TECHNOSTRESS AMONG HEALTHCARE WORKERS (HCWS) AT THE STATE HOSPITALS IN KLANG VALLEY AND EAST MALAYSIA

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SUMMARY

Technostress is a as psychological state associated by increased use of advanced computer technologies which involves workers in all fields. This study aimed is to determine the association between technostress among HCWs in Klang Valley and East Malaysia. Data for the mean and standard deviation (SD) score based on the Technostress scale or Techno–stress creators' questions that consist of 6 categories was calculated using SPSS version 22.0. Overall, HCWs was observed with medium level of technostress. This finding suggests an early sign of the technostress among HCWs which might lead to the mental health issues such as depression, anxiety, and others. The intervention is needed to decrease the technostress level and help the HCWs to provide better or effective health services to the public.

Keywords: technostress, healthcare workers, information technology, Malaysia

INTRODUCTION

Technostress is defined as mental stress related to technology use with excessive physiological and emotional arousal (1). Currently, there has been an accelerated development and adaptation on the use of health information technology. There are varying degrees of evidence about the impact of health information technology on patient health. Since the COVID-19 pandemic, most work process has adapted the use of information and communication technologies (ICTs) such as telemedicine. This may lead to increase use of online working environments in health sector among HCWs. Therefore, this study aim to determine the prevalence of technostress among HCW in Klang Valley and East Malaysia.

METHODOLOGY

- A cross sectional study was conducted using proportionate quota sampling. Data was collected from HCWs who are currently working in State Hospital around Klang Valley (Hospital Tengku Ampuan Rahimah Klang, Kajang and Kuala Lumpur) and East Malaysia (Hospital Umum Sarawak and Queen Elizabeth, Sabah).

- They were eligible for this study if they are in service at the index hospital for a minimum of two years.

- Respondents answered the questionnaire via online survey. Data for the mean score based on the Technostress scale or Techno–stress creators' questionnaire that been developed and validated by Tarafdar et al. (2007) (2) was used in this study.

- This questionnaire consists of 6 domains: (1) Techno-overload, (2) Techno-invasion, (3) Techno-complexity, (4) Techno-insecurity, (5) Techno-uncertainty and (6) Total of technostress scale. Mean score was calculated to determine the level of technostress which was categorized into three levels (low: 1.00 – 2.33, medium: 2.34 – 3.66 and high: 3.67 – 5.00).

- Data on sociodemographic characteristics was also analysed using SPSS version 22.0.

RESULTS & DISCUSSION

A total of 582 HCWs were included in the study of which 339 (58.2%) respondents were from Klang Valley while 243 (41.8%) from East Malaysia. Most of the respondents who participated in this study were female (450 or 77.5%), Malay (291 or 50.0%), paramedic (295 or 50.7%), and monthly household income less than RM4,850.00 (262 or 45.0%). Detailed on the sociodemographic data for the state hospital in Klang Valley and East Malaysia is depicted in Table 1.

Total of technostress scale for both HCWs in Klang valley and East Malaysia revealed most of the respondents had medium level of technostress, 418 (71.8%) followed by low, 92 (15.8%) and high level of technostress, 72 (12.4%). When a separate analysis for Klang Valley and East Malaysia was performed, similar findings were also seen. The detail finding on the technostress level among HCWs at the state hospitals in Klang Valley and East Malaysia is shown in Table 2. This study could not identify any association between level of technostress in Hospital in Klang Valley and East Malaysia (p = 0.061).

HOSPITAL	Klang Valley, n (%)	East Malaysia, n (%)	Total, n (%)
Respondent	339 (58.2)	243 (41.8)	582 (100.0)
Sex			
Male	81 (24.0%)	50 (20.6%)	132 (22.5%)
Female	257 (76.0%)	193 (79.4%)	450 (77.5%)
Ethnicity			
Malay	242 (71.4)	49 (20.2)	291 (50.0)
Chinese	26 (7.7)	32 (13.2)	58 (10.0)
India	51 (15.0)	9 (3.7)	60 (10.3)
Bumiputera Sabah & Sarawak	15 (4.4)	141 (58.0)	156 (26.8)
Others	5 (1.5)	12 (4.9)	17 (2.9)
Profession			
Doctor	149 (44.0)	56 (23.0)	205 (35.3)
Paramedic	132 (38.9)	163 (67.1)	295 (50.7)
Technical staff	26 (7.7)	15 (6.2)	41 (7.0)
Administration staff	29 (8.6)	9 (3.7)	38 (6.5)
Pharmacist	3 (0.9)	0 (0.0)	3 (0.5)
Monthly household			
B40 (<RM4,850)	137 (40.4)	125 (51.4)	262 (45.0)
M40 (RM4,851 – RM 10,970)	156 (46.0)	95 (39.1)	251 (43.1)
T20 (10,971 and above)	46 (13.6)	23 (9.5)	69 (11.9)

Table 1: Sociodemographic data among HCWs at the state hospitals in Klang Valley and East Malaysia

Techno-stress creators	Technostress level	Klang Valley, n (%)	East Malaysia, n (%)	Overall, n (%)
Techno-overload	Low	55 (16.2)	35 (14.4)	90 (15.5)
	Medium	158 (46.6)	120 (49.4)	278 (47.8)
	High	126 (37.2)	88 (36.2)	214 (36.8)
Techno-invasion	Low	72 (21.2)	44 (18.1)	116 (19.9)
	Medium	129 (38.1)	85 (35.0)	214 (36.8)
	High	138 (40.7)	114 (46.9)	252 (43.3)
Techno–complexity	Low	97 (28.6)	63 (25.9)	160 (27.5)
	Medium	177 (52.2)	129 (53.1)	306 (52.6)
	High	65 (19.2)	51 (21.0)	116 (19.9)
Techno–insecurity	Low	176 (51.9)	118 (48.6)	294 (50.5)
	Medium	148 (43.7)	110 (45.3)	258 (44.3)
	High	15 (4.4)	15 (6.2)	30 (5.2)
Techno–uncertainty	Low	92 (27.1)	38 (15.6)	130 (22.3)
	Medium	170 (50.1)	139 (57.2)	309 (53.1)
	High	77 (22.7)	66 (27.2)	143 (24.6)
Total	Low	60 (17.7)	32 (13.2)	92 (15.8)
	Medium	242 (71.4)	176 (72.4)	418 (71.8)
	High	60 (17.7)	35 (14.4)	72 (12.4)

Table 2: Prevalence of the technostress level among HCWs at the state hospitals in Klang Valley and East Malaysia

Overall, this study identified the prevalence of technostress level among HCWs who worked at the state hospital in Klang Valley and East Malaysia is at medium level. This result is almost similar as the finding that been reported previously in Egyptian (3). The technostress among HCWs is reported to be significantly higher than other occupations. It is possibly due to the higher job requirements, including clinical practice and teaching among HCWs (4). On a separate note, technostress is described by scientists as the dark side of technology use (5) which effect all the occupations including the HCWs. This include the used of the telemedicine and online meetings which is reported to have an increase to ten folds during the COVID-19 pandemic (2).

Finding of this study may suggest the early signs of the burnout which is significantly predicted the inflammatory cytokines for example TNF-a, IL6, and CoQ10 (6, 7, 8). These cytokines precipitate with the behavioral manifestations, such as fatigue, diminished appetite, and depression (9).

CONCLUSION

HCWs reported with moderate-to-high level of technostress which might lead to the burnout. The support from the hospital and psychological are needed to overcome this problem.

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