一般社団法人
日本人間工学会
Japan Human Factors and Ergonomics Society

[First Survey 1 during March 16-20, 2020]

Preliminary Report of the Survey on Educational Institutions' Responses to the Novel Coronavirus (COVID-19)

Japan Human Factors and Ergonomics Society

2020/3/25

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Summary

- The Japan human factors and ergonomics society (JES) conducted an online survey for the JES full members working at educational institutions to collect information on the 1) notification and response status for personnel in educational institutions on the COVID-19 crisis, and 2) ergonomic ideas to propose practical recommendations for mitigating the COVID-19 crisis to society.
- Approximately 70% of the organizations notified personnel of an action-oriented code of conduct, including advice such as "stay at home If you have any illness, cough, fever, or cold symptoms," “consult a health center if the fever of 37.5 degrees or more lasts for more than four days,” or “prohibition of overseas private travel” or “request for self-restraint.“
- Conversely, less than 40% of the respondents were informed about appropriate preventive ways promoting behavioral changes, such as mask disposal methods, face washing after returning home, ergonomic teleworking and online meetings, and improvement of the indoor working environment.
- Concerning the freely answered question to “how do you think Ergonomics in your related field can contribute to preventing or mitigating the COVID-19 problems?“, half of the respondents (60/120) provided ideas.
- The possible contributions from multidisciplinary fields were shown: 1)preventive infection education and standard precautions; 2) human-centered design solutions for enhancing ergonomic teleworking, virtual reality, and information and communication technology; 3) online media use in education; 4) occupational safety and health measures of night shift work and fatigue for medical staff tackling COVID-19; 5) psychology, behavioral science, and scientific communication for reducing social anxiety; and 6) environmental ergonomics.

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Outline of survey

- Research target: the JES full members working at educational institutions
- Objectives
  - Notification and response status to personnel in educational institutions on the COVID-19 crisis
  - Collecting ergonomic ideas to propose practical recommendations for mitigating COVID-19 crisis to society
- Online-survey at
  https://questant.jp/q/jes202003survey_part1
- Period: March 16 (Mon) to 20 (Fri), 2020

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Demographic Characteristics of respondents

- Respondents： 120/772*1, response rate:15.5%

*1 the number of JES full members working at educational institutions

- Institutions：
  [University]90%, [Technical College/High school]：7.5%, [Junior college]：2.5%
- Sex： [male]75%, [female]25%
- age： [20's] 0.8%, [30's]13.3%, [40's]28.3%, [50's]40.0%, [60's]16.7%, [70's] 0.8%

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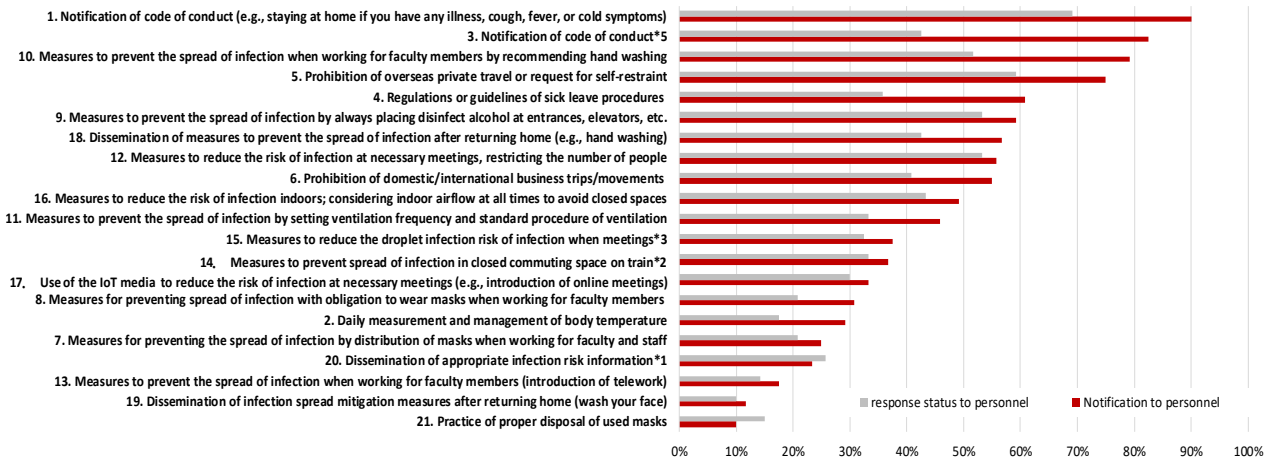
Notification to and response status of personnel in educational institutions on COVID-19 crisis



*1: epidemiological and scientific indicators, such as relative risk and attributable risk, incidence, and prevalence in an easy-to-understand manner
*2: e.g., introduction of staggered commuting
*3: e.g., devising layouts and seat arrangements to prevent droplet infection
*4: e.g., guidelines when personnel diagnosed with new coronavirus infection or suspected of close contact is ordered to wait at home
*5: e.g., consulting the nearest health center if the fever of 37.5 ° or more continues for four days or more.

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What can Ergonomics in your related field contribute to preventing or mitigating the COVID-19 problems ? (open-ended question)

■ **Education, risk education, awareness-raising on infection control, and standard precautionary measures (excerpt)**

- Hygiene guidance and public health education for students
- Dissemination of correct knowledge, such as appropriate infection control
- Instructions on how to properly put on and take off personal protective equipment and disposal
- Health education on infection prevention measures
- Transmission of information on preventing slipping and falling when walking on winter roads. Outdoor activities, such as strolling were recommended to reduce children's' stress due to self-restraint and temporary school closure, but guidance for safe walking on frozen snowy roads is lacking.
- Development of an online-platform that provides expert recommendations (ergonomic instruction method to ensure hand-washing, gargling, ventilation, hydration, etc.)

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What can Ergonomics in your related field contribute to preventing or mitigating the COVID-19 problems ?

■ Use of new VR technology and information and communication technology, human-centered design technology, and ergonomic product design

- Promote remote work/tele working using the Internet (Zoom, and so on)
- Application of Telerobotics and virtual reality techniques to reduce face-to-face communication causing direct droplet infection
- Modeling of human behavior characteristics by information transmission using information and communication technology and statistical processing of human behavioral patterns
- Designing disinfectant containers, hygiene management tools, and safe and easy-to-use design of UV sterilization LED devices with ergonomic gripping support that minimize the use of hands as much as possible
- Standard precautional explanations on how to use scientific knowledge in daily activities in an easy-to-understand manner

■ Occupational fatigue/occupational safety and health measures:

- Measures for fatigue of workers (COVID19-compliant workers, such as healthcare workers), provision of ergonomic guidelines for telework, and provision of ergonomic guidelines for VDT work as online lectures increase
- Ergonomic measures for mental stress related to behavioral restriction
- Ergonomic measures for tele work communication methods using IoT
- Proposal of stress reduction techniques
- Ergonomic health management measures (working posture and break-taking) under high-intensity telework

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What can Ergonomics in your related field contribute to preventing or mitigating the COVID-19 problems ?

■ Use of online media

- Sharing and dissemination of ergonomic methods for online lectures
- Provide appropriate COVID-19 response methods and accurate information using online tools
- Distance education support

■ Psychology/Behavioral Science

- Risk education considering the psychology of preventing social anxiety
- Education on the mechanism of social anxiety caused by synchronicity bias
- Research to promote appropriate risk recognition and risk avoidance behavior
- Dissemination of knowledge on countermeasures from an appropriate psychological perspective based on the article “Keeping Your Distance to Stay Safe,” published on the official website of the American Psychological Association (APA)

■ Risk assessment

- Organizational ergonomics and resilience based on Crisis Emergency Risk management and Communication (CERC)
- Appropriate risk awareness and response actions
- Risk management procedures, setting appropriate risk levels, and so on

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What can Ergonomics in your related field contribute to preventing or mitigating the COVID-19 problems ?

■ Scientific Communication and Science Literacy

- Education through infographics
- Dissemination of appropriate information and response to social unrest (polite explanation of questions)
- Enhancing risk communication between the general public and experts
- Advising on the effectiveness of hospital management for preventing hospital-acquired infections, collaboration between boundaryless organizations, understanding the current situation, and conducting resource surveys

■ Environmental Ergonomics

- Changes in ventilation efficiency due to opening windows and setting air conditioners in cars
- Importance of ventilation: Windows are closed and the space is always closed from the viewpoint of avoiding gaze in the neighborhood, and preventing students from falling down regularly. How to appropriately operate 24-hour ventilation systems
- Measures against infectious diseases by ventilation (ventilation volume, ventilation method)

■ Big data analysis of biological information, physiological and psychological behavior data

- Mental and physical condition sensing
- Support for the elucidation of infection routes using ethnography
- Behavior control

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The JES Strategy and Innovation Committee
Japan Human Factors and Ergonomics Society

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