFI) in 2019, with the remaining 41.7% (n = 5) in the “Moderately Food Insecure” (MFI) category in 2019.



The SFI category saw the most improvements with a reduction of 25.5% households overall. When explored further, 46.6% (n = 21 out of 45) of these households saw improvements in their food security status, with 31.1% (n = 14 out of 45) and 15.5% (n = 7 out of 45) moving into the MFI and FS categories, respectively, in 2021.

The increase in 5.1% of households in the MFI category in 2021 was due to the positive movement of households from the SFI to MFI category. A total of 82.4% (n = 14 out of 17) of the households in the MFI category in 2021 had been from the SFI category in 2019. The remaining 17.6% (n = 3 out of 17) were households assessed to be MFI in 2019 and remained so in 2021.

Table 5: Change in Food Security Classification from 2019 to 2021

Category Labels	2019/2020	2021	Change
Food secure (FS)	0% (n = 0)	20.3% (n = 12)	↑ 20.3%
		<ul style="list-style-type: none"> 5 Five households moved from MFI in 2019 to FS in 2021. 7 Seven households moved from SFI in 2019 to FS in 2021. 	
Moderately food insecure (MFI)	23.7% (n = 14)	28.8% (n = 17)	↑ 5.1%
		<ul style="list-style-type: none"> 14 Fourteen households moved from SFI to MFI from 2019 to 2021. 3 Three households were identified as MFI in 2019 and remained there in 2021. 	
Severely food insecure (SFI)	76.3% (n = 45)	50.8% (n = 30)	↓ 25.5%
		<ul style="list-style-type: none"> 6 Six households moved from MFI to SFI from 2019 to 2021. 24 Twenty-four households were previously identified in 2019 as SFI and remained there in 2021. 	
	100% (n = 59)	100% (n = 59)	

Food security status of a significant proportion of previously food-insecure participants improved from 2019 (pre-COVID-19 era) to 2021, with 44.1% (n = 26) of the households registering some form of improvement in their food status by at least one category, for example, by moving from the SFI category to the MFI category.

Overall, the food security status of a significant proportion of previously food-insecure participants improved from 2019 (pre-COVID-19 era) to 2021, with 44.1% (n = 26) of the households registering some form of improvement in their food status by **at least one category**, for example, by moving from the SFI category to the MFI category. However, it should also be noted that the food security of 10.2% (n = 6) of these households was exacerbated during the COVID-19 pandemic, as they shifted from the MFI to SFI category from 2019 to 2021. For 45.8% (n = 27) of the households, their food security status remained unchanged.

test, which would have revealed the appropriate statistical tests to assess the significance between the data collected in 2019 and 2021, was used to test for normality. With a p-value greater than 0.05, the Shapiro-Wilk test indicated that both the adults (p = .847) and children (p = .882) food security raw scores were normally distributed. Thus, the t-test was used to compare the differences between the food security scores of 2019 and 2021.

The raw scores of the adults and children were calculated and analysed separately in order to explore the changes in both groups individually.

Change in Food Security Scale Scores of Participants

In order to ascertain the differences between the food security scale scores of 2019 and 2021, the normality of the data had to be determined first. To assess whether the data was parametric or non-parametric, the Shapiro-Wilk

Adults

There was a significant difference between the 2019 (M = 15.32, SD = 2.96) and 2021 (M = 13.42, SD = 3.94) food security scores of the adults in the households; t = -3.828, p = .000, d = 0.54.



This indicated a **statistically significant improvement** in the food security score by a mean of 1.90 points, which constitutes a 12.40% improvement in raw scores. The effect size was measured to be *medium*. In reference to Table 2, this improvement depicts a movement from mean scores associated with the SFI category to the MFI category.

Children

There was a non-significant difference in the 2019 (M = 10.31, SD = 3.70) and 2021 (M = 9.50, SD = 2.61) food security scores of the children in the households; $t = -1.47$, $p = .269$.

This indicated a **non-significant improvement** in the food security score by a mean of 0.81 points, which constitutes a 7.86% improvement in raw scores.

As depicted from the food insecurity scale scores, the severity of food insecurity was generally higher among adults than children in the household. As presented in Tables 2 and 3, in pre-pandemic 2019, the mean scale score for adults was located in the SFI category, whereas that of the children was located in the MFI category.

Research has shown that adults protect their children from food deprivation to the best of their abilities (McIntyre et al., 2003; Rose and Oliveira, 1997; Chok, 2021). In this study, the non-significant improvement in mean score from 2019 to 2021 did not translate into a change in food security status

as the children in the sample remained moderately food insecure. While the adults, in general, registered statistically significant improvements in food security scores and a movement from the SFI category to the MFI category, the children made no movements across categories. This could indicate that the adults in the household have, to the best of their ability, shielded the children from the effects of food insecurity from 2019 to 2021, such that any improvements to the food situation in the household made a non-significant difference to the food situation of the children.

Households Who Were Previously Classified as Food Insecure but Not Anymore

As mentioned, 20.3% of the households that were previously assessed to be food insecure in 2019 have now been assessed to be food secure. A closer look into these 12 households reveals that the most likely reasons for their change in food security status were because:

- They received support.
- Their household income increased.

Table 6: Most Likely Reasons for the Change in Food Security Status Between 2019 and 2021

Change in Circumstances	Number of Households (n = 12)	
Received Support	50% (n = 6) ^{1,3}	
Increased or Supplementary Income	33.3% (n = 4) ²	
Both	8.3% (n = 1) ²	
Others	8.3% (n = 1)	Decrease in number of people at home
		Change in participant (from parent to child)
No Income as of 2021 (all are receiving help)	41.7% (n = 5)	

¹ Unclear what kind of help was received after seeking assistance, i.e., whether it was food support specifically.

² Income not explicitly indicated, but they indicated supplementary sources like part-time work, borrowing of money, or selling/pawning items.

³ Also indicated a housing upgrade from 1 to 2 rooms.

Table 6 shows the changes in circumstances in all of the households that were assessed to be food secure in 2021 as compared to 2019. A more detailed breakdown shows that 50% of these households received some form of support between 2019 and 2021, 33.3% of them had an increased household or supplementary income, and 8.3% had both changes in circumstances.

Only one household (8.3%) did not fit in any of these categories. However, the lack of clarity for that household's shift in food security status might have been due to different participants completing the survey in 2019 and 2021, for example, the father first and then his child. This could have resulted in a difference in perspective and may not have accurately reflected any change in conditions of that household during that time.

Receiving help was the biggest reason for households moving from being food insecure to becoming food secure.

In addition, 41.7% of these now food-secure households stated that they had no household income at all but were being assisted by various organisations on the ground. This suggests the importance of assistance from community and social service organisations in alleviating food insecurity.

Psychological Well-being

To compare a participant's mental well-being across these two time points, their cumulative scores on the Kessler Psychological Distress Scale (KPDS) in 2019 and 2021 were compared. The scale comprised six items, with responses to each question receiving a score of between 1 and 5. The cumulative minimum score on this scale is 6, which indicates no distress, and the cumulative maximum score is 30, which indicates severe distress.

To ascertain whether the data obtained from the KPDS in 2019 and 2021 were normally distributed, the Shapiro-Wilk test was again first used to assess the distribution; it later revealed that the raw scores for psychological distress were not normally distributed ($p = .01$ for 2019 and $p = .02$ for 2021). Consequently, a non-parametric test, the Wilcoxon signed-rank test was used to determine whether there were any differences between the mental well-being of participants in 2019 and 2021. Although raw scores indicated that the participants experienced less psychological distress in 2021 (M = 13.45, SD = 5.59) relative to 2019 (M = 14.68, SD = 5.71), this difference was non-significant ($Z = 1.45$, $p = .15$). Thus, we can conclude that the participants' mental well-being was similar across the two time points studied.





While there was an improvement in food support coverage from 2019 to 2021, a substantial percentage of food-insecure households (42 out of 59) were still not receiving any food support.

Food Support (Changes in % Receiving Food Support and Satisfaction Levels)

We examined the 59 households that participated in the current study and compared their current food support situation against their statistics in 2019. As listed in Table 7, 28.8% (n = 17 out of 59) of the participants were receiving food support in 2021. We found that a slightly higher number of severely food-insecure families were receiving food support in 2021 (8 out of 59) as compared to 2019 figures (6 out of 59). It is also worthy of note that as a result of receiving food support, three families are now food secure.

Table 7: Food Support Received by the Same Food-Insecure Households from 2019 to 2021 (n = 59)

Category Labels	2019	2021	Change
Food secure (FS)	0% (n = 0)	5.1% (n = 3)	↑ 5.1%
Moderately food insecure (MFI)	15.3% (n = 9)	10.2% (n = 6)	↓ 5.1%
Severely food insecure (SFI)	10.2% (n = 6)	13.5% (n = 8)	↑ 3.3%
	25.5% (n = 15 out of 59)	28.8% (n = 17 out of 59)	

Additionally, we compared the overall percentage of food support received in 2019 and 2021 and found that 25.5% and 28.8% of the food-insecure households were receiving food support in 2019 and 2021, respectively. While there was an improvement in food support coverage from 2019 to 2021, a substantial percentage of food-insecure households (42 out of 59) were still not receiving any food support.

Furthermore, when the participants were asked how satisfied (on a scale of 1 = “Extremely Satisfied” to 5 = “Extremely Dissatisfied”) they were currently with the food support they

received, 80.6% of the households indicated that they were “Satisfied” (see Figure 1). This is an encouraging finding as the corresponding percentage with the matched sample from *The Hunger Report* was a meagre 1.2%. We thus believe that not only was greater support reaching the food-insecure households during the pandemic, the recipients were also more fulfilled. Conversely, when these same participants were asked for possible reasons on why they were dissatisfied with the food support received, the most frequently cited reasons were: “received food that I did not need” and “received the same food every time”.

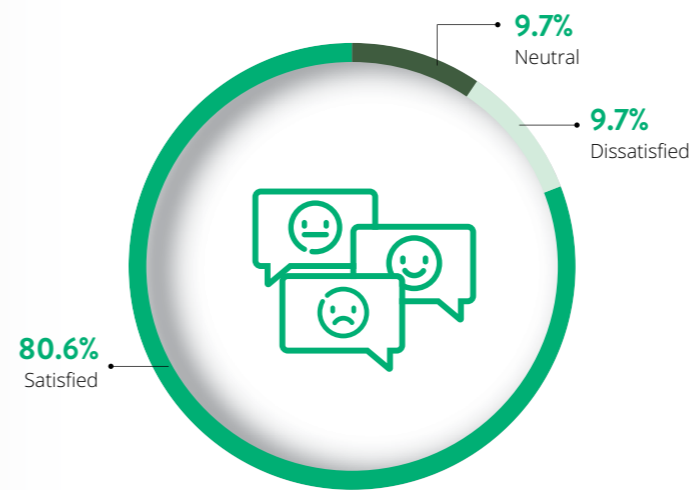


Figure 1: Satisfaction Levels with Food Support Received by Households (n = 17)

Furthermore, when the participants were asked how satisfied (on a scale of 1 = “Extremely Satisfied” to 5 = “Extremely Dissatisfied”) they were currently with the food support they received, 80.6% of the households indicated that they were “Satisfied”.

03

PHASE 2: HOW CAN
THE UNIQUE NEEDS
OF FOOD-INSECURE
FAMILIES BE MET?

This phase of the study puts into action the recommendation made in [The Hunger Report](#) about tackling the misalignment of food support services through an intervention, which consisted of (1) the administration of a Needs Toolkit, and (2) providing unique and appropriate food support to each household based on the responses to this toolkit for a period of two months.

The objective of this phase was to ascertain the impact of meeting the unique needs of each food-insecure family by providing them with appropriate and relevant food support.

Methods

Sampling of Participants

As the focus of this phase was to administer an “intervention” in the form of appropriate food support, purposive sampling was adopted. Only households that were categorised as “food insecure” from Phase 1 were recontacted for participation in this phase (n = 42). Of the 42 households contacted, 85.7% (n = 36) agreed to participate in the intervention.

Intervention

Instrument: Needs Toolkit

The Needs Toolkit was developed and administered to these 36 participants to assess the unique food needs of each household (see Appendix). The purpose of this toolkit was to ensure that each household received the appropriate type of food support based on their needs and preferences.



The Needs Toolkit assessed the following in order to plan for the appropriate type and amount of food support to be provided to each household:

- Food preferences
- Presence of child/children in the household
- Food support preferences
- Household information (household size and expenditure)

Intervention action: Specific food support provided

Two types of food support—NTUC vouchers and cooked meals—were rendered to households in this phase for two months. The type of food support received depended on their preferences communicated during the administration of the

The Needs Toolkit was developed and administered to these 36 participants to assess the unique food needs of each household (see Appendix). The purpose of this toolkit was to ensure that each household received the appropriate type of food support based on their needs and preferences.



Needs Toolkit—94.4% (n = 34) of the households received NTUC vouchers and 5.6% (n = 2) received cooked meals. The two households that received cooked meals had expressed a preference for such support as they typically did not engage in cooking.

Ascertaining the amount of NTUC Voucher per household

Each of the 34 households received NTUC vouchers ranging from S\$150 to S\$300 in value per month for two months. The voucher values had been derived from estimated figures provided by these households of their average expenditure on food each month. As reported through the Needs Toolkit by the respondents, the average amount spent on food per household member in our sample of households (n = 36) was S\$177.51 per month. Therefore, the minimum voucher amount was set at S\$150 per month for single-member households.

Higher amounts (a maximum of S\$300) were set for households with three or more family members. This maximum amount had been derived by calculating the average amount spent on food (absolute cost) by the households, which was S\$462.51 per month—S\$300 would, at the very least, cover half of the food costs of the 34 households participating.

This ensured that larger households received more support than single-member households. Overall, the NTUC vouchers covered between 15 and 100% of the households’ estimated monthly expenditure on food.

Post-intervention Test

To ascertain the impact of providing targeted support to households through the administration of the Needs Toolkit, the Household Food Security Survey Module (HFSSM) and the Kessler Psychological Distress Scale (Kessler et al., 2002) were administered again.

This post-intervention test helped compare the current food security status and psychological well-being of participating food-insecure households with the pre-intervention phase. The participation rate for the post-intervention test was 94.4% (n = 34).

Findings

This section documents the findings pertaining to the impact of the intervention, which consisted of (1) administration of the Needs Toolkit, and (2) targeted food support for a period of two months, based on the needs and preferences of each household.

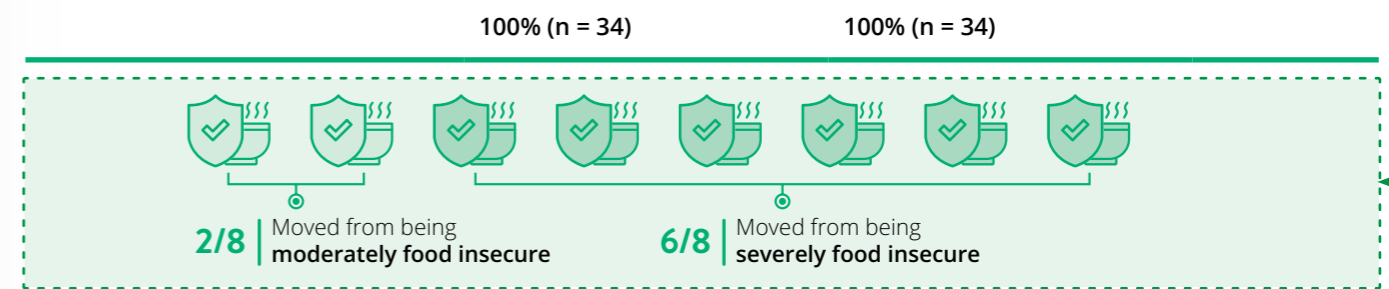
Food Insecurity Status

As shown in Table 8, 23.5% of the households assessed to be food insecure in the pre-intervention test have now been assessed as food secure, based on their responses to the post-intervention test HFSSM. The percentage of moderately and severely food-insecure households also registered decreases of 5.9% and 17.6%, respectively. Overall, the percentages of food-secure and mildly and moderately food-insecure households have improved from pre- to post-intervention.



Table 8: Changes in Food Security Classification Pre- and Post-Intervention (Targeted Food Support)

	Pre-Intervention	Post-Intervention	Change
Food secure (FS)	0% (n = 0)	23.5 % (n = 8)	↑ 23.5 %
Moderately food insecure (MFI)	32.4% (n = 11)	26.5% (n = 9)	↓ 5.9 %
Severely food insecure (SFI)	67.6% (n = 23)	50% (n = 17)	↓ 17.6 %



Change in Food Security Scale Scores of Participants

The Shapiro-Wilk test was used to assess the normality of the data distribution. With a p-value of higher than 0.05, the test indicated that both the adult (p = .226) and children (p = .238) food security raw scores were normally distributed. Thus, the t-test was used to compare the differences between the food security scores in the pre- and post-intervention tests.

Both sets of raw scores were calculated and analysed separately so that the changes in both groups could be explored individually.

Adult (n = 34)

There was a significant difference in the pre-intervention (M = 15.00, SD = 3.15) and post-intervention (M = 13.08, SD = 4.27) food security scores of the adults in the households; t = 2.69, p = 0.01, d = 0.385.

This indicated a **statistically significant improvement** in the food security score by a mean of 1.92 points, which constituted a 12.8% improvement in raw scores.

Child (n = 9)

There was a non-significant difference in the pre-intervention (M = 9.33, SD = 2.84) and post-intervention (M = 9.44, SD = 3.79) food security scores of the households with children; t = 1.668, p = .889.

The non-significant difference in the pre- and post-intervention food security score for children is consistent with the finding that the adults in the household, at the outset, tend to protect the children from food insecurity to the best of their abilities (Chok, 2021).



Psychological Distress

We ran a paired samples t-test to identify changes in the psychological distress levels of the participants before and after the intervention. Participants reported lower psychological distress levels after receiving the intervention (M = 12.78, SD = 5.49) than before the food support intervention (M = 15.43, SD = 5.54), a statistically significant decrease of 2.65 points, which constitutes a 17.1% improvement in distress levels, 95% CI (1.06,4.24), t(31) = 3.41, p = .002, d = 0.60.

Satisfaction with Food Support

In order to assess whether the targeted food support received by the food-insecure households was satisfactory for the recipients, participants were asked, on a scale of 1 = "Extremely Satisfied" to 5 = "Extremely Dissatisfied", how satisfied they were with the food support they received. Encouragingly, 75.8% indicated that they were "Extremely Satisfied" (see Figure 2), and the remaining 24.2% were "Somewhat Satisfied". Before the intervention, 15.7% of the participants reported feeling "Dissatisfied", but after receiving the NTUC cash vouchers, none of the participants reported feeling dissatisfied. Furthermore, this is a marked increase and contrast in the respondents' stated levels of satisfaction when compared to their 2019 indices, where close to 89% expressed dissatisfaction with the food support they received, presumably due to its sporadic nature.



The reasons for satisfaction, as highlighted by participants, include the ability to do the following: purchase more groceries without the need to depend on others, consume more food, and decide what groceries to buy. Below are excerpts from the participants, explaining why they were satisfied with the food support received in the form of NTUC vouchers.

"Emotional support as [in] no need to worry about putting food on the table for siblings."

"Helped a lot for the family to buy food and groceries when [there is a] shortage of cash."

"I can buy more food for my children and more nutritious food for everyone."

"I can [buy] more groceries with the NTUC vouchers and spend my own money to get medication."

"It takes the pressure off monthly expenses and with the grocery vouchers allows us to budget our spending for the month; and besides food, we can get toiletries and detergent."

"We get more ingredients to cook healthy meals for the entire family."

"Helped me to buy things that I wanted to buy."



Figure 2: Satisfaction Levels with Targeted Food Support Received During the Intervention

In terms of overall adequacy, 85.3% (n = 29) of the participants felt that the **amount** of food support they received, either in terms of NTUC vouchers (value) or cooked meals (quantity), was sufficient.

Spending Trends of Food-Insecure Households

In the first month, 94.12% (n = 32 out of 34) of the participants who received NTUC vouchers submitted their receipts. A month later, 82.35% (n = 28 out of 34) of the same participants submitted their receipts again. In total, the participants spent S\$16,795.28. This constituted 90.1% of the amount disbursed as food support during these two months. The receipts were then analysed to find out more about the spending trends of these food-insecure households.



Figure 3: How Were the NTUC Vouchers Spent?

As seen in Figure 3, 78.3% of the total amount spent went into buying food items, while 18.6% was spent on non-food products. The remaining 3.1% consisted of items that were not able to be identified from the receipts.



An overall breakdown of the items purchased using the NTUC vouchers is presented in Table 10. The food categories used are based on those from the 2017/18 Household Expenditure Survey (HES) (see Table 9) conducted by the Department of Statistics Singapore (DOS, 2019). That survey aimed to investigate the monthly expenditure of Singaporeans (Goh, 2021).

From Table 10, the top four categories that the participants spent their NTUC vouchers on were (i) meat, (ii) bread and cereals, (iii) milk, cheese and eggs, and (iv) fish and seafood, and these made up over half of their total spending (54%) on food items. These categories were also in the top four in the HES findings in 2018 (see Table 9), albeit in a slightly different order. An analysis of the participants' main spending trends showed that they appear in line with the groceries expenditure of an average Singaporean, which indicates that the vouchers were well utilised on items that were needed by their households and thus comparable to the spending habits of the average Singaporean.

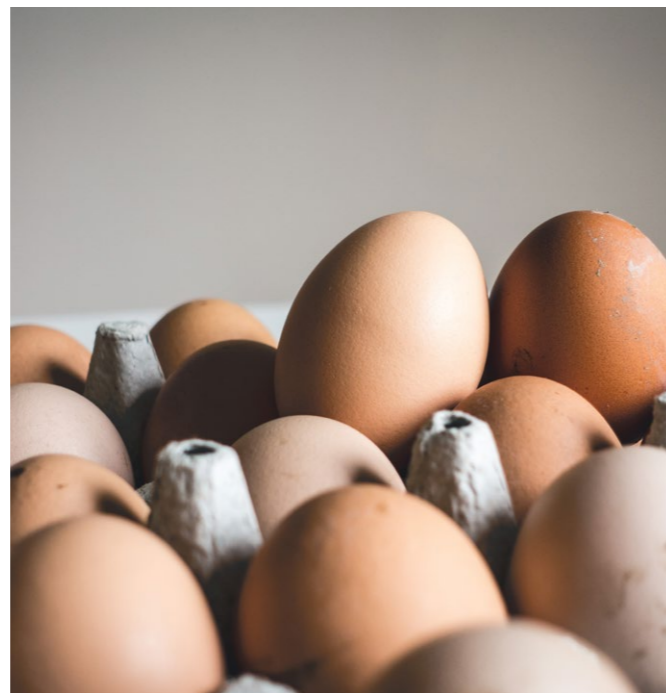


Table 9: Breakdown of Food Items Purchased by Households Taken from the 2017/18 Household Expenditure Survey

Type of Food and Non-Alcoholic Beverages	Total Amount	Total Percentage
Bread and Cereals	S\$69.60	18%
Meat	S\$60.30	16%
Fish and Seafood	S\$57.30	15%
Milk, Cheese and Eggs	S\$42.00	11%
Oils and Fats	S\$7.70	2%
Fruits	S\$47.10	12%
Vegetables	S\$49.50	13%
Sugar, Jam, Honey, Chocolate and Confectionery	S\$13.30	3%
Food Products N.E.C.	S\$14.20	4%
Coffee, Tea and Cocoa	S\$11.40	3%
Mineral Water, Soft Drinks, Fruit and Vegetables Juices	S\$10.40	3%
Food and Non-Alcoholic Beverages N.E.C.	S\$5.90	2%
Total	\$388.70	100%

N.E.C. = Not elsewhere classified

Source: 2017/2018 Household Expenditure Survey

Table 10: Breakdown of Food Items Purchased by Households That Received NTUC Vouchers During the Intervention

Type of Food	Percentage
Meat	15.6%
Bread and Cereals	14.2%
Milk, Cheese and Eggs	13.6%
Fish and Seafood	10.6%
Sugar, Jam, Honey, Chocolate and Confectionery	9.2%
Food Products N.E.C.	9.2%
Vegetables	7.5%
Coffee, Tea and Cocoa	6.7%
Fruits	6.0%
Mineral Water, Soft Drinks, Fruit and Vegetable Juices	4.3%
Oils and Fats	2.8%
Alcohol	0.3%

Non-food purchases (18.6%) were spent mainly on household items like toiletries and cleaning products. A breakdown of non-food purchases can be seen in Table 11, with toiletries accounting for the highest expenditure.

Issuing food-insecure households with NTUC vouchers offered them a level of autonomy that other forms of food support could not provide. It allowed the participants to purchase items that they would use regularly, based on the specific needs of their lifestyles and households, including non-food necessities.

Table 11: Breakdown of Non-food Purchases by Households That Received NTUC Vouchers

Type of Non-food	Percentage
Toiletries	41.7%
Cleaning	26.5%
Miscellaneous	21.6%
Health	5.5%
Kitchen Use	4.7%

Issuing food-insecure households with NTUC vouchers offered them a level of autonomy that other forms of food support could not provide. It allowed the participants to purchase items that they would use regularly, based on the specific needs of their lifestyles and households, including non-food necessities.

04

DISCUSSION



Phase 1: Improved Food Security Status of Food-Insecure Families

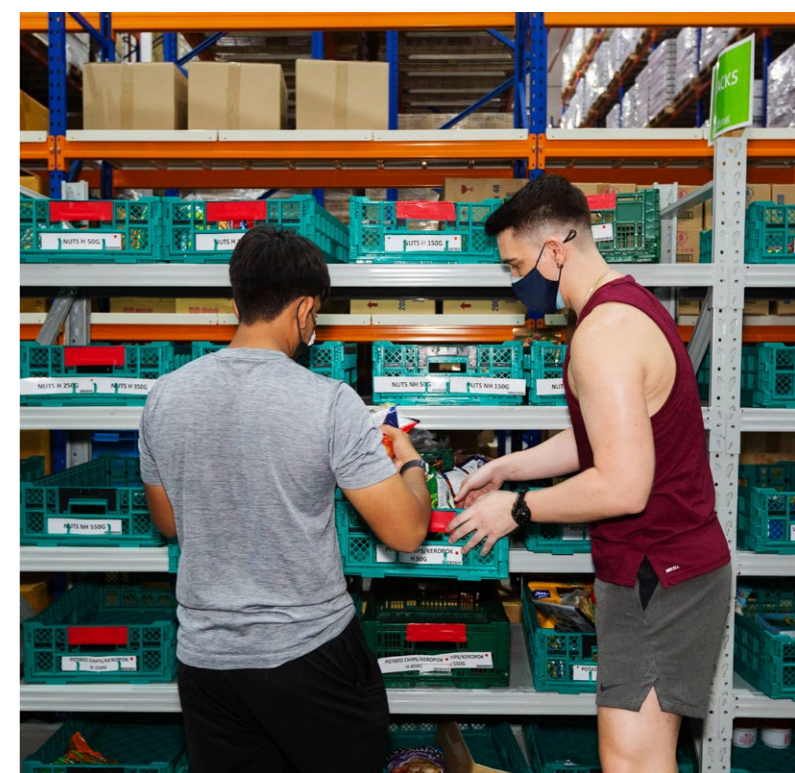
This study found that 20.3% of the households that were assessed to be food insecure in 2019 (pre-pandemic era) have now been assessed as food secure, based on their responses to the Household Food Security Survey Module (HFSSM). There was also a statistically significant improvement in the food security score of families when compared to their pre-pandemic scores. These improved scores could be attributed to the following reasons:

1. Increase in the number of Singaporeans seeking aid during the COVID-19 pandemic.
2. Ramping up of on-the-ground food support to food-insecure households during the pandemic, particularly during the “circuit breaker” period.

The demand for and supply of financial aid increased in 2020. According to the Ministry of Social and Family Development (MSF), \$236 million in ComCare assistance was disbursed in Financial Year 2020, which was a 56% increase from the previous financial year. ComCare assisted some 96,000 beneficiaries, a 22% increase from the previous year. Since the start of the COVID-19 pandemic in 2020, MSF has also introduced additional financial assistance schemes such as the Temporary Relief Fund, the COVID-19 Support Grant and COVID-19 Recovery Grant, which have together supported around 480,000 individuals financially impacted by the pandemic as of end 2021.

The government has also helped low-income households to defray some of their basic living expenses by offsetting the cost of their purchases at supermarkets, hawker centres and heartland merchants. In 2020, eligible households living in 1-2 room HDB flats received grocery vouchers worth \$300. In 2021, every Singaporean household received \$100 worth of vouchers under the Community Development Councils (CDC) Vouchers Scheme.

The demand for and supply of financial aid increased in 2020. According to the Ministry of Social and Family Development (MSF), \$236 million in ComCare assistance was disbursed in Financial Year 2020, which was a 56% increase from the previous financial year.



The presence of food support on the ground also increased in 2020. The food support sector is anchored by four large food charities—FBSG, Food From The Heart, Free Food For All, and Willing Hearts. During the height of the pandemic in 2020, they provided support to approximately 250,000 individuals.

Temasek Foundation, in collaboration with the various food charities, also launched several initiatives to aid with food security. For instance, the Hawker Food Delivery Programme, which was launched in partnership with the FBSG provided hawker meals to 34,000 individuals from May 2020. In a separate collaboration with Free Food For All and Willing Hearts, 270,000 meals were delivered to 1,500 low-income individuals residing in rental flats from April 2020 for a period of six months.

The increased access to food support on the ground may have been a factor in improving the food security status of food-insecure households as they attempted to navigate through the pandemic.

Phase 2: Value of Autonomy in Food Support

An important implication of Phase 2 is that the food support in the form of supermarket vouchers made a tremendously positive impact on the households—it helped them meet their food needs, as evidenced by the significant upliftment of families from their former food-insecure status. This is valuable for two reasons:

- (1) The intervention was a direct call to the preferred mode of food support that the families indicated in the Needs Toolkit. This created a high degree of alignment between what was needed to tackle food insecurity (as perceived by the respondents) and what support was eventually rendered. Indisputably, this calibration enhanced the receptivity of the intervention.
- (2) The disbursement of supermarket vouchers gave households the autonomy and freedom to choose the type of food items or related purchases they wanted. There is scientific evidence to show that interventions that (i) promote a person's sense of "ownership" over their eating routines, (ii) are deeply valuing and identifying with the goals associated with their eating choices, and (iii) display genuine interest in the experiences associated with selecting and preparing meals, are most likely to succeed in the long term (Texeira et al., 2011). Hence, the sense of volition that participants experienced by freely choosing how they would like to spend the vouchers may



have instilled in them the sense of ownership that is known to be beneficial in most human pursuits. This also had a positive impact on their psychological well-being.

This approach also helped to overcome the challenges around embarrassment, ad-hoc food support, cultural mismatch, and the taste preferences that were reported earlier. This is not to say that food rations or pre-cooked meals are ineffectual food support mechanisms, but it is clear that affording autonomy to food-insecure families can certainly make a significant impact on them. It may be argued that such support may not be sustainable or cost-effective in the long run, but any form of food support is not meant to be a permanent solution for food-insecure families. Therefore, we have found that the current study serves as a successful pilot in demonstrating the efficacy of targeted food support intervention that is rooted in autonomy and choice.

Limitations

As the objective of the paper was to explore the impact of the COVID-19 pandemic specifically on food-insecure households in Singapore, the ability to generalise the findings to the wider community in Singapore is limited. The sample in this study only includes previously identified food-insecure households in order to gain a deeper understanding of their food security status during the pandemic in 2020. Previously identified **food-secure** households were not included in this study. A

study by Loopstra (2020) found that any adult who reports an income loss of greater than 25% is at a significantly heightened risk of food insecurity. Hence, there is a possibility that the **food security of previously food-secure** households in 2019 has worsened during the pandemic as a result of reduced income.

The generalisability of the findings for the spending trends in the wider community is also limited because of the non-representative dataset. The information generated from analysing the spending patterns of food-insecure households in this study serves as an insight into consumption patterns that can further inform the type of food support rendered on the ground.

This is not to say that food rations or pre-cooked meals are ineffectual food support mechanisms, but it is clear that affording autonomy to food-insecure families can certainly make a significant impact on them.



05

RECOMMENDATIONS
AND CONCLUSION

Impact of COVID-19 on Food Insecurity

The current study found that the food security status of previously identified food-insecure families improved when compared to pre-COVID-19 levels. This was attributed to the increase in support rendered during the COVID-19 pandemic and “circuit breaker” period in 2020 and/or an increase in supplementary income for some families due to opportunities that opened up during the pandemic. This resulted in improvements in both the food security scale scores as well as the number of families categorised as “Food Secure”, “Moderately Food Insecure” and “Severely Food Insecure”. Food support on the ground has been vital in improving the lives of food-insecure households, and it is imperative that this support continues.

Food Insecurity and Children in the Household

This study also found that the children in food-insecure households registered lower levels of food insecurity in comparison to the adults in the same households in 2019 as well as 2021, as depicted in the food security scale scores. Furthermore, there were no changes in the classification of the food security status of the children from 2019 (pre-COVID era) to 2021. This indicates that, despite experiencing food insecurity in the household, the adults in the household attempted to insulate the children from their own lived experiences, regardless of a pandemic. The food security category of the children remained largely unchanged from pre-pandemic 2019 to 2021.

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The Value of Autonomy in Food Support

During the intervention phase of this study (Phase 2), it was found that the food security statuses and psychological well-being of food-insecure households could be improved further by understanding their unique needs and then providing support accordingly.

In Phase 2, food-insecure households were empowered through autonomy that was accorded to them by enabling them to decide the **type** of food support (i.e., cooked food or supermarket vouchers) they deemed to be appropriate (through the administration of the Needs Toolkit). The latter added extra flexibility for the households to buy whatever they needed or preferred (i.e., a product brand of their choice) from selected supermarkets. This autonomous nature of food support led to a significant majority (75.8%) of the participants being “Extremely Satisfied” with the support they received.

The psychological well-being of families also improved post-intervention as participants reported lower psychological distress levels after being engaged to understand the type of food support required for their household and subsequently, receiving food support that was autonomous in nature.

Based on the above findings, this study proposes two main recommendations that could be carried out on the ground to enhance the living experiences of food-insecure families.

Recommendations

Need for Autonomy in the Food Support Model in Singapore

Giving food-insecure families the autonomy to decide the type of food support they receive accords them the support that they require. It also provides them with dignity by empowering them to decide specifically what type of food support suits their household's needs.

Furthermore, when the food support rendered is flexible and autonomous in nature, households are able to make purchasing decisions that are of their choice and preference.

However, food support that affords beneficiaries autonomy is not limited to only supermarket vouchers. One innovation in this arena is the FBSG's Feed the City 3.0 bank card programme. Their bank cards offer an unmatched level of autonomy when compared to many of the current food distribution models (e.g., standardised dry rations, fixed cooked meals, supermarket vouchers, etc). This is because beneficiaries are currently able to use these bank cards at a variety of F&B outlets to purchase food items and cooked meals of their choice. In the near future, this will be rolled out to specified supermarkets.

However, as can be seen from the Needs Toolkit, not all households may welcome supermarket vouchers; for example, a household comprising only an elderly male may



prefer not to receive supermarket vouchers as he rarely cooks at home. Hence these bank cards could be a sustainable food support model to cater to different household compositions, e.g., families, singles, the elderly.

Partnerships in the Food Support Ecosystem

The finding that 18.6% of the NTUC voucher expenditure on non-food items is not an insignificant finding. As such, not only is there a need for food on the ground, but also for other essentials such as personal care and household products, etc.

“With the focus moving to leading healthier lives in general, personal hygiene products are also now highly sought after but undersupplied. This report gives us a glimpse into the gaps that still need to be addressed in our system and sets the foundation for the Food Bank Singapore to put our efforts towards what is needed the most in terms of bridging these gaps before they get even larger. As an NGO, we are accountable to every dollar donated, and hence, we should make sure the money is put to good use in pushing society forward where food and necessities is a basic right for all.”

– Nichol Ng, co-founder of the Food Bank Singapore

Anecdotal evidence from the FBSG's recent initiatives also echoes this sentiment. Both participants in the current study and FBSG beneficiaries expressed the need for non-food items such as shampoo, body wash, detergent, toothpaste, etc. However, it might be a challenge for food support organisations to provide non-food support due to resource constraints.

Hence, the authors recommend partnerships between various charities **and/or private or public** organisations to augment their support, such that it is more holistic and in line with their beneficiaries' needs. For example, the FBSG embarked on a partnership with Guardian Singapore to distribute hygiene packs to beneficiaries. It also collaborated with Beyond Social Services for the first round of distributions and provided 1,000 hygiene packs containing hand wash, body wash, sanitary napkins, panty liners, and hand sanitizers to eight different communities across the island. Such collaborations may amplify the impact that each charity would have made had they been working alone.



The authors recommend partnerships between various charities and/or private or public organisations to augment their support, such that it is more holistic and in line with their beneficiaries' needs.

APPENDIX

NEEDS TOOLKIT

Name: _____

Address: _____

Phone number: _____

Food Preferences

Does the household have any cultural preferences when it comes to food? If yes, what are they?

Yes _____

No _____

Is there any food that you or your household members do not consume due to cultural/religious reasons? If yes, what are they?

Yes _____

No _____

What are the top 10 most needed/consumed food items in the household?

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____
- 7 _____
- 8 _____
- 9 _____
- 10 _____

Do you or any household members have any mobility issues? If yes, what are they?

Yes _____

No _____

Do you find it difficult to physically purchase food and groceries? If yes, why?

Yes _____

No _____

Are you able to cook a meal? If no, please expand.

Yes _____

No _____

Children

Are the food needs of the children present in the household (if any) the same as the adults?

Yes _____

No _____

Not applicable _____

Are there specific food preferences that are applicable to the children in the household? If yes, what are they?

Yes _____

No _____

Not applicable _____

Do you require food support specific to infants? If yes, what kind of food support would be useful?

Yes _____

No _____

Not applicable _____

Do you have a functioning kitchen that is structurally conducive for cooking?

Yes _____

No _____

Do you have gas, kitchen utensils (e.g., pots, pans), etc., that would enable you to cook a meal at home?

Yes _____

No _____

Food Support Preferences

What type of food support would be useful for the household? (You may select more than one.)

Supermarket vouchers

Dry rations

Hot meals

Fresh produce (e.g., fruit, vegetables, meat)

Others _____

With Singapore launching more Healthier Choice options, do you look out for such options when purchasing food supplies?

Yes, always

Yes, frequently

Yes, occasionally

No, never

If we were to give you a "Food Card" with credits that would allow you to purchase groceries at selected supermarkets such as NTUC, and cooked meals at selected food courts, would you be open to it? Or why not? Please expand.

Yes _____

No _____

Which meals (B, L, D) are consumed at home (as opposed to outside)?

Breakfast

Lunch

Dinner

None

How much of dry rations (per month) do you require to meet your food needs? What type of rations and how much? E.g., 5 kg of rice

Household Information

What is the size of your household? (i.e., how many members are there in your household?) _____

Monthly household income (including employer's CPF): _____

What is your household's monthly expenditure in general? Please include all bills such as housing, food, leisure, education, etc. Please enter an approximate dollar amount, e.g., S\$100 per month. _____

What is your household's monthly **food expenditure** only? (E.g. food-related groceries, eating out expenditure, etc.) (Please enter an approximate dollar amount, e.g., S\$10 per month)

Is the household receiving any food support? If so, in what form?

Yes _____

No _____

Is this support adequate/enough? If not, what specific food needs are not being met?

Yes _____

No _____

Not applicable _____

Is this support satisfactory? Why, or why not?

Yes _____

No _____

Not applicable _____

Other than food, are there any other household cleaning supplies/personal care items that you require?

Yes _____

No _____

To be completed by the Food Service Organisation

Is it feasible to provide a reliable source of food support to this family? Please expand.

Yes _____

No _____

What type of food support is available to address the food needs of this family?

REFERENCES

Ansah, J. P., Matchar, D. B., Lam S. S. W., Low, J. G., Pourghaderi, A. R., Siddiqui, F. J., Min, T. L. S., Wei-Yan, A. C., & Ong, M. E. H. (2021). The effectiveness of public health interventions against COVID-19: Lessons from the Singapore experience. *PLoS One*, 16(3), e0248742–e0248742. <https://doi.org/10.1371/journal.pone.0248742>

Chok, S. (2021). *“People give, just take and eat”: Food insecurity and food aid in a public rental neighbourhood in Singapore*. Beyond Social Services, Singapore. <https://beyondresearch.sg/wordpress/wp-content/uploads/2021/09/BSS-Food-Insecurity-Report-2021.pdf>

Department of Statistics Singapore. (2019). *Report on the household expenditure survey 2017/18*. <https://www.singstat.gov.sg/publications/households/household-expenditure-survey>

Escobar, M., Mendez, A. D., Encinas, M. R., Villagomez, S., & Wojcicki, J. M. (2021). High food insecurity in Latinx families and associated COVID-19 infection in the Greater Bay Area, California. *BMC Nutrition*, 7(1), 23. <https://doi.org/10.1186/s40795-021-00419-1>

Glendinning, E., Shee, S. Y., Nagpaul, T., & Chen, J. (2018). *Hunger in a food lover's paradise: Understanding food insecurity in Singapore*. Lien Centre for Social Innovation: Research, 35 pp.

Goh, A. (2021). 6 alternatives to online supermarkets: online wet markets, gourmet markets, organic marketplaces, butcheries, seafood mongers, and speciality stores. *Dollars and Sense*. <https://dollarsandsense.sg/6-alternatives-online-supermarkets/>

Health Canada. (2004). *Canadian Community Health Survey, Cycle 2.2, Nutrition — Nutrient intakes from food: Provincial, regional and national data tables*. Volumes 1, 2 & 3. Health Canada Publications.

Jung, J., Horta, H., & Postiglione, G. A. (2021). Living in uncertainty: The COVID-19 pandemic and higher education in Hong Kong. *Studies in Higher Education*, 46(1), 107–120. <https://doi.org/10.1080/03075079.2020.1859685>

Kessler, R., Andrews, G., Colpe, L., Hiripi, E., Mroczek, D., Normand, S., ... Zaslavsky, A. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, 32(6), 959–976. <https://doi.org/10.1017/S0033291702006074>

Kreutz, R., Algharably, E. A. E.-H., Azizi, M., Dobrowolski, P., Guzik, T., Januszewicz, A., Persu, A., Prejbisz, A., Riemer, T. G., Wang, J.-G., & Burnier, M. (2020). Hypertension, the renin–angiotensin system, and the risk of lower respiratory tract infections and lung injury: Implications for COVID-19. *Cardiovascular Research*, 116(10), 1688–1699. <https://doi.org/10.1093/cvr/cvaa097>

Laborde, D., Martin, W., & Vos, R. (2020). Impacts of COVID-19 on global poverty, food security and diets. *Agricultural Economics*, 52, 375–390. doi:10.1111/agec.12624

Loopstra, R. (2020). *Vulnerability to food insecurity since the COVID-19 lockdown. Preliminary report*. King's College London, 14 April 2020. https://foodfoundation.org.uk/sites/default/files/2021-10/Report_COVID19FoodInsecurity-final.pdf

McIntyre, L., Glanville, N. T., Raine, K. D., Dayle, J.B., Anderson, B., Battaglia, N. (2003). Do low-income lone mothers compromise their nutrition to feed their children? *Canadian Medical Association Journal*, 168, 686–691.

Musselwhite, C., Avineri, E., & Susilo, Y. (2020). Editorial JTH 16—The coronavirus disease COVID-19 and implications for transport and health. *Journal of Transport & Health*, 16, 10,0853–10,0853. <https://doi.org/10.1016/j.jth.2020.100853>

Nagpaul, T., Sidhu, D., Chen, J. (2020). *The hunger report: An in-depth look at food insecurity in Singapore*. Lien Centre for Social Innovation: Research, 27 pp.

Nguyen, P. H., Kachwaha, S., Pant, A., Tran, L. M., Ghosh, S., Sharma, P. K., Shastri, V. D., Escobar-Alegria, J., Avula, R., & Menon, P. (2021). Impact of COVID-19 on household food insecurity and interlinkages with child feeding practices and coping strategies in Uttar Pradesh, India: A longitudinal community-based study. *BMJ Open*, 11(4), e048738–e048738. <https://doi.org/10.1136/bmjopen-2021-048738>

Niles, M. T., Bertmann, F., Belarmino, E. H., Wentworth, T., Biehl, E., & Neff, R. (2020). The early food insecurity impacts of COVID-19. *Nutrients*, 12(7), 2096. <https://doi.org/10.3390/nu12072096>

Rose, D., Oliveira, V. (1997). Nutrient intakes of individuals from food-insufficient households in the United States. *American Journal of Public Health*, 87, 1956–1961.

Teixeira, Patrick, H., & Mata, J. (2011). Why we eat what we eat: The role of autonomous motivation in eating behaviour regulation. *Nutrition Bulletin*, 36(1), 102–107. <https://doi.org/10.1111/j.1467-3010.2010.01876.x>

Weber, T., Hurley, J., & Adăscăliței, D. (2021). *COVID-19: Implications For Employment And Working Life*. Publications Office of the European Union, Luxembourg.

Zhang, Yang, K., Hou, S., Zhong, T., & Crush, J. (2021). *Factors determining household-level food insecurity during COVID-19 epidemic: a case of Wuhan, China*. Food & Nutrition Research, 65, 1–12. <https://doi.org/10.29219/fnr.v65.5501>

The Hunger Report Part II: Targeting Specific Needs in the Wake of COVID-19 is the first intervention study of its kind in Singapore, delving into how the food situation of previously identified food-insecure households has changed during the COVID-19 pandemic. Through surveys, this report reveals the impact COVID-19 has had on a subset of previously identified food-insecure families in Singapore. Additionally, through an intervention element in the study, the authors seek to understand the unique needs and preferences of each food-insecure household and explore the impact of autonomy in food support.

The study makes recommendations on the actions needed to bring about positive and sustainable change in the food support ecosystem in Singapore.

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