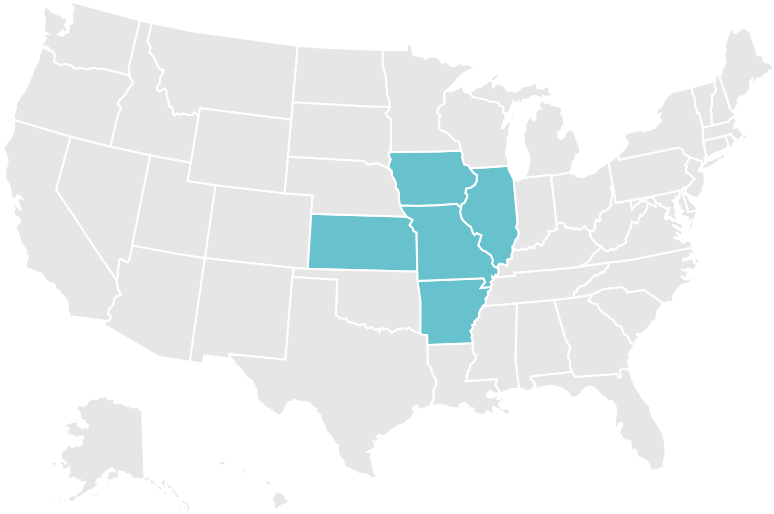
Perceptions and Behaviors in Response to the Novel Coronavirus Disease 2019 (COVID-19): Findings of the Initial Survey



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Introduction

The United States has been affected by an extensive novel coronavirus (COVID-19) outbreak since March 2020. On March 9, 2020 we started an online survey of people's perceptions and behaviors related to this issue in Missouri and adjacent states (Kansas, Iowa, Illinois, and Arkansas). The survey was administered using Qualtrics and mainly distributed through social media (Facebook, Twitter, etc.) and electronic listservs of the University of Missouri. All adult residents 18 years of age or older were eligible to participate. The survey was ended on June 9, 2020 and in total 7,392 surveys were completed. In order to assess how attitudes and behaviors related to COVID-19 may change over time, two follow-up surveys were conducted with those respondents who indicated interest in the re-surveys and provided an email address.

This working report summarizes major results of the initial survey (*N*=7,392). These findings provide baseline information regarding respondents' perceived severity of the COVID-19 outbreak, sources of information, knowledge about COVID-19, perceptions of COVID-19 risk, satisfaction with management entities, and preventive actions. This research was approved by the University of Missouri-Columbia Institutional Review Board (Project Number: 2020744). Although the survey was conducted by researchers at the University of Missouri-Columbia, the corresponding study was not part of the University's formal response to the COVID-19 pandemic.

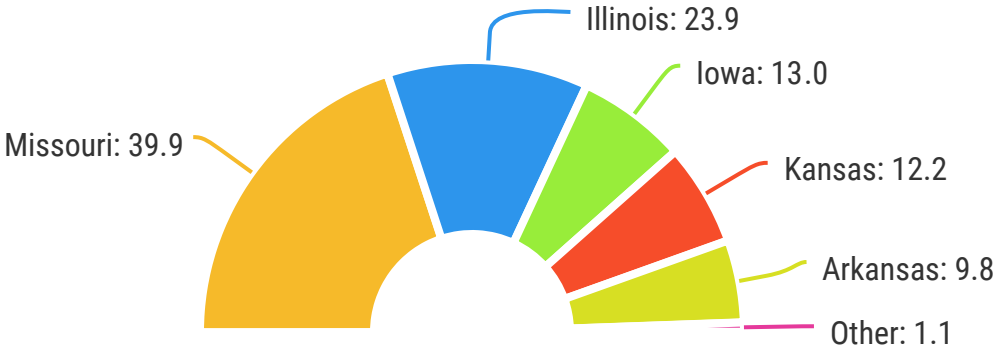
Highlights

- Respondents indicated higher degrees of perceived severity for the whole nation than for their states and cities/towns.
- While internet, television, state government, and federal government were ranked among the most popular sources of information, they were also indicated as both the most and least trusted.
- There was an initial increase in the levels of all three risk perception indicators, followed by a decline over the next four weeks. Their values then rose again before beginning to decrease near the end of the survey period.
- Respondents were least satisfied with the federal government regarding how the COVID-19 outbreak had been managed. There was also a general decline in their satisfaction with state and federal governments over time.
- Overall, respondents reported a rather high level of preventive actions. Both the adoption rate and perceived effectiveness of face mask wearing saw a substantial increase as the survey study continued.

Demographic Characteristics

The survey respondents were mostly from Missouri (39.9%), followed by Illinois (23.9%), Iowa (13.0%), Kansas (12.2%), and Arkansas (9.8%). Most of them (88.0%) heard about the survey via Facebook.

Figure 1. States (%)



Several socio-demographic variables were included in the survey to describe the characteristics of participants. The average age of all respondents was about 48 years. Females and males accounted for 70.8% and 27.7%, respectively, in the whole sample. Respondents reported living in their communities for an average of about 20 years.

Figure 2. Age (%)

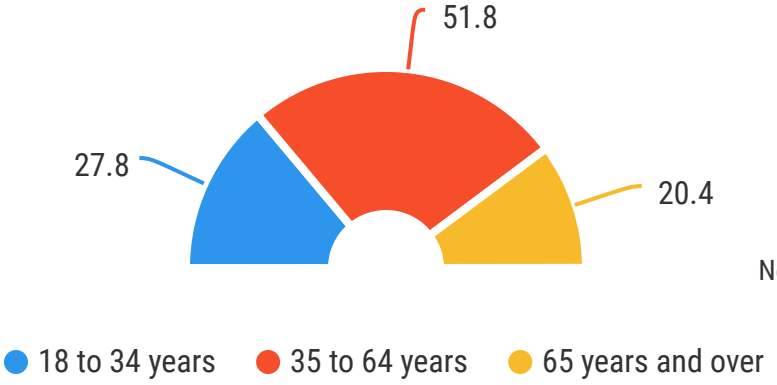
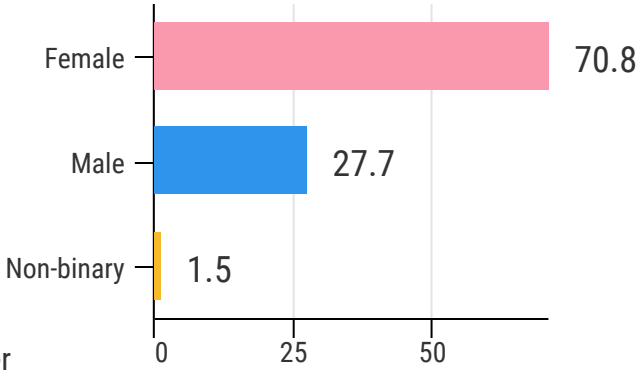
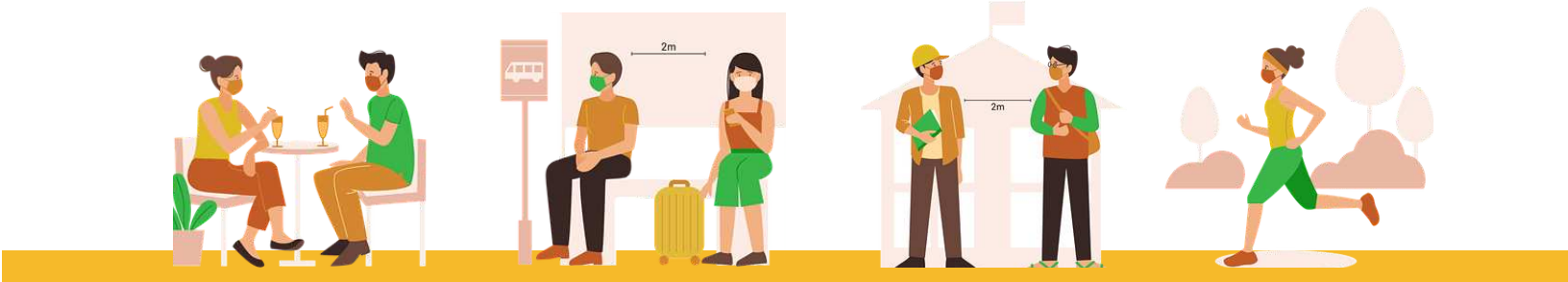


Figure 3. Gender (%)





Demographic Characteristics (Cont.)

A large majority of respondents (95.3%) were white. The sum of race/ethnicity percentages is greater than 100.0% as respondents could choose multiple answers. The educational level of the survey sample was relatively high. 59.1% of all respondents attained four-year college or higher degrees. The average personal income level was around $50,000 ~ $74,999. 40.0% of respondents earned less than $50,000, and 32.8% earned $75,000 or more in 2019. 46.4% of respondents described their views as liberal or moderate-liberal, 14.9% as moderate, and 29.7% as moderate-conservative or conservative.

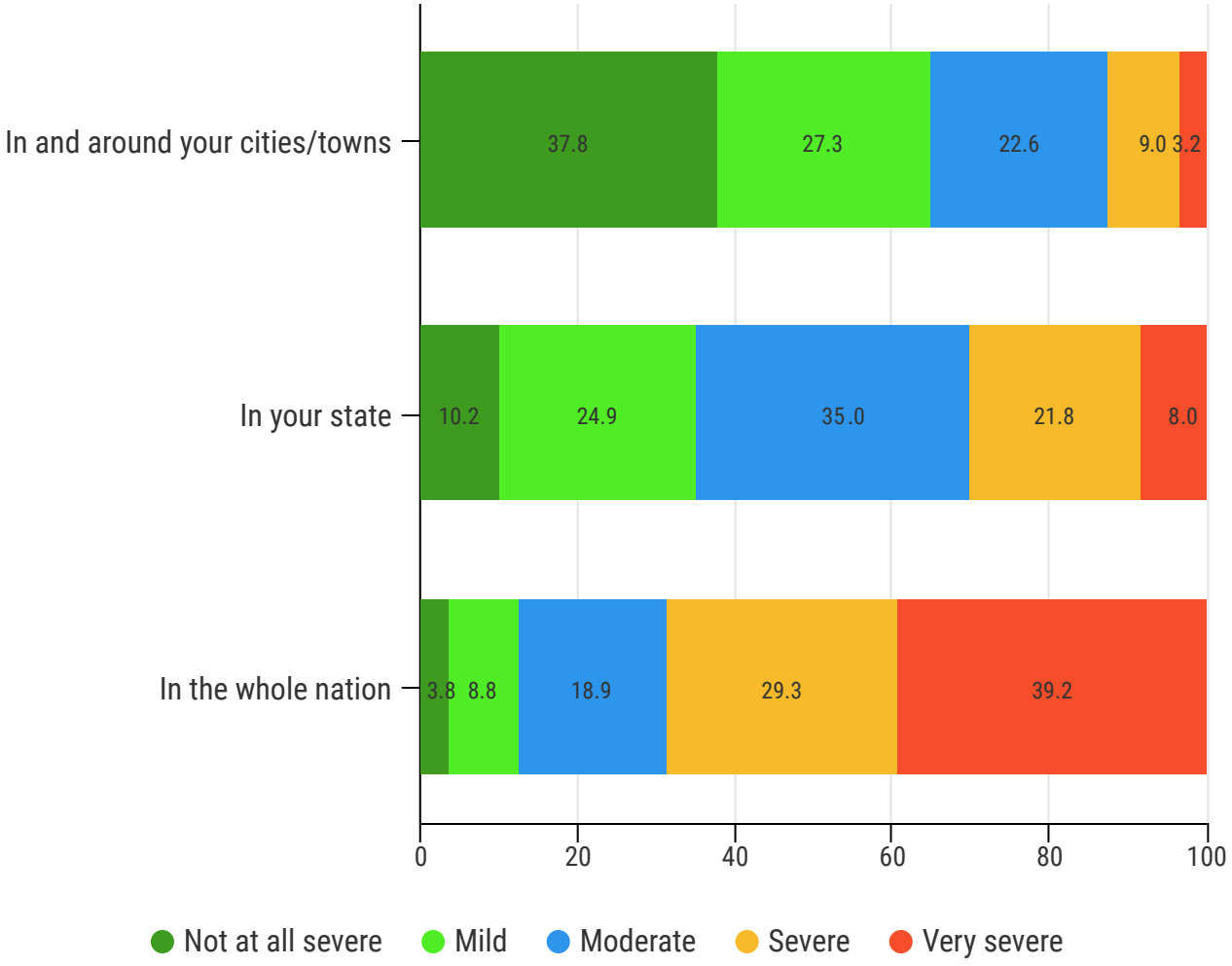
Table 1. Demographic characteristics

Characteristics	Percentage (%)
Race/Ethnicity	
White	95.3
American Indian or Alaska Native	1.7
Black or African American	1.2
Asian	1.8
Hispanic or Latino	2.2
Other	2.1
Education	
Less than a high school degree	0.6
High school degree or GED	7.1
Some college or post high school training	22.0
Two year technical or associate degree	11.1
Four year college degree (BA/BS)	30.5
Advanced degree (i.e. Master's, JD, MD, PhD)	28.6
Income	
Less than $35,000	24.8
$35,000 to $49,999	15.2
$50,000 to $74,999	20.0
$75,000 to $99,999	14.1
More than $100,000	18.7
Prefer not to say	7.2

Perceived Severity of the COVID-19 Outbreak

Respondents were asked to rate the severity of the COVID-19 outbreak in their cities/towns, their states, and the whole country on a scale from 1 (not at all severe) to 5 (very severe). Overall, respondents indicated higher degrees of perceived severity for the whole nation (68.5% chose “severe”/“very severe”) than for their states (22.6% chose “severe”/“very severe”) and cities/towns (12.2% chose “severe”/“very severe”).

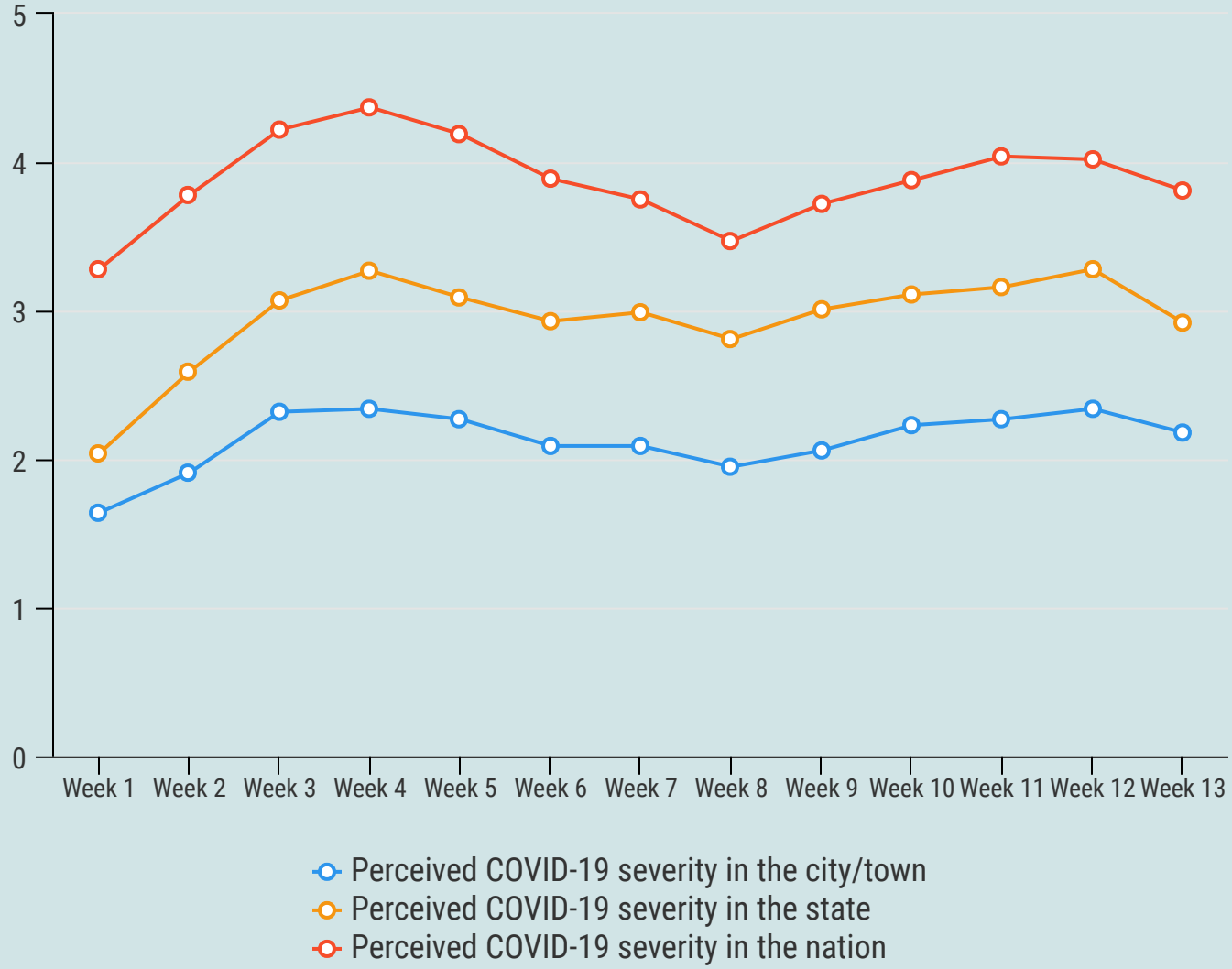
Figure 4. Which of the following describes the severity of the new coronavirus outbreak? (%)



Perceived Severity of the COVID-19 Outbreak (Cont.)

The entire survey period (March 9 – June 9) was divided into 13 weeks. Figure 5 shows that changes in respondents' perceived COVID-19 severity ("1" not at all to "5" very severe) in their cities/towns, their states, and the whole nation exhibit similar trends. The weekly means of all three indicators increased in the early stage but then continued to drop through late April and early May. They then rose again until the emergence of another declining phase near the end of the study period.

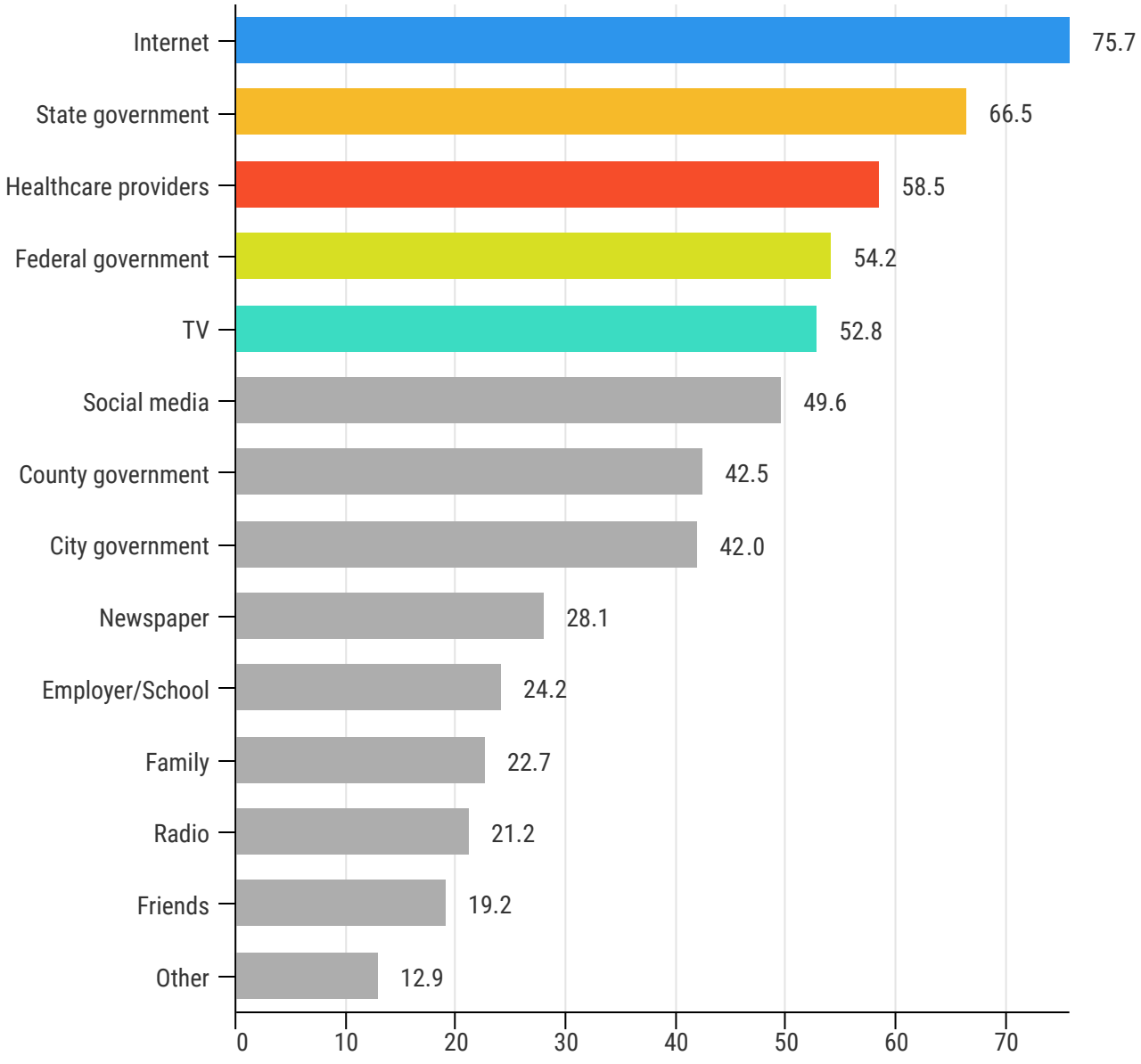
Figure 5. Changes in perceived severity of the COVID-19 outbreak (means)



Sources of Information

Respondents were asked to indicate which sources of information they relied on regarding COVID-19 issues. The top five sources of information indicated by respondents are displayed in color in Figure 6. The most popular sources of information included internet (75.7%), state government (66.5%), healthcare providers (58.5%), federal government (54.2%) and television (52.8%). The sum of percentages is greater than 100.0% as respondents could choose multiple answers.

Figure 6. Sources of information (%)



Most and Least Trusted Information Sources

Respondents were also asked about information sources they viewed as the most or least trustworthy. Figure 7 shows the five information sources deemed most trustworthy by respondents, including healthcare provider, state government, internet, federal government, and television.

Figure 7. Most trusted information sources (%)

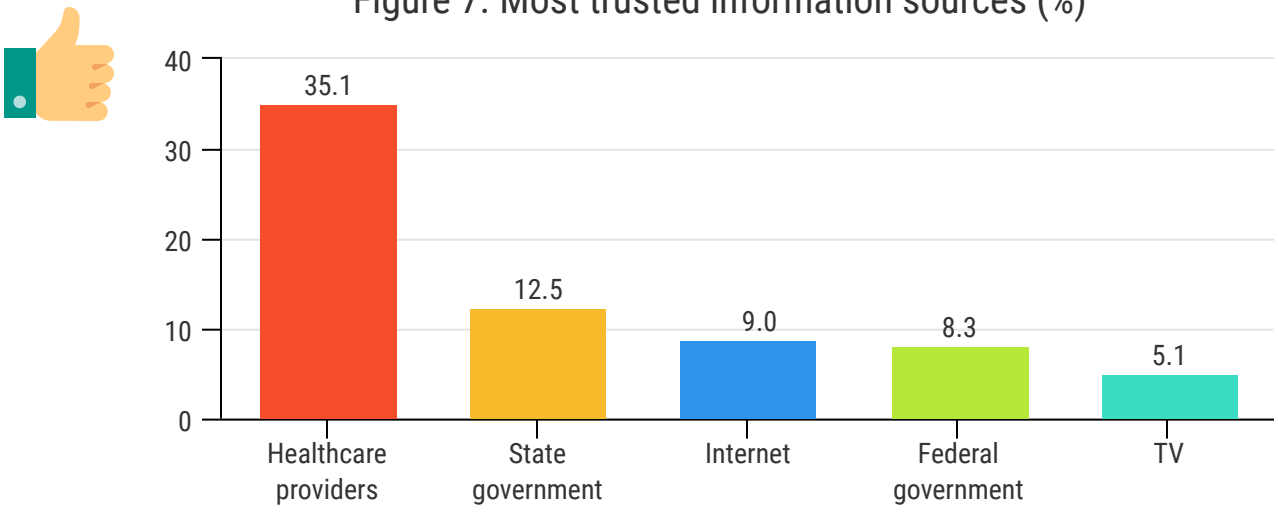
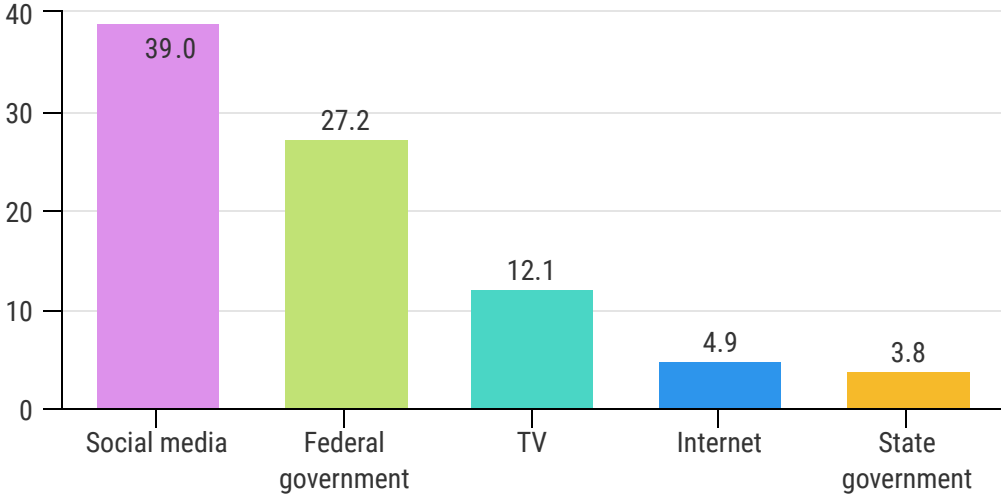


Figure 8 displays respondents' least trusted sources of information. Social media was viewed as the least trustworthy. While internet, television, state government, and federal government were ranked among the most popular sources of information, they were also indicated as both the most and least trusted.

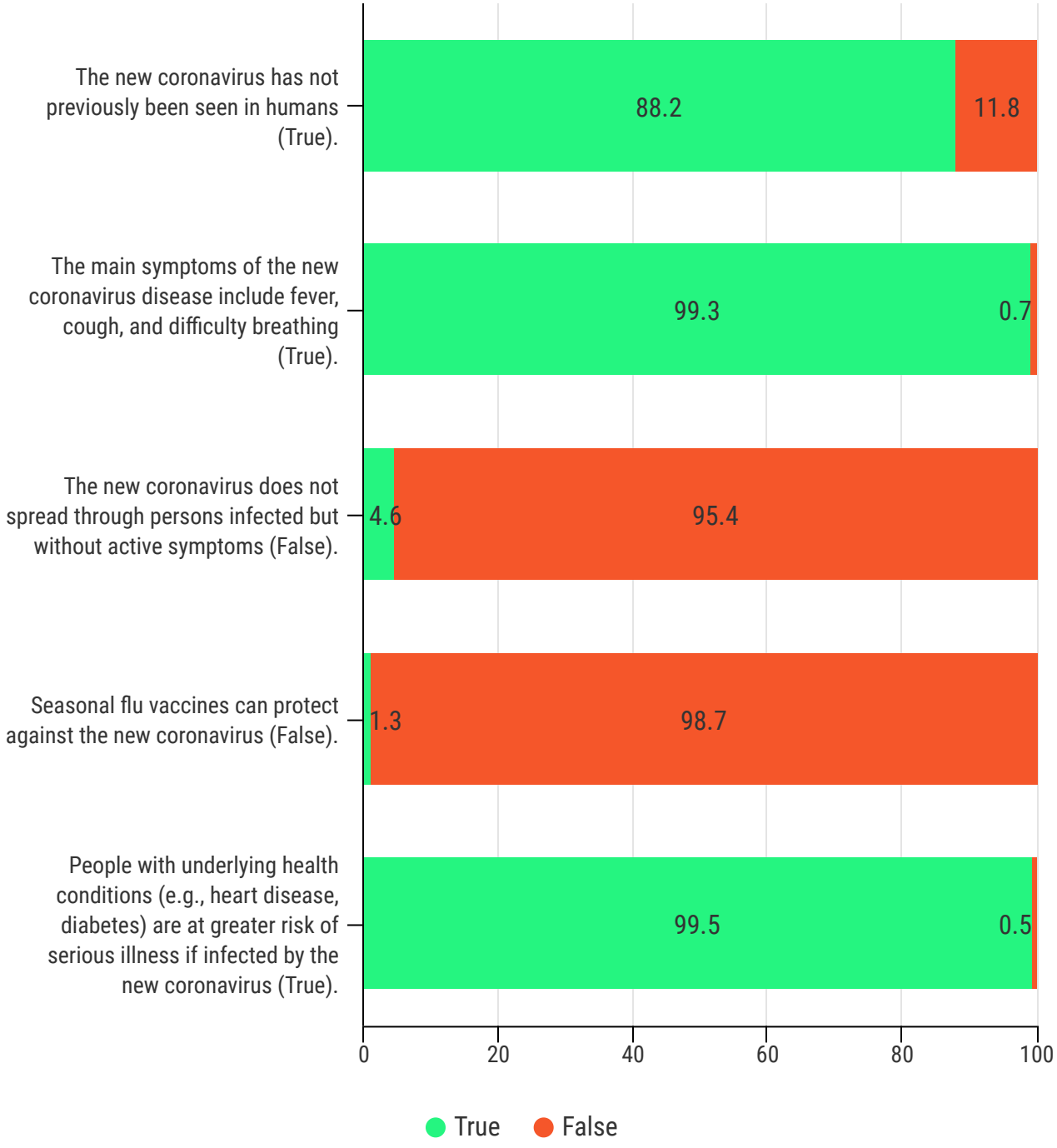
Figure 8. Least trusted information sources (%)



Knowledge About COVID-19

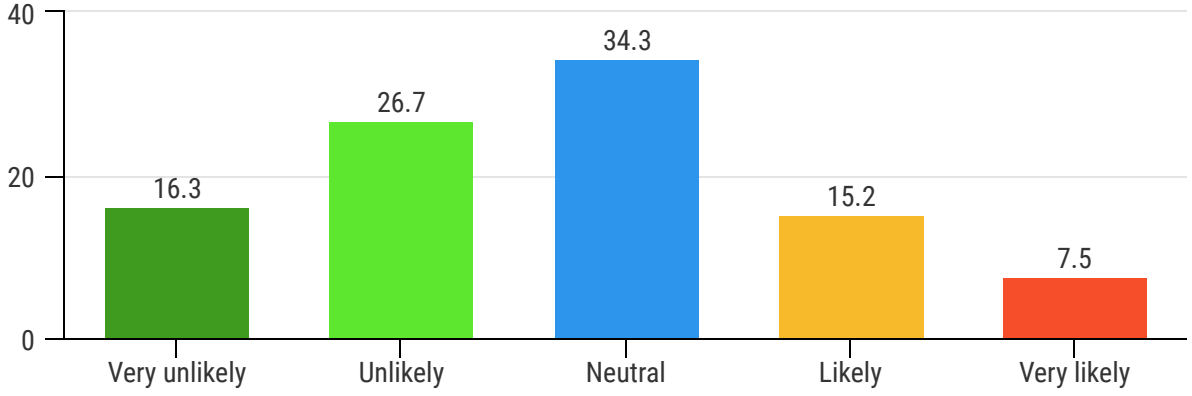
The survey sample as a whole showed very good knowledge of the COVID-19 disease.

Figure 9. Answers to true/false questions (%)



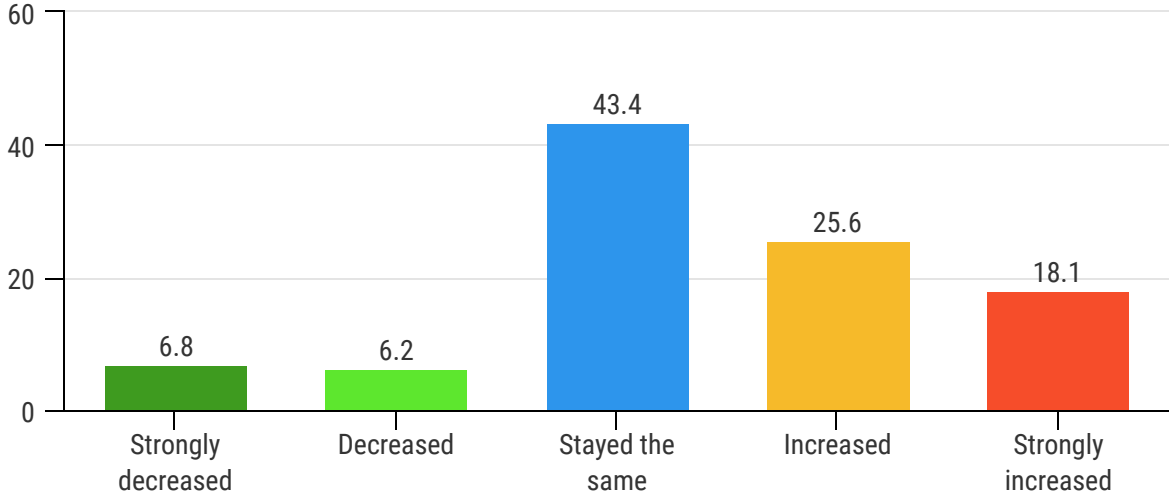
Perceived Risk of Being Infected

Figure 10. How would you describe your personal risk of being infected by COVID-19? (%)



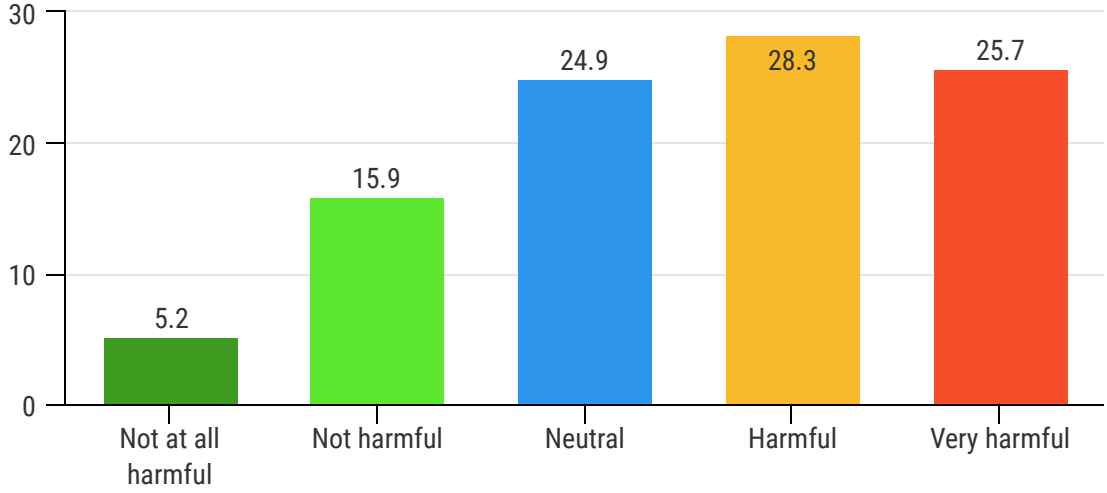
Perception of the risk of being infected by COVID-19 was measured with a scale from 1 (very unlikely) to 5 (very likely). The most frequently selected categories of perceived risk of being infected were "neutral" (34.3%) and "unlikely" (26.7%). Change of risk perception during the past month at the time of survey was also represented on a scale from 1 (strongly decreased) to 5 (strongly increased). Although 43.4% of respondents indicated their concern about the chance to get infected stayed the same, about the same proportion (43.7%) of them indicated increased or strongly increased levels of such concern.

Figure 11. Has your concern about the chance that you may get infected changed during the past month? (%)



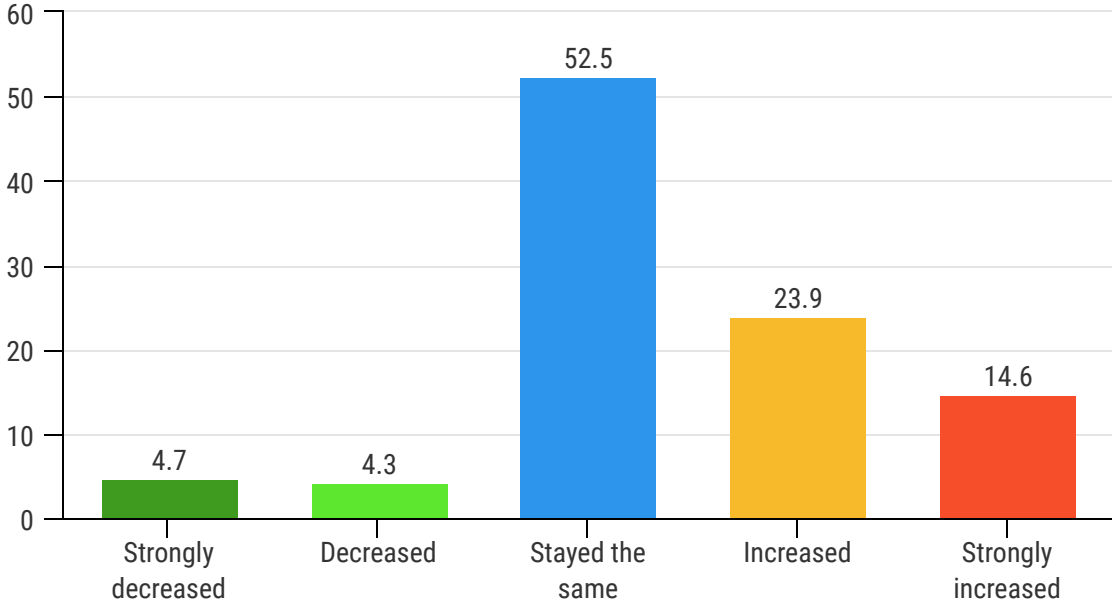
Perceived Harmfulness of Infection

Figure 12. How harmful do you think an infection with COVID-19 would be? (%)



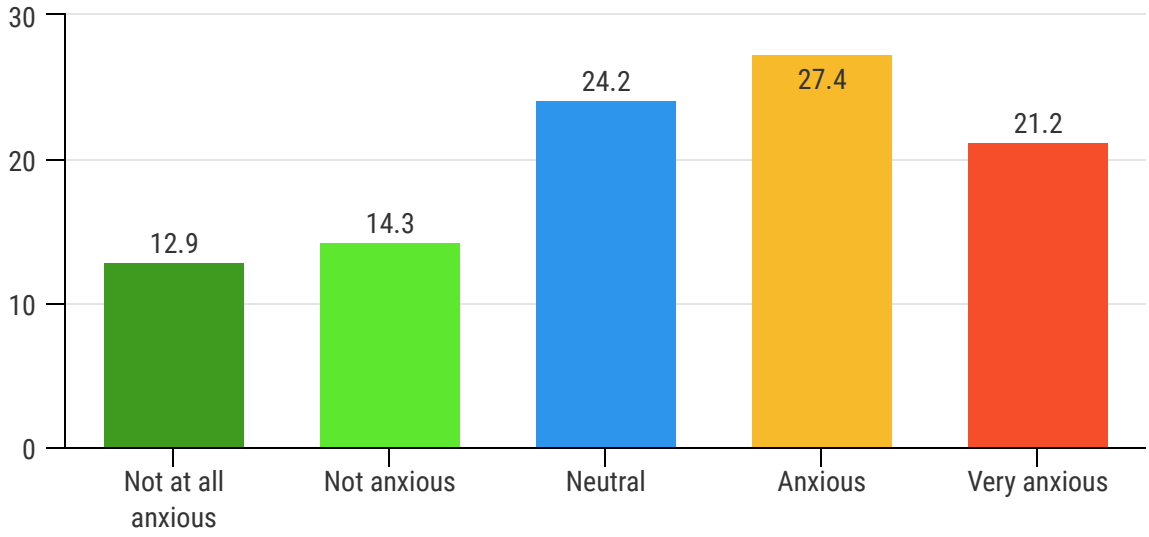
Perceived harmfulness of a COVID-19 infection was measured with a scale from 1 (not at all harmful) to 5 (very harmful). More than of respondents (54.0%) considered an infection to be harmful or very harmful. Slightly over half (52.5%) reported largely unchanged level of perceived harmfulness if infected with COVID-19, while 38.5% exhibited increased or strongly increased concern.

Figure 13. Has your concern about the potential harmfulness of an infection changed during the past month? (%)



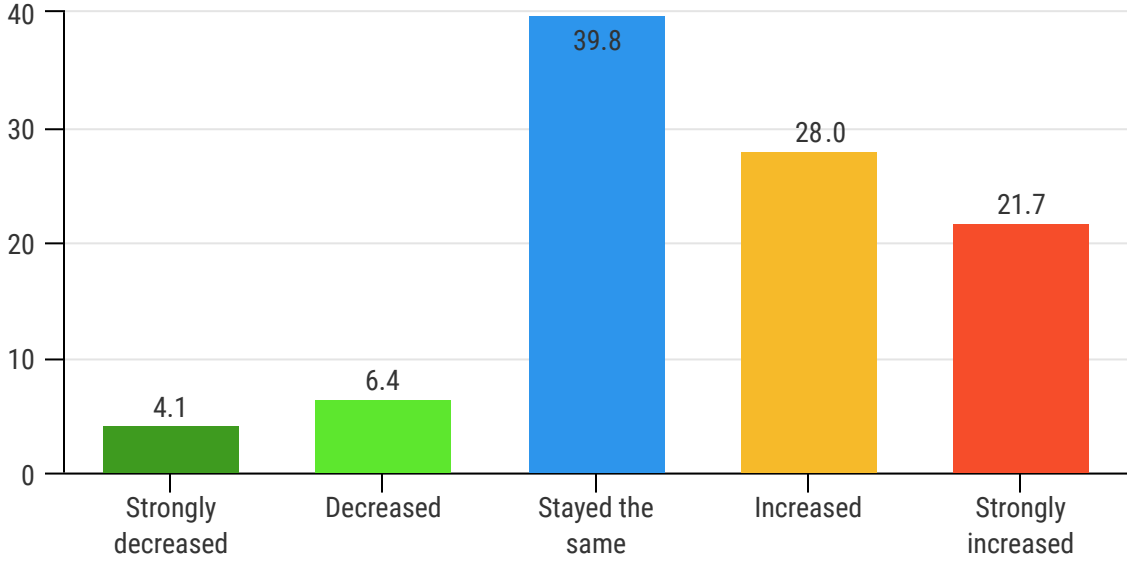
Level of Anxiety

Figure 14. How anxious are you about the COVID-19 outbreak? (%)



Respondents were also asked about their anxiety due to the COVID-19 outbreak ("1" not at all anxious to "5" very anxious). Nearly half of respondents (48.6% and 49.7%, respectively) indicated anxious/very anxious emotions and increased/strongly increased levels of anxiety.

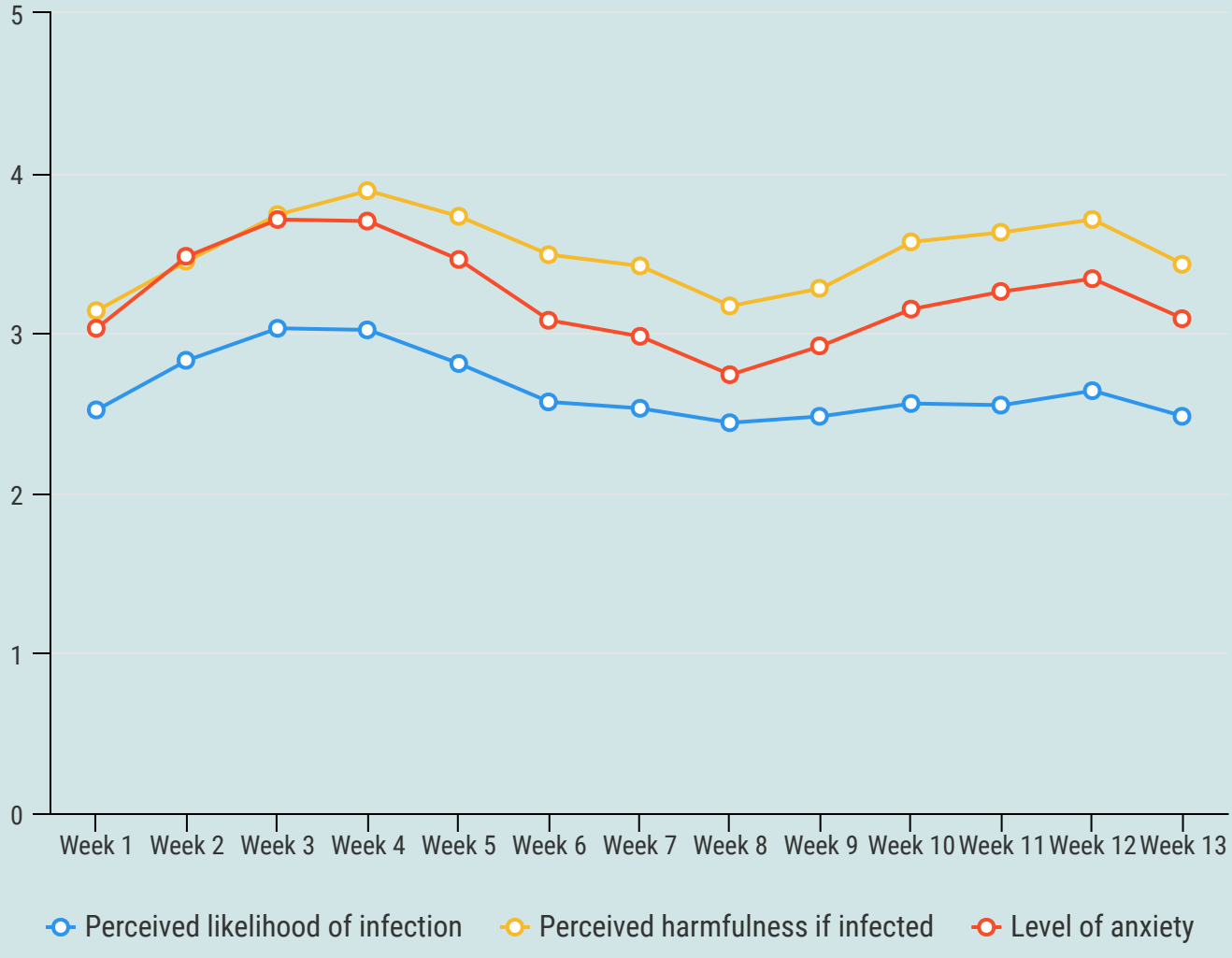
Figure 15. Has your level of anxiety changed during the past month? (%)



Changes in the Perceptions of COVID-19 Risk

Overall, changes in respondents' perceived likelihood of infection, perceived harmfulness if infected, and level of anxiety show similar patterns as those in perceived severity of the COVID-19 outbreak (see Figure 5). There was an initial increase in the levels of all three indicators, followed by a decline over the next four weeks. The variable means then rose again before beginning to decrease near the end of the full survey period.

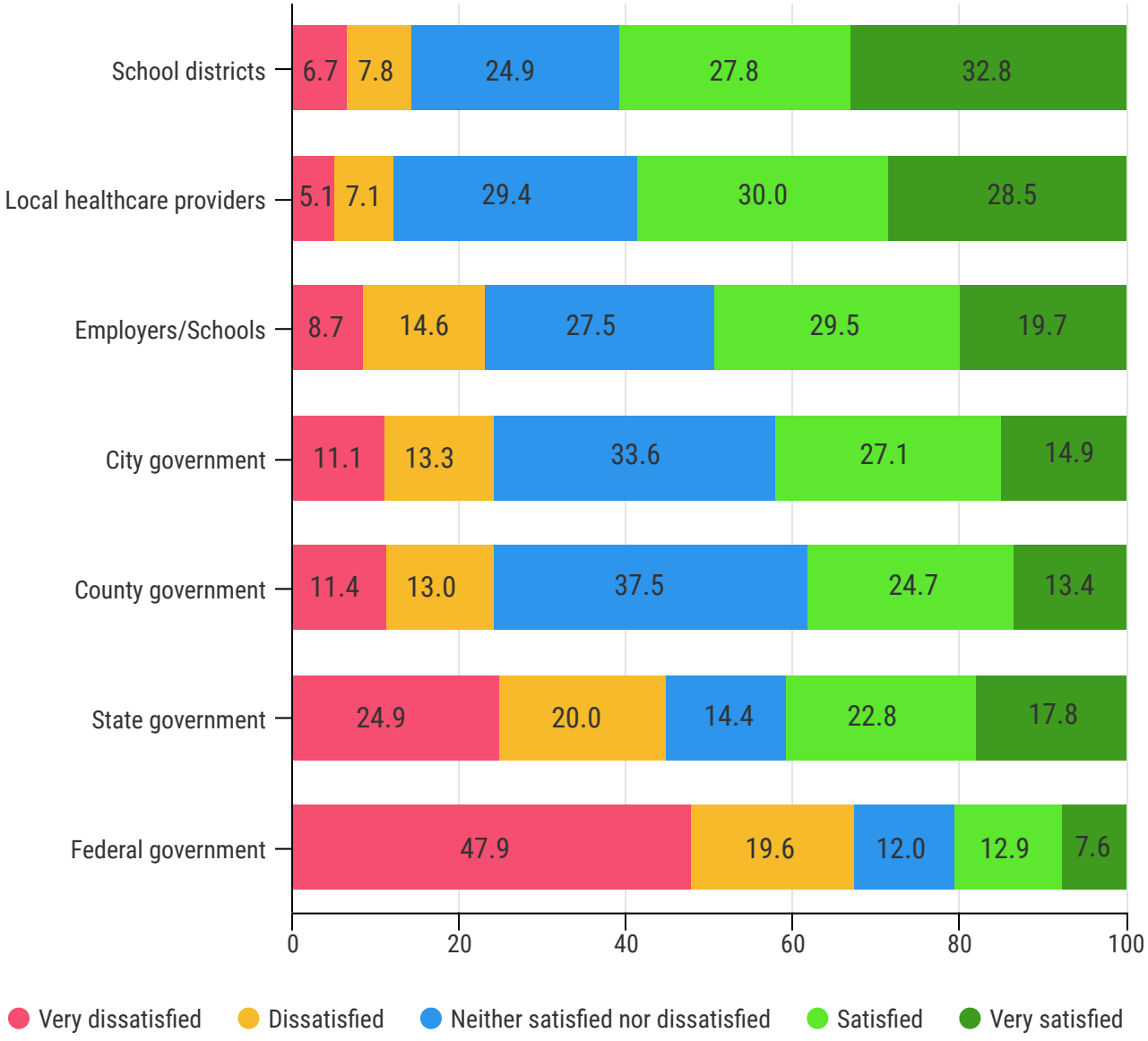
Figure 16. Changes in perceived likelihood of infection, perceived harmfulness if infected, and level of anxiety (means)



Satisfaction with Management Entities

Respondents also indicated their satisfaction/dissatisfaction with how the COVID-19 outbreak had been managed by a number of entities using a 5-point scale (“1” very dissatisfied to “5” very satisfied). Nearly half or more than half of respondents indicated being satisfied or very satisfied with school districts, local healthcare providers, and employers (or schools for student participants) regarding their responses to the COVID-19 outbreak. They were also largely positive or neutral in their opinions on city-, county- and state-level governments. However, a majority of them (67.5%) expressed dissatisfaction with the federal government in this aspect.

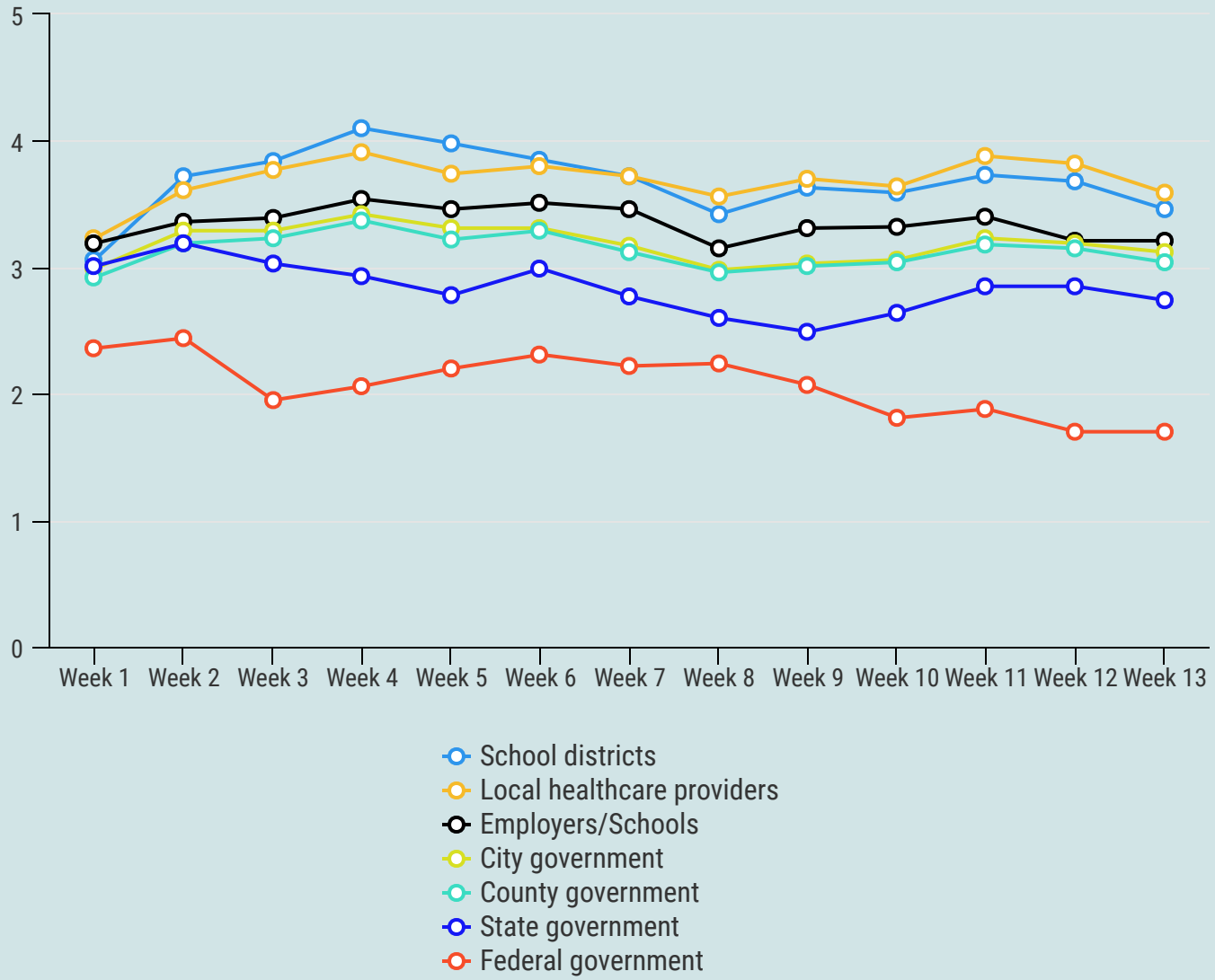
Figure 17. Satisfaction with management entities (%)



Satisfaction with Management Entities (Cont.)

As shown in Figure 18, there are relatively more temporal variations in the levels of satisfaction with school districts, healthcare providers, state government, and federal government. Satisfaction with employers/schools, city government, and county government remained largely stable during the study period. The results also suggest there was a general decline in the satisfaction with state and federal governments over time.

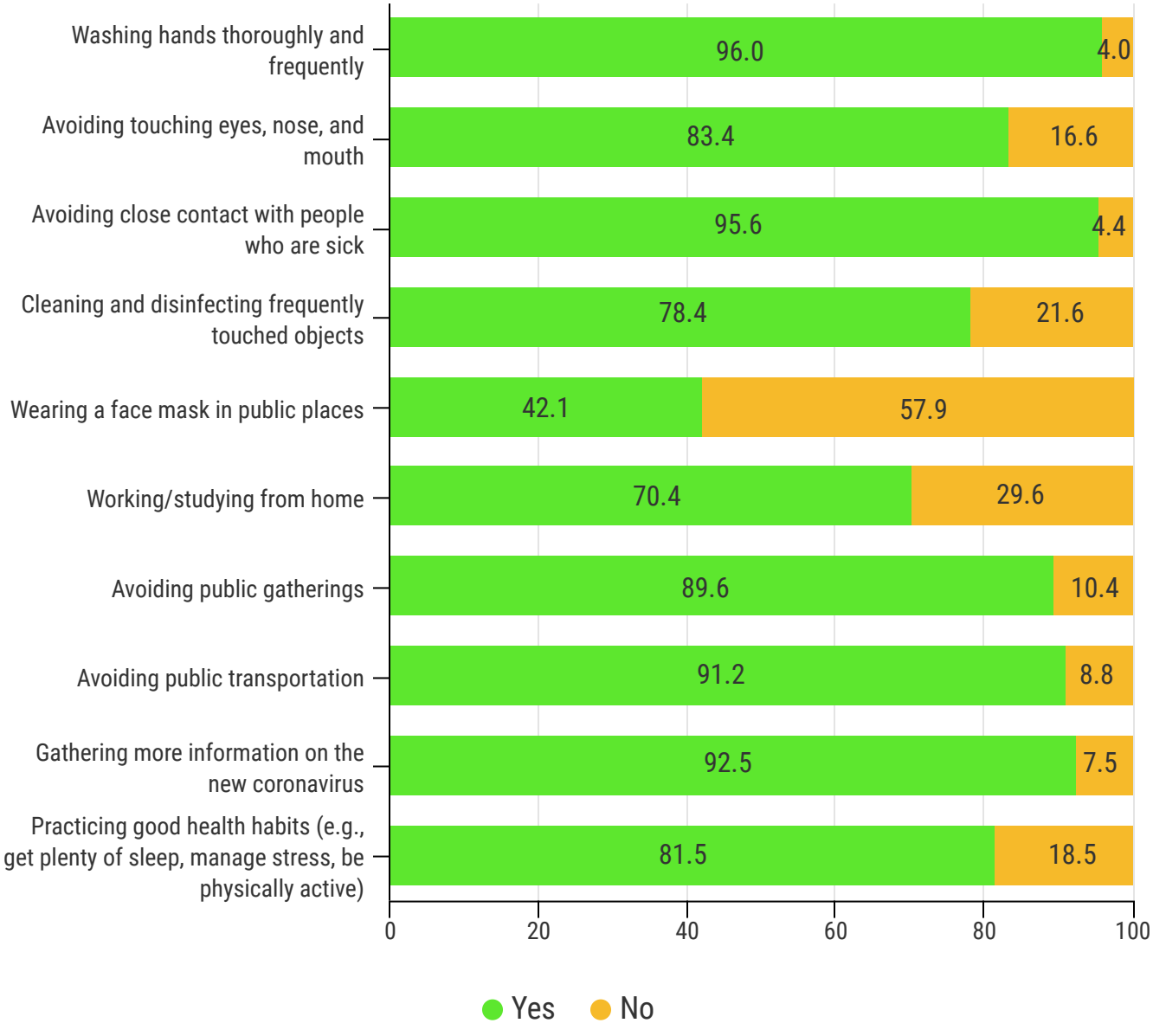
Figure 18. Changes in the levels of satisfaction with management entities (means)



Adoption of Preventive Actions

Respondents were asked if they had taken a series of actions in response to the COVID-19 pandemic. Figure 19 shows the percent of all respondents who undertook individual actions. Washing hands frequently, avoiding close contact with people who are sick, gathering more information on COVID-19, and avoiding public transportation or public gatherings were among the most frequently chosen items. However, less than half of respondents (42.1%) indicated wearing a face mask in public places.

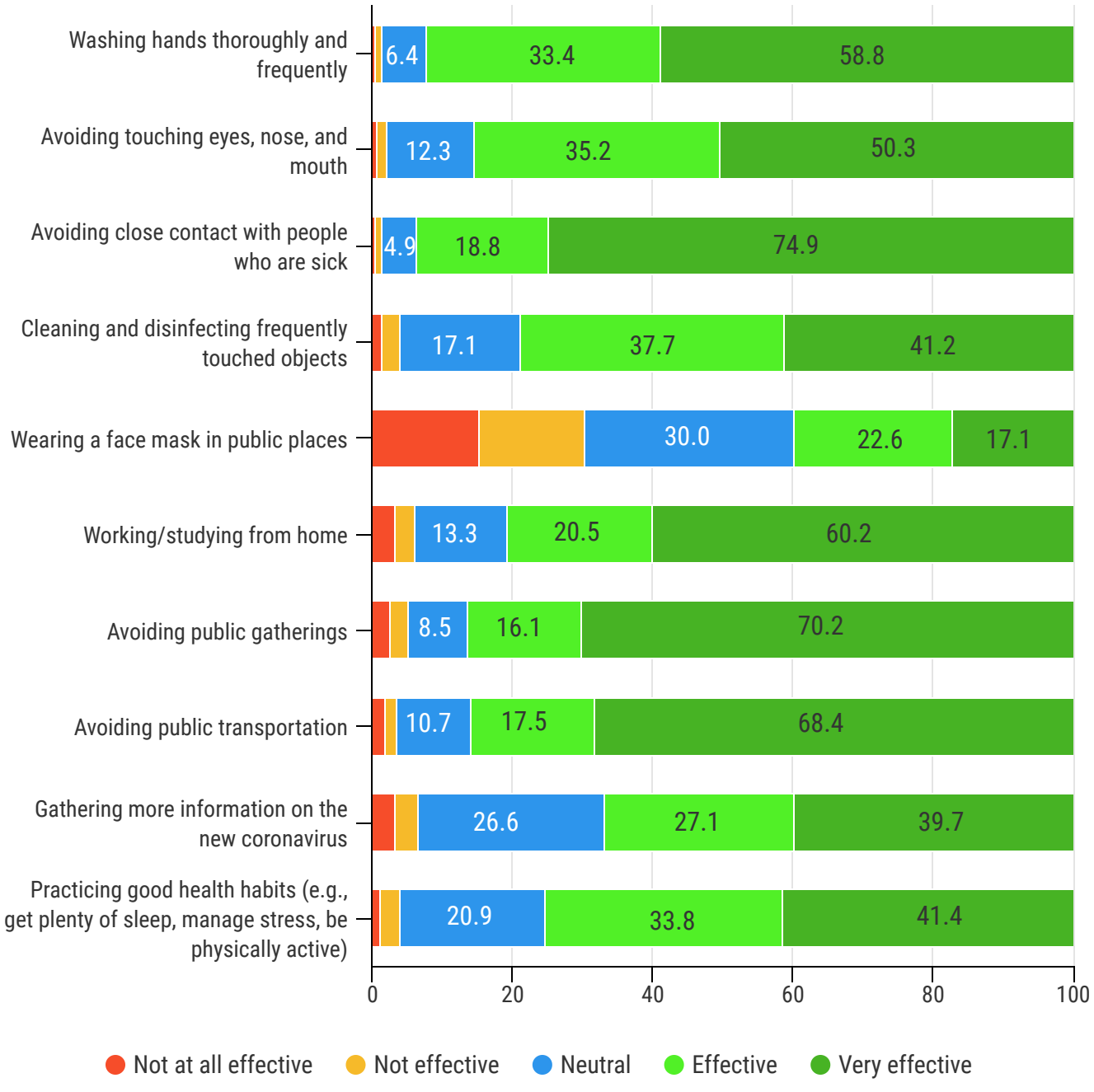
Figure 19. Have you taken any of the following actions in response to the COVID-19 outbreak during the past month? (%)



Perceived Effectiveness of Preventive Actions

Respondents were also asked to evaluate the effectiveness of various preventive actions using a scale from 1 (not at all effective) to 5 (very effective). In general, the actions indicated as most often taken were also considered relatively more effective than other actions. Consistent with the lower adoption rate of face mask wearing, this action was viewed as the least effective by survey participants.

Figure 20. Perceived effectiveness of preventive actions (%)



Changes in Preventive Actions and Perceived Effectiveness

Throughout the study period, the total number of preventive actions reported by respondents generally increased while the mean value of perceived effectiveness of actions largely stayed at a high level. Both the adoption rate and perceived effectiveness of face mask wearing saw a substantial increase as the survey study continued.

Figure 21: Changes in the number of preventive actions and perceived effectiveness of actions (means)

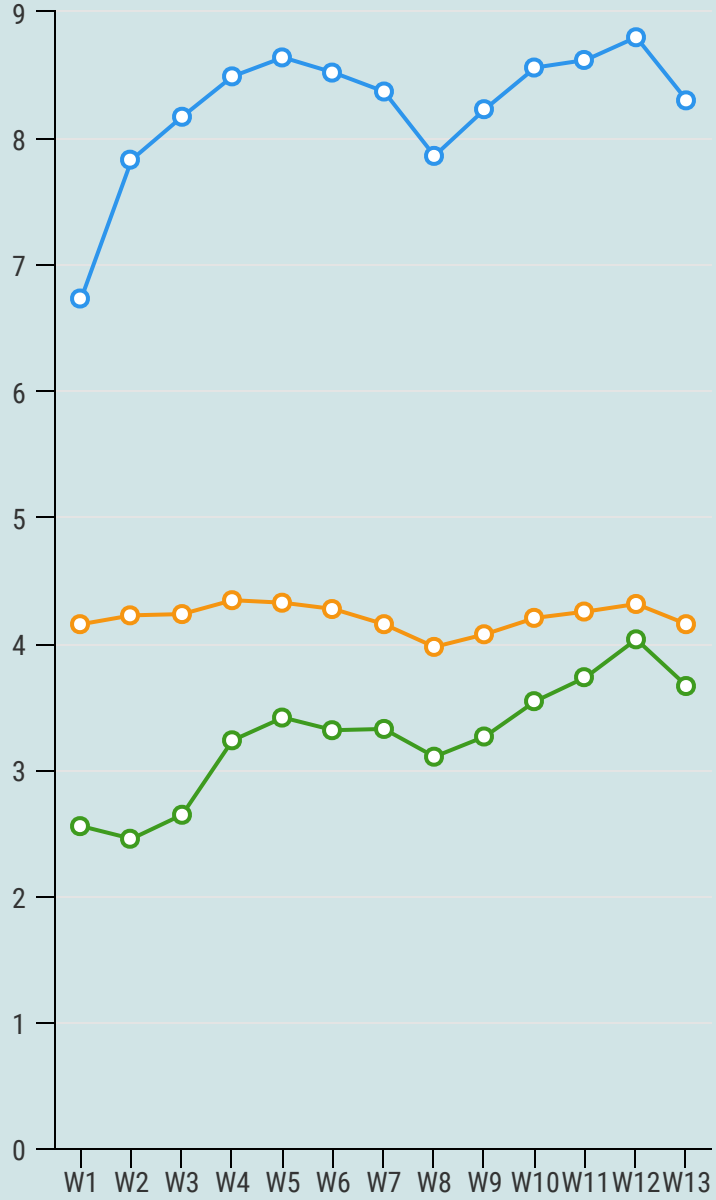
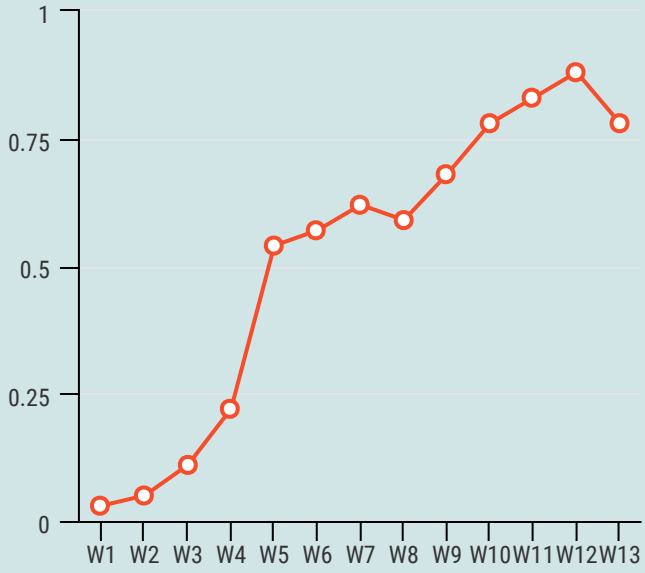


Figure 22. Change in the adoption of face mask wearing (%)



Number of preventive actions
Perceived effectiveness of preventive actions
Perceived effectiveness of face mask wearing

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