Abstract

Anxiety, perceived control and trust in information sources have all been shown to significantly

influence health and social behaviours during pandemics. We measured these factors in a nationally

representative on-street survey collected across five regions of Thailand (N=1000, May 2020, response

rate 82.6%). Anxiety was positively associated with stocking up on food (OR 2.62 (95% CI 1.88-3.66)) and

taking vitamins (OR 2.37 (1.59-3.54)); perceived control with (recommended) coughing into an elbow

(OR 2.42 (1.80-3.26)), checking on others (OR 1.52 (1.00-2.31)), and negatively with stockpiling (OR .72

(.55-.96)). Those relying on family/friends, doctors online or foreign sources were more likely to take

vitamins (ORs 4.11, 2.88. 2.82), respondents using TV news less likely to stock up on food (OR .57 (.37-

.86)) and to wear a mask for self-protection (OR .27 (.10-.73)). Comparing findings with analogous cross-

sectional data on anxiety collected at the start of the pandemic (Feb 2020, Goodwin et al, 2020) there

was no significant difference between personal anxiety in the two surveys (F (1, 1197) = .72, p=.40)) but

perceived control was lower in the later survey (F (1, 1197) = 6.72 p=.01)). Findings suggest reduced

perceived control as the pandemic developed and illuminate possible negative impacts of anxiety and

low sense of control on pandemic behaviours.

Keywords: Anxiety, control, trauma, Thailand, health behaviour.

Anxiety, perceived control and pandemic behaviour in Thailand during COVID-19: results from a national

survey

Introduction

As home to the world's most frequently visited city (Bangkok) Thailand was always highly vulnerable to

the emergence of a novel zoonotic threat. The first country to identify SARS-CoV-2 infection outside of

China (on January 8th, 2020; Okada et al, 2020), the country was rapidly threatened with economic

decline (Kasikorn, 2020). Lockdowns and curfews provided considerable behavioural challenges, while

political division within Thailand threatened to undermine any national pandemic response (Bello,

2020). Research conducted worldwide suggests that the covid-19 pandemic has been associated with

increased levels of anxiety and psychological distress (Holmes et al, 2020; McGinty et al, 2020; Qiu et al,

2020; Roy et al, 2020). Thailand was no exception to this (blackbox.com.sg, 2020), with reports of

increased mental fatigue and depression as the pandemic developed (Maneechote, 2020). In this paper

we report levels of anxiety and perceived control over infection in Thailand using data from two cross-

sectional studies collected at different time points as the pandemic developed. We then consider

demographic variations in anxiety using data from the second (national) survey, conducted across the

country. Finally, we report associations between anxiety, control and pandemic behaviours during covid-

19, again using data from this larger national study.

During the course of a pandemic, perception of risk and perceived control over infection, as well

as associated precautionary behaviours, can change significantly (e.g. Ibuka et al., 2010 during H1N1;

Leung et al, 2003 during SARS). In our first cross-sectional survey, carried out at the start of the pandemic

(February 2020, N=203, Goodwin et al, 2020), face-to-face interviews conducted in Bangkok found low to

moderate levels of anxiety about infection amongst Thai respondents. A majority (52%) of respondents

suggested that they had a high level of control over their likelihood over infection. Six weeks later (26th

March) the Thai government declared a state of emergency, followed by an evening curfew on 3rd April.

Building on this first survey in mid May 2020 we collected new data, conducting a larger set of face-to-face interviews taken from across Thailand (N=1000). The first goal of our study was to compare data from these two cross-sectional studies assessing anxiety, perceived control over infection, and perception of those of most at risk of infection.

A second objective of our work was to consider demographic variations in anxiety in our national sample. Anxiety is likely to be unevenly distributed across populations. Disaster research has suggested a 'bulls-eye' effect, with those at the centre of any mass stressor more likely to exhibit distress (Goodwin et al., 2013). We therefore expected individuals from those regions reporting more infection at the time of the study to exhibit greater anxiety. In our first Thai data collection in Bangkok (Goodwin et al, 2020), higher levels of anxiety were evident amongst those aged under 40. A similar negative gradient for age on psychological distress has also been reported in research in the UK, the US, China and Israel during covid-19 (McGinty et al, 2020; Qiu et al, 2020; Palgi et al, 2020; Wang et al, 2020). We therefore anticipated that age would be negatively associated with anxiety. Following traumatic events, women have usually reported higher levels of psychological distress (Norris et al, 2002). However, these established differences have been less clear during covid-19 (McGinty et al, 2020; Wang et al, 2020). Thailand is considered high on the cultural value of femininity, suggesting an overlap between male and female roles in society which may further questions this sex difference in anxiety (Hofstede, 2011). Thailand is also a highly collectivistic nation, where extended family networks have high priority (Hofstede, 2011). Intimate relationships can provide a valued sense of security during a time of existential concern (Florian et al., 2002), but may also be strained by the burden on family life created by a pandemic (e.g. school closures, job uncertainties). Those who are living alone were more likely to report higher distress in a national 2018 US sample, but this effect was not found during the 2020 pandemic (McGinty et al, 2020). We therefore explore, as research questions, the associations between anxiety, sex and marital status in Thailand during this pandemic.

Finally, perceptions of risk and threat can be major motivators for the adoption of health behaviour (Li et al, 2020; Rosenstock, 1988). Research during the swine-flu (H1N1) (Rubin et al, 2009) and SARS pandemics (Tang & Wong, 2004), and subsequent work in the U.S. (Wise et al., 2020) and the UK (Harper et al., 2020), all showed positive associations between anxiety and the uptake of recommended health behaviours. During covid-19 healthcare personnel in Thailand who were anxious were more likely to report washing their hands, wear a mask and adopt PPE (Apisarnthanarak et al, 2020). Wang et al (2020) and Li et al (2020) further report that perceived control over covid-19 infection was associated with precautionary behaviour. Use of face masks is highly prevalent in many countries during covid-19, with uptake in Thailand highest amongst the six ASEAN countries (Ho, 2020), but motivations for this may be rooted in perceptions of either personal protection or wider societal gain (Pfattheichera et al., 2020). We consider associations between anxiety and perceived control and both motivations for face mask wearing. In addition to anxiety, demographic factors and levels of trust may also be associated with pandemic behaviours. During both previous pandemics as well as covid-19 older respondents (Bish & Michie, 2010; Rubin et al, 2009) and women (Li et al, 2020; Rubin et al., 2009) have been shown to be more likely to take precautionary actions. Those with the greater trust towards governmental communications are also more likely to take recommended precautionary behaviours (; Bish & Michie, 2010; Bults et al, 2011).

In addition to recommended precautionary behaviour research also suggests an association between anxiety and non-evidence-based behaviours (Rubin et al., 2009). During the covid-19 pandemic public anxiety led to stocking up with goods (The Nation, 2020a) leading to a call by the Prime Minister not to stockpile (The Nation, 2020b). Anxiety was also positively associated with self-medication during the avian influenza AH7N9 outbreak (Goodwin & Sun, 2013), with Thai social media criticised for promoting the unsafe use of large quantities of vitamin C to prevent infection from the coronavirus (Anti-Fake News Center, 2020). Covid-19 led to some public health officials in Thailand expressing

concerns about the risks of the preventative use of traditional medicines against covid-19 (Bangkok Post, 2020). We therefore explore associations between anxiety and both evidence-based preventive behaviours (coughing into an elbow or tissue and checking on the welfare of vulnerable others) and non-evidence-based actions (self-medicating with vitamins or alternative medicine and the stockpiling food or other goods).

Methods

Participants

Research was conducted in accordance with the World Medical Association Declaration of Helsinki. Following ethical approval from Chulalongkorn University (COA No. 052/2020) data was collected in the two weeks between April 20- May 3, 2020. During that time confirmed cases of covid-19 rose from 2792 to 2987, with deaths from coronavirus from 47 to 54. An established Thai survey company collected data from across Thailand (Table 1). Following a cognitive interview with 6 participants to trial the questions trained interviewers approached 1 in 3 pedestrians passing a randomly pre-determined point on regional shopping streets or near regional bus stations or local markets. Interviews took approximately six minutes. Interviewers used appropriate personal protective equipment (including facemasks and hand sanitizers) and maintained physical distance from interviewees at all times, in line with guidance from Thai national health authorities. If interviewers or interviewees displayed any of an expanded list of symptoms recognised by the Thai government as indicative of potential covid-19 the interview was immediately terminated. Of 1211 approached, 189 refused upfront to participate (15.6%) and 22 (1.8%) did not complete the interview. 1000 interviewees (82.6%) gave oral consent and answered all questions. Participants ranged from 16 to 77 (median age 38; national median for Thailand is 39 (CIA, 2020)). Responses were collected from five regions, chosen to represent the country as a whole (Table 1), with data collected from 5 of the 13 largest cities in Thailand.

Materials

Alongside demographics (age, sex, marital status, occupation and region) three items assessed anxiety, adapted to allow for the non-symptomatic spread of the disease and drawing on previous work on avian influenza (subtype AH7N9) (Goodwin & Sun, 2013, 2014), as well as our earlier work in Thailand during covid-19 (Goodwin et al, 2020). Items asked 1: *How anxious are you about catching covid-19*; 2: *How anxious are you about your closest friends and family catching covid-19*; 3: *How anxious are you about accidentally infecting others with the virus (when you pass it on and maybe don't realise you are ill).* Items were coded as (1) not at all anxious*,* (2) moderately anxious, (3) very anxious. Given the strong positive correlation between items we combined the three into a single anxiety scale (α=.80). Perceived control over infection was assessed by one item: *How much control do you think over the likelihood of you getting infected by the virus?* ((1) no control (2) a little control (3) a great deal of control)). Knowledge about avoidance activities was assessed by an open-ended question, with responses giving two answers: *What is the most important thing you can do to avoid catching covid-19 (and second most important thing)?* Table 1 records those responses mentioned by at least 10% of respondents as their first or second response. Perception of those most at risk was measured by the open-ended item *Who is the most likely to catch covid-19?* An open-ended question assessed *Who would you trust most to find out the best information about covid-19?*, with responses dummy-coded (*mentioned/ not mentioned*) into one of six categories (Family and friends, Social media, doctors online, Thai government, overseas sources, TV).

Recommended and non-evidence based pandemic behaviours were measured using four, binary items, with one of each form (recommended, non-evidence-based) referring to a health behaviour, one to a behaviour relevant to socio-economic cohesion during a pandemic. The two non-evidence based behaviours questions asked (1) *Have you stocked up on food or other basic essentials because of covid-*

19? (2) *Have you taken any vitamins or other medicines to avoid getting covid-19?* The two

recommended behaviour questions asked (3) *If you cough do you do so into your elbow or a tissue to*

stop others getting covid-19? (4) *Are you checking on other people you know (not just your family) to*

make sure they are OK during this covid-19 period? All four questions were answered *yes* or *no.* A fifth

item asked *When you wear a face mask are you mainly doing so to protect yourself or protect others*

(with just one option permitted). Responses to this were coded *to protect yourself* (0) vs*. to protect*

others (1)*.* A final item asked about whether *wearing a cloth or fabric face mask can prevent infection*

(*yes/no* or *unsure*). All questionnaire items were translated using a committee of four bi-lingual English-

Thai speakers based at Chulalongkorn University.

Statistics.

Chi-squares and analyses of variance were used to report descriptive associations between variables. A

linear regression regressed age, sex, marital status and province on anxiety. Separate logistic binary

regressions for each of the five pandemic behaviours, simultaneously entered as predictors (1) age, (2)

sex, (3) psychological variables (perceived control, anxiety) (4) the source most trusted for information

(with Thai government as reference variable). Data reported in this paper is available from the first

author on request.

Results

Anxiety and perceived control.

Respondents were moderately anxious (M = 1.97/3, SD = .50), with 'moderately anxious' the modal

response for anxiety about the risk of personal infection (mentioned by 64.8%) friends/family being

infected (by 70.5%) and the risk of accidentally infecting others (by 55%). Linear regression on anxiety

simultaneously entered age, sex, province, and marital status. There were no significant associations

between the combined anxiety item scores and age (β = .01, t = .14, *p* =.89), sex (β = .04, t = 1.23, *p*=.22), or marital status (β = -.02, t = .45, *p*=.66). However, there was an effect for Province (β = .09, t = 2.76, *p*=.006), with anxiety highest in the southern city of Songkla (M=1.33) and lowest in Chonburi, a large city in Eastern Thailand (M=1.11). Participants were most likely to report they had a little control over being infected (by 55.5%) or a great deal of control (by 38.7%). A linear regression on control with the same variables as anxiety again found an effect only for Province (for age: β = .03, t = .76, *p*=.45; sex β = .01, t = .28, *p*=.78; marital status β = -.02, t = .-42, *p*=.68; Province β = -.09, t =-2.70, *p*=.007). Perceived control over the pandemic was highest in Chonburi (M = 2.41) and lowest in Songkla (M = 2.09).

We compared our results with data collected in Bangkok earlier in the pandemic (Goodwin et al, 2020), conducting analyses first for the complete samples and then comparing only residents of Bangkok (the first data was only collected in that city). 64.7% of respondents in the first data collection reported moderate concern about the coronavirus (compared to 64.8% in our national survey). Comparing the two datasets using ANCOVA, controlling for age and sex, there was no significant difference between personal anxiety in the two surveys with all the data (F (1, 1197) = .72, *p*=.40) or when comparing only those living in Bangkok F (1, 597) = .35, *p*=.55). 94% of respondents felt they had moderate or a great deal of control in both surveys, but mean comparisons showed decreased perceived control in the second survey when comparing both the full surveys and those living in Bangkok only (F (1, 1197) = 6.72 *p*=.01, Ms 2.49 vs. 2.32; F (1, 597) = 8.26 *p*=.004, Ms 2.58 vs. 2.29, respectively).

Pandemic behaviours.

Table 2 reports associations between demographics (sex, age), control, main trusted source of information, and pandemic behaviours. Older respondents more likely to use vitamins (OR 1.02 (95% CI 1.00-1.03)) and stock up on food (OR 1.02 (95% CI 1.00-1.03)), female respondents more than twice as likely to supplement their diet with vitamins (OR 2.01 (95% CI 1.37-2.96)). Those who were more anxious

were more than twice as likely to take vitamins (OR 2.37 (95% CI 1.59-3.54)) and stock up on food (OR 2.62 (95% CI 1.88-3.66)). A lower sense of control was associated with stocking up on food (OR .72 (95% CI .55-.96)) and using a mask for self-protection (rather than protecting others) (OR .25 (95% CI .13-.47)) while a stronger sense of control was related to using an elbow or tissue when coughing (OR 2.42 (95% CI 1.80-3.26)) and checking on the welfare of others (OR 1.52 (95% CI 1.00-2.31). Compared to those who sourced their information from the Thai government those getting information from friends and family were more likely to take vitamins (OR 4.11 (95% CI 1.72-9.82)) as were those using doctors online (OR 2.88 (95% CI 1.49-5.57)) or foreign countries for information (OR 2.82 (95% CI 1.21-6.56)). Respondents citing friends and family as primary information sources were also less likely to be checking up on others (OR .36 (95% CI .14-.89). Those relying on doctors online were more likely to use an elbow/tissue when coughing (OR 1.72 (95% CI 1.01-2.91)). Using TV news as prime source of information was associated with less stocking up on food (OR .57 (95% CI .37-.86)) and use of a facemask mainly for self-protection (OR .27 (95% CI .10-.73)).

Finally, we grouped together the two recommended behaviours (coughing into a tissue, checking on others) and the two non-evidence-based behaviours (self-medication and stockpiling). Those who reported recommended behaviours were less likely to also report non-evidence-based behaviours (r (1000) = -.13 P=.001). To examine the impact of anxiety on these two groupings we divided anxiety into two groupings: low (M = <2, N=768) and high (M = 2+, N=232). Three ANOVAs contrasted those high vs. low anxiety on recommended behaviours, non-evidence-based behaviours and the behaviours combined applying a Bonferroni correction. Those low on anxiety were more likely to perform recommended behaviours (Ms 1.70 vs. 1.58 F(1, 998) = 9.46 *p*=.002), those high on anxiety more likely to perform non-evidence-based behaviours (Ms .32 vs. .73 (F(1, 996) = 80.46, *p*=.001). Adding together the four recommended and non-evidenced-based behaviours, those high on anxiety were more likely to score higher on all behaviours overall (Ms 2.31 behaviours vs. 2.02 F(1, 996) = 26.03

p=.001) suggesting those who are anxious are more likely to report both recommended and non-evidence-based behaviours.

Discussion

The early emergence of covid-19 in Thailand posed a number of significant economic and health challenges to this developing nation. Although relatively well-prepared for a pandemic threat (in 2019 the World Economic Forum rated Thailand to be 6th best prepared in the world (McCarthy, 2019)) this novel zoonosis led to a national lockdown which had the potential to seriously disrupt daily activities. However, more than four months after the first reported case in Thailand the country has recorded 50 cases per million population and a death rate of 0.8/million, considerably below the world average (4046/124.5 respectively: as of 22nd Sept. 2020). Our nationally representative sample of respondents indicated generally good awareness of recommended health behaviour, consciousness that anyone could be infected, and good adherence to behaviours that reduce health risks and help maintain societal cohesion. At the same time, anxiety can encourage behaviours which have a deleterious impact on both health and the wider socio-economic surroundings. A minority of respondents (26.3%) reported stockpiling foodstuffs or consuming vitamins or alternative medicines to prevent illness (15%), with these behaviours associated with greater anxiety, a perceived lack of control (stockpiling) and the influence of family and friends and the foreign media (vitamin consumption).

A strong awareness of the symptoms of covid-19 was evident in early survey work conducted in the Thai capital (February 2020, Goodwin et al, 2020). We found almost identical levels of concern about the virus between this earlier data and the current study, but a lower level of control, potentially the result of a greater awareness of the ease in which the virus spreads and the often asymptomatic nature of disease carriers. These relatively low rates of anxiety, as well as high rates of use of face masks and other preventive recommended measures such as using hand sanitizers (Ho, 2020), may reflect the

active leadership played by public health authorities in Thailand (Bello, 2020). Unlike the preliminary

work in Thailand, and the findings of several other international studies of covid-19, we did not find

significant age variations in our measures of anxiety. This may reflect the greater availability of

information about the pandemic across Thailand, spearheaded by a million village health volunteers

who visited homes to check temperatures and shared information about the virus at community level

(Bello, 2020). While in the early study in Thailand the principle source of information about the

pandemic was social media, a potential source of anxiety during this pandemic (Holmes et al, 2020),

national TV replaced this as the prime source of information in our later sample. As in the previous

research reviewed above, we also failed to find the higher rates of anxiety amongst women reported

following other major mass stressors. This may reflect the significantly lower mortality rates for women

compared to men from covid-19 (Sharma et al., 2020).

Our findings indicated a lesser sense of control over the virus, and greater anxiety, amongst

those living in Songkhla Province. Sixteen hundred Thai workers returned from Malaysia and entered

quarantine in Hat Yai, Songkla at the start of our data collection (Pakkawan, 2020). On 25th April 42 cases

were identified in a migrant detention centre in this Province via mass screening. In contrast, just two

new cases were reported in Chonburi, the Province with the lowest anxiety levels and greatest

perceived control over the virus, throughout the two weeks of our data collection. Furthermore, the

perception of those at risk was different in the two surveys. In the preliminary data from Bangkok those

seen as most at risk were those who travelled in/from China (mentioned first or second by 52%

respondents), reflecting the imminent threat at that time. The recognition that risk was widely dispersed

across communities was more evident in this later national data, reflecting the consequential spread of

the coronavirus. This finding is reassuring; novel diseases often lead to social representations of risk that

can contribute to xenophobia and ethnocentrism (Park et al., 2007), with particular populations

ostracising others and in doing so gaining a false sense of their own immunity. The lack of such a division

during this epidemic in Thailand may have resulted from a relatively minor role of politicians in the response and the prominent role of the public health campaigns (Bello, 2020).

One important finding was that those who were more anxious were more likely to perform non-evidence-based behaviours. Similar results were found during the swine flu pandemic in the UK (Rubin et al., 2009), where those who were anxious were more likely to adopt non-evidence-based avoidant activities, and during the AH7N9 influenza epidemic in China, where there was a positive association between perceived risk and purchase of both Chinese and Western medicines (Goodwin & Sun, 2013). These findings indicate the potential health, and societal, correlates anxiety during a pandemic. An association between risk and avoidance behaviour may be particularly significant in healthcare settings. Thai healthcare professionals who were anxious were less willing to see patients during covid-19 (Apisarnthanarak et al, 2020). In our data, the influence of friends and family and the use of non-governmental media sources was shown to impact on pandemic health behaviours. The use of information from friends or family or from outside the country was also associated with self-medication to combat covid-19. Finally, an interesting additional finding was the strong tendency for our Thai sample to wear facemasks for self-protection (rather than the benefit of others), with this tendency strongest amongst those who believed cloth / fabric masks to be efficacious against covid-19. This suggests that health practitioners need to be aware of personal motivation as a major driver of this potentially important behaviour during pandemics.

Limitations

We recognise a number of limitations. While an on-street questionnaire can lead to a good response rate, gathering data face-to-face in the midst of a pandemic meant that we were restricted in the time we had with each respondent, and therefore the number of questions asked and the number of response categories that could be employed. The use of our own short measures of anxiety meant we

could not easily compare our findings against other established scales. Time restraints also meant we were unable to investigate several other potentially important recommended and non-evidence-based pandemic behaviours during the interviews. We are also aware that those who were most concerned about potential infection may have been unwilling to speak to researchers or even to travel outside their homes. Finally, although we were able to compare findings with an earlier on-street study of Bangkok, we were not able to recruit the same respondents across time periods. Given that perceptions and behavioural motivations change rapidly as a threat emerges (Bults et al, 2011; Fetzer et al, 2020) future studies should strive to conduct longitudinal analyses where possible.

Applications and Conclusions

Findings from this survey of Thai respondents several months into the pandemic demonstrate positive awareness of risk and adherence to recommended behaviours. However, self-medication was highest amongst those who were most anxious, and stockpiling more prominent amongst those who felt they lacked control. Given the possible ramifications of these non-evidence-based behaviours, discussed above, this reinforces the importance of reducing anxiety and any sense of helplessness. This should be done while reinforcing the important informational role of health authorities and national television broadcasts for providing accurate information, as those who relied instead on friends and family or other international sources for information were more likely to self-medicate as a means of avoiding infection. The use of facemasks is well established in Thailand, and many other Asian countries, but the motivation for this may be primarily be self-protective rather than the protection of others. Other countries may learn from this if they wish to encourage this behaviour in their populaces.

The current threat of covid-19 poses a universal challenge to health systems and economies around the world. Assisted by an aggressive strategy of contact tracing and quarantine, Thailand has dealt generally well with these threats. However, our data also shows individual levels of anxiety, sense

of personal control and reliance on different media sources are all likely to be important factors in the

continued promotion of positive behaviour as the pandemic continues.

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Table 1: Participant Characteristics, Psychological Distress and Perceived Control, Knowledge, Media Use and Pandemic Behaviours

	Thailand (n = 1000)			
Demographics	Mean	SD	N	%
Age, Years	39.09	14.01		
Sex, Female			504	50.4
Marital Status				
Single			303	30.3
Married no children			98	9.8
Married with children			560	56.0
Divorced/widowed no children			11	1.1
Divorced/widowed with children			28	2.8
Region of Thailand				
Bangkok			400	40.0
Khonkaen (Northeast)			150	15.0
Chiangmai (North)			150	15.0
Chonburi (East)			150	15.0
Songkla (Southern)			150	15.0
Occupation (where N> 10)				
Blue collar			367	36.7
Student			136	13.6
Company worker			102	10.2
Retired			98	9.8
Unemployed			86	8.6
Freelance			75	7.5
Business owner			71	7.1
Housewife			33	3.3
Government officer			27	2.7

Anxiety (low (1), moderate (2), high (3))				
About personally catching covid-19	2.06	.54		
Your family and closest friends about catching covid-19	2.07	.59		
About infecting others	1.79	.64		
Mean score (all 3 above)	1.97	.50		
Control				
Likelihood of you getting infected by the virus? ((none (1), a little (2), great deal (3))	2.33	.58		
Knowledge				
Avoidance of risk: Most important thing to avoid catching covid-19? (ranked first, second) (mentioned by at least 10% as first or second)				
-Wear a mask			610, 292	62, 29.2
-Wash hands			148, 487	15, 48.7
-Avoid touching people			69, 23	7, 2.3
-Keep at least a meter away			62, 124	6.3, 12.4
-Avoid coughing or sneezing people			51, 35	5.2, 3.5
Most at risk of contracting covid-19 (mentioned by at least 5%)				
-All equally			642	64.2
-People travelling to high risk countries			126	12.6
-Elderly			67	6.7
-Those already sick/weak			59	5.9
Pandemic Behaviours				
Taken vitamins or other medicines to avoid getting covid-19? (yes)			150	15.0
Stocked up on food or other basic essentials because of covid-19? (yes)			263	26.3
Wear a facemask (to protect yourself vs. to protect others)			962	96.2
Cloth or fabric facemask prevents you from catching covid-19 (yes)			682	68.2
Cough into elbow or a tissue to stop others getting covid-19 (yes)			760	76.0

Check on others you know (not just family) to make sure they are OK during covid-19 (yes)		911	91.1
Single information source most trusted about covid-19 (yes)			
-Family and friends		40	4.0
-Social media (general)		85	8.6
-Doctors online		166	16.8
-Thai government		172	17.4
-Overseas sources		56	5.7
-TV		470	47.5

Table 2: Anxiety, values, trusted sources and pandemic behaviours

Behaviour	Behaviours (OR)				
	Vitamins and other medicine	Stocking up on food	Wearing masks (protect others)[a]	Coughing into elbow	Checking on others
Implications for Pandemic	Health	Societal	Health	Health	Societal
Age	**1.02**[*]	**1.02**[**]	1.00	1.01	1.00
Sex (female)	**2.01**[***]	1.24	1.01	1.16	.78
Anxiety	**2.37**[***]	**2.62**[***]	.76	.99	.95
Control	.98	**.72**[*]	**.25**[***]	**2.42**[***]	**1.52**[*]
Trusted information (ref: Thai govt.)					
Friends/family	**4.11**[***]	.98	.45	.95	**.36**[*]
Social media	1.98	1.05	.93	.71	1.37
Doctors online	**2.88**[**]	1.05	1.01	**1.72**[*]	1.05
Foreign countries	**2.82**[*]	1.28	.86	.79	1.01
TV news	1.81	**.57**[**]	**.27**[**]	1.47	1.07

[***] P<.001; [**]P<.01; [*] P<.05.   P<.05 or below in bold.

[a] Note: Facemask wearing was recommended whether or not it was for self-protection or protection of others.