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Workers' Perceptions on the Tolerability of Their Respirators in Malaysia

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Abstract

Background: Little is known about Malaysian workers' tolerance for respirators in the workplace. This study aimed to assess Malaysian workers' perceptions of respirator tolerability and its relationship to socio-demographics and compliance. Method: This cross-sectional study was conducted between October and December 2021 among respirator users in the agricultural, industrial, and service sectors. Background information and respirator compliance were collected using a structured online questionnaire. A R-COMFI questionnaire was used to measure respirator tolerability. Results: This study

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recruited 340 participants, but only 278 of them met the inclusion criteria. More than half reported that wearing respirators was uncomfortable, impacted focus, and hindered communication. Few had health concerns from respirators. Malay ethnicity ($b = \beta 2.604$, 95% CI = $\beta 4.983$, $\beta 0.225$) and respirator training ($b = \beta 2.213$, 95% CI = $\beta 4.339$, $\beta 0.088$) were found to be associated with better respirator tolerability. Conclusion: This study showed that Malay ethnicity and respirator training predicted better respirator tolerance. Policy aimed at emphasizing the need of respirator training programs, particularly for non-Malay workers, should be thoroughly considered in order to improve worker tolerance of respirator wear and prevent hazardous health effects by inhalation. © 2023 The Authors.

Author keywords

Malaysia; R-COMFI; Respirator; Tolerability; Worker

SciVal Topics 

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References (43)

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-
- 1 *Fit testing procedures (mandatory)* 1910. Cited 4 times.
134 [updated 2004; cited 2021 Feb 2]
<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134AppA>
-
- 2 Venesoja, A., Grönman, K., Tella, S., Hiltunen, S., Koljonen, K., Butylina, S., Rotinen, L., (...), Laatikainen, K.
Healthcare workers' experiences and views of using surgical masks and respirators, and their attitudes on the sustainability: A semi-structured survey study during covid-19
(2021) *Nursing Reports*, 11 (3), pp. 615-628. Cited 3 times.
<https://www.mdpi.com/2039-4403/11/3/59>
doi: 10.3390/NURSREP11030059
[View at Publisher](#)
-
- 3 (2021) *National personal protective technology laboratory (NPPTL), NIOSH approved N95 particulate filtering facepiece respirators* [cited 2021 Feb 2]
https://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/N95list1.html
-
- 4 Wizner, K., Nasarwanji, M., Fisher, E., Steege, A.L., Boiano, J.M.
Exploring respiratory protection practices for prominent hazards in healthcare settings
(2018) *Journal of Occupational and Environmental Hygiene*, 15 (8), pp. 588-597. Cited 13 times.
<http://www.tandfonline.com/loi/uoeh20>
doi: 10.1080/15459624.2018.1473581
[View at Publisher](#)
-

- 5 Zhuang, Z., Benson, S., Lynch, S., Palmiero, A., Roberge, R.
Laboratory study to assess causative factors affecting temporal changes in filtering facepiece respirator fit: Part I-pilot study

(2011) *Journal of Occupational and Environmental Hygiene*, 8 (12), pp. 729-739. Cited 10 times.
doi: 10.1080/15459624.2011.627294

View at Publisher
-
- 6 Hua, W., Zuo, Y., Wan, R., Xiong, L., Tang, J., Zou, L., Shu, X., (...), Li, L.
Short-term skin reactions following use of N95 respirators and medical masks

(2020) *Contact Dermatitis*, 83 (2), pp. 115-121. Cited 82 times.
[http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1600-0536](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1600-0536)
doi: 10.1111/cod.13601

View at Publisher
-
- 7 Robertsen, Ø., Hegseth, M.N., Føreland, S., Siebler, F., Eisemann, M., Vangberg, H.C.B.
The Effect of a Knowledge-Based Intervention on the Use of Respirators in the Norwegian Smelter Industry (Open Access)

(2020) *Frontiers in Psychology*, 11, art. no. 270. Cited 2 times.
<http://www.frontiersin.org/Psychology>
doi: 10.3389/fpsyg.2020.00270

View at Publisher
-
- 8 Fukakusa, J., Rosenblat, J., Jang, B., Ribeiro, M., Kudla, I., Tarlo, S.M.
Factors influencing respirator use at work in respiratory patients (Open Access)

(2011) *Occupational Medicine*, 61 (8), pp. 576-582. Cited 16 times.
doi: 10.1093/occmed/kqr132

View at Publisher
-
- 9 Lan, J., Song, Z., Miao, X., Li, H., Li, Y., Dong, L., Yang, J., (...), Tao, J.
Skin damage among health care workers managing coronavirus disease-2019

(2020) *Journal of the American Academy of Dermatology*, 82 (5), pp. 1215-1216. Cited 323 times.
<http://www.elsevier.com/inca/publications/store/6/2/3/3/7/0/index.htm>
doi: 10.1016/j.jaad.2020.03.014

View at Publisher
-
- 10 Foo, C.C.I., Goon, A.T.J., Leow, Y.-H., Goh, C.-L.
Adverse skin reactions to personal protective equipment against severe acute respiratory syndrome - A descriptive study in Singapore (Open Access)

(2006) *Contact Dermatitis*, 55 (5), pp. 291-294. Cited 202 times.
doi: 10.1111/j.1600-0536.2006.00953.x

View at Publisher

- 11 *Guidelines on the use of personal protective equipment against chemical hazards*
[updated 2005 Oct; cited 2021 Feb 2]
<https://www.dosh.gov.my/index.php/legislation/guidelines/chemical/618-04-guidelines-on-the-use-of-personal-protective-equipment-against-chemicals-hazards-2005?path=chemical>
-
- 12 Hamzah, R., Zali, N.A., Yusoff, N.H.
Overcoming challenges in respirator fit testing in upstream Malaysia ([Open Access](#))

(2017) *Society of Petroleum Engineers - SPE Asia Pacific Health, Safety, Security, Environment and Social Responsibility Conference 2017*
<https://www.onepetro.org/conferences/SPE/17APHS>
ISBN: 978-151084203-8
-
- 13 Radonovich, L.J., Wizner, K., LaVela, S.L., Lee, M.L., Findley, K., Yorio, P.
A tolerability assessment of new respiratory protective devices developed for health care personnel: A randomized simulated clinical study

(2019) *PLoS ONE*, 14 (1), art. no. e0209559. Cited 10 times.
<https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0209559&type=printable>
doi: 10.1371/journal.pone.0209559

[View at Publisher](#)
-
- 14 LaVela, S.L., Kostovich, C., Locatelli, S., Gosch, M., Eagan, A., Radonovich, L.
Development and initial validation of the Respirator Comfort, Wearing Experience, and Function Instrument [R-COMFI] ([Open Access](#))

(2017) *Journal of Occupational and Environmental Hygiene*, 14 (2), pp. 135-147. Cited 8 times.
<http://www.tandfonline.com/loi/uoeh20>
doi: 10.1080/15459624.2016.1237025

[View at Publisher](#)
-
- 15 (2016) *IBM SPSS statistics for windows*. Cited 13205 times.
Armonk, NY: IBM
-
- 16 Taber, K.S.
The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education

(2018) *Research in Science Education*, 48 (6), pp. 1273-1296. Cited 3139 times.
<http://www.kluweronline.com/issn/0157-244X>
doi: 10.1007/s11165-016-9602-2

[View at Publisher](#)
-

- 17 Kheir, O., Watts, R., Verlinden, J., Jacoby, A., Smedts, S., Vleugels, J., Verwulgen, S.
Evaluating Filtering Facepiece Respirator Wearing-Comfort of Lebanese Red Cross Healthcare Providers
(2022) *Medical Devices: Evidence and Research*, 15, pp. 153-161. Cited 2 times.
<http://www.dovepress.com/medical-devices-evidence-and-research-journal>
doi: 10.2147/MDER.S362198
View at Publisher
-
- 18 Purushothaman, P.K., Priyanga, E., Vaidhyswaran, R.
Effects of Prolonged Use of Facemask on Healthcare Workers in Tertiary Care Hospital During COVID-19 Pandemic
(2021) *Indian Journal of Otolaryngology and Head and Neck Surgery*, 73 (1), pp. 59-65. Cited 38 times.
<http://www.springerlink.com/content/0019-5421>
doi: 10.1007/s12070-020-02124-0
View at Publisher
-
- 19 Roberge, R.J., Kim, J.-H., Coca, A.
Protective facemask impact on human thermoregulation: An overview (Open Access)
(2012) *Annals of Occupational Hygiene*, 56 (1), pp. 102-112. Cited 75 times.
doi: 10.1093/annhyg/mer069
View at Publisher
-
- 20 Scarano, A., Inchingolo, F., Lorusso, F.
Facial skin temperature and discomfort when wearing protective face masks: Thermal infrared imaging evaluation and hands moving the mask (Open Access)
(2020) *International Journal of Environmental Research and Public Health*, 17 (13), art. no. 4624, pp. 1-9. Cited 129 times.
<https://www.mdpi.com/1660-4601/17/13/4624/pdf>
doi: 10.3390/ijerph17134624
View at Publisher
-
- 21 Hu, K., Fan, J., Li, X., Gou, X., Li, X., Zhou, X.
The adverse skin reactions of health care workers using personal protective equipment for COVID-19 (Open Access)
(2020) *Medicine (United States)*, 99 (24), p. E20603. Cited 107 times.
<https://journals.lww.com/md-journal/pages/default.aspx>
doi: 10.1097/MD.00000000000020603
View at Publisher
-
- 22 Johnson, A.T.
Respirator masks protect health but impact performance: A review
(2016) *Journal of Biological Engineering*, 10 (1), art. no. 4. Cited 93 times.
<http://www.jbioleng.org/>
doi: 10.1186/s13036-016-0025-4
View at Publisher

- 23 Cheok, G.J.W., Gatot, C., Sim, C.H.S., Ng, Y.H., Tay, K.X.K., Howe, T.S., Koh, J.S.B.
Appropriate attitude promotes mask wearing in spite of a significant experience of varying discomfort ([Open Access](#))
(2021) *Infection, Disease and Health*, 26 (2), pp. 145-151. Cited 21 times.
<http://www.journals.elsevier.com/infection-disease-and-health/>
doi: 10.1016/j.idh.2021.01.002
[View at Publisher](#)
-
- 24 Ong, J.J.Y., Bharatendu, C., Goh, Y., Tang, J.Z.Y., Sooi, K.W.X., Tan, Y.L., Tan, B.Y.Q., (...), Sharma, V.K.
Headaches Associated With Personal Protective Equipment – A Cross-Sectional Study Among Frontline Healthcare Workers During COVID-19
(2020) *Headache*, 60 (5), pp. 864-877. Cited 265 times.
[http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1526-4610](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1526-4610)
doi: 10.1111/head.13811
[View at Publisher](#)
-
- 25 Kisielinski, K., Giboni, P., Prescher, A., Klosterhalfen, B., Graessel, D., Funken, S., Kempinski, O., (...), Hirsch, O.
Is a mask that covers the mouth and nose free from undesirable side effects in everyday use and free of potential hazards? ([Open Access](#))
(2021) *International Journal of Environmental Research and Public Health*, 18 (8), art. no. 4344. Cited 62 times.
<https://www.mdpi.com/1660-4601/18/8/4344/pdf>
doi: 10.3390/ijerph18084344
[View at Publisher](#)
-
- 26 Rebmann, T., Carrico, R., Wang, J.
Physiologic and other effects and compliance with long-term respirator use among medical intensive care unit nurses ([Open Access](#))
(2013) *American Journal of Infection Control*, 41 (12), pp. 1218-1223. Cited 152 times.
doi: 10.1016/j.ajic.2013.02.017
[View at Publisher](#)
-
- 27 Fix, G.M., Reisinger, H.S., Etchin, A., McDannold, S., Eagan, A., Findley, K., Gifford, A.L., (...), McInnes, D.K.
Health care workers' perceptions and reported use of respiratory protective equipment: A qualitative analysis ([Open Access](#))
(2019) *American Journal of Infection Control*, 47 (10), pp. 1162-1166. Cited 19 times.
<http://www.journals.elsevier.com/ajic-american-journal-of-infection-control/>
doi: 10.1016/j.ajic.2019.04.174
[View at Publisher](#)
-

- 28 Yang, L., Shen, H., Wu, G.
Racial differences in respirator fit testing: A pilot study of whether American fit panels are representative of Chinese faces ([Open Access](#))

(2007) *Annals of Occupational Hygiene*, 51 (4), pp. 415-421. Cited 42 times.
doi: 10.1093/annhyg/mem005

[View at Publisher](#)
-
- 29 Kim, H., Han, D.-H., Roh, Y.-M., Kim, K., Park, Y.-G.
Facial anthropometric dimensions of Koreans and their associations with fit of quarter-mask respirators ([Open Access](#))

(2003) *Industrial Health*, 41 (1), pp. 8-18. Cited 37 times.
<http://www.jstage.jst.go.jp/browse/doi:10.2486/indhealth.41.8>
doi: 10.2486/indhealth.41.8

[View at Publisher](#)
-
- 30 Purmal, K., Alam, M.K., Zam Zam, N.M.
Cephalometric norms of malaysian adult Chinese ([Open Access](#))

(2013) *International Medical Journal*, 20 (1), pp. 87-91. Cited 31 times.
-
- 31 Othman, S.A., Majawit, L.P., Wan Hassan, W.N., Wey, M.C., Razi, R.M.
Anthropometric study of three-dimensional facial morphology in Malay adults ([Open Access](#))

(2016) *PLoS ONE*, 11 (10), art. no. e0164180. Cited 31 times.
<http://journals.plos.org/plosone/article/asset?id=10.1371/journal.pone.0164180.PDF>
doi: 10.1371/journal.pone.0164180

[View at Publisher](#)
-
- 32 Ngeow, W.C., Aljunid, S.T.
Craniofacial anthropometric norms of Malaysian Indians

(2009) *Indian Journal of Dental Research*, 20 (3), pp. 313-319. Cited 57 times.
doi: 10.4103/0970-9290.57372

[View at Publisher](#)
-
- 33 Nichol, K., McGeer, A., Bigelow, P., O'Brien-Pallas, L., Scott, J., Holness, D.L.
Behind the mask: Determinants of nurse's adherence to facial protective equipment ([Open Access](#))

(2013) *American Journal of Infection Control*, 41 (1), pp. 8-13. Cited 58 times.
doi: 10.1016/j.ajic.2011.12.018

[View at Publisher](#)
-

- 34 Locatelli, S.M., LaVela, S.L., Gosch, M.
Health care workers' reported discomfort while wearing filtering face-piece respirators ([Open Access](#))
- (2014) *Workplace Health and Safety*, 62 (9), pp. 362-368. Cited 30 times.
<http://www.healio.com/nursing/journals/aaohn/2014-9-62-9/%7B10760e57-cea1-4eb9-9a37-4c339440b453%7D/health-care-workers-reported-discomfort-while-wearing-filtering-face-piece-respirators.pdf>
doi: 10.3928/21650799-20140804-03
- [View at Publisher](#)
-
- 35 Çiriş Yildiz, C., Ulaşlı Kaban, H., Tanriverdi, F.Ş.
COVID-19 pandemic and personal protective equipment: Evaluation of equipment comfort and user attitude ([Open Access](#))
- (2022) *Archives of Environmental and Occupational Health*, 77 (1), pp. 1-8. Cited 17 times.
<http://www.tandfonline.com/action/aboutThisJournal?journalCode=vaeh20>
doi: 10.1080/19338244.2020.1828247
- [View at Publisher](#)
-
- 36 Or, P.P.L., Chung, J.W.Y., Wong, T.K.S.
A study of environmental factors affecting nurses' comfort and protection in wearing N95 respirators during bedside procedures ([Open Access](#))
- (2018) *Journal of Clinical Nursing*, 27 (7-8), pp. e1477-e1484. Cited 17 times.
www.blackwellpublishing.com/journal.asp?ref=0962-1067
doi: 10.1111/jocn.14268
- [View at Publisher](#)
-
- 37 Lee, K., Slavcev, A., Nicas, M.
Respiratory Protection Against Mycobacterium tuberculosis: Quantitative Fit Test Outcomes for Five Type N95 Filtering-Facepiece Respirators ([Open Access](#))
- (2004) *Journal of Occupational and Environmental Hygiene*, 1 (1), pp. 22-28. Cited 55 times.
doi: 10.1080/15459620490250026
- [View at Publisher](#)
-
- 38 Foereland, S., Robertsen, O., Hegseth, M.N.
Do Various Respirator Models Fit the Workers in the Norwegian Smelting Industry? ([Open Access](#))
- (2019) *Safety and Health at Work*, 10 (3), pp. 370-376. Cited 15 times.
<http://www.e-shaw.org/>
doi: 10.1016/j.shaw.2019.06.004
- [View at Publisher](#)
-

- 39 Zhuang, E., Chen, H.H., Kolesnik, O., Hines, S.E.
Tolerability, user acceptance and preference for a novel reusable respirator among health care workers ([Open Access](#))

(2022) *American Journal of Infection Control*
<http://www.journals.elsevier.com/ajic-american-journal-of-infection-control/>
doi: 10.1016/j.ajic.2022.09.006

View at Publisher
-
- 40 Cramer, M.E., Wendl, M.J., Sayles, H., Duysen, E., Achutan, C.
Knowledge, Attitudes, and Practices for Respiratory and Hearing Health among Midwestern Farmers ([Open Access](#))

(2017) *Public Health Nursing*, 34 (4), pp. 348-358. Cited 13 times.
www.blackwellpublishing.com/journal.asp?ref=0737-1209
doi: 10.1111/phn.12306


View at Publisher
-
- 41 Hegseth, MN, Robertsen, Ø, Aminoff, A, Vangberg, HCB, Føreland, S.
Reasons for not using respiratory protective equipment and suggested measures to optimize use in the Norwegian silicon carbide, ferro-and silicon-alloy industry
(2018) *Infacon XV: international ferroalloys congress*. Cited 4 times.
Jones RT, den Hoed, editors. Feb 25-28. Cape Town, South Africa
-
- 42 Gutierrez, A.M.J.A., Galang, M.D., Seva, R.R., Lu, M.C., Ty, D.R.S.
Designing an improved respirator for automotive painters ([Open Access](#))

(2014) *International Journal of Industrial Ergonomics*, 44 (1), pp. 131-139. Cited 22 times.
doi: 10.1016/j.ergon.2013.11.004

View at Publisher
-
- 43 Garcia Godoy, L.R., Jones, A.E., Anderson, T.N., Fisher, C.L., Seeley, K.M.L., Beeson, E.A., Zane, H.K., (...), Sullivan, P.D.
Facial protection for healthcare workers during pandemics: A scoping review ([Open Access](#))

(2020) *BMJ Global Health*, 5 (5), art. no. e002553. Cited 84 times.
gh.bmj.com/
doi: 10.1136/bmjgh-2020-002553

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