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RESEARCH ARTICLE

PSYCHOLOGICAL IMPACT OF COVID 19 PANDEMIC ON HEALTH CARE WORKER IN A TERTIARY CARE HOSPITAL : A CROSS SECTIONAL STUDY

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Abstract

Background: Corona virus disease 2019 (COVID-19) pandemic caused health crisis. It is important to assess the status of stress, depression and anxiety among medical health care worker (HCWs).

Material and Methods: A cross sectional study based on online questionnaire wherein sample size was 160, and HAMD, HAMA and PSS questionnaire was applied and also a self made questionnaire was applied to assess the strategies to cope with covid stress, it consists of 3 items. Data analysed using SPSS software variables compared by using Chi-square/Fisher's exact test. Student's *t*-test was used to compare mean values in the two independent groups, and one-way ANOVA was used for more than two groups. The variables with $P < 0.05$ were considered as statistically significant.

Result: A total of 160 sample included, in which 94 (58.1%) were medical staff and 66 (41.25%) were administrative staff. Significant difference was noted in sex(p= 0.004), educational status(p= 0.000), monthly income(p= 0.000), high risk exposure(p= 0.000) and contact with COVID positive suspect or case(p=0.000).There were significant difference noted in depression, anxiety and stress scale as compared to the administrative staff group (p = 0.004, p= 0.004 and p= 0.007) respectively.

Conclusions: During this COVID-19 pandemic, HCWs reported a high prevalence of depression, anxiety and stress than the administrative

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Introduction:-

COVID-19 declared as pandemic on March 11, 2020 (Organization, 2020).[1] Health care workers(HCWs) are highly vulnerable to both high risk of contamination and emotional well-being issues. Therefore, the burden of psychological impact was high compared to the general population.[2,3] There were similar worries of mental health problems noted during the swine flu pandemic in 2019[4] and during the outbreaks of severe acute respiratory syndrome (SARS) and the Middle East respiratory syndrome (MERS).[5,6]

This study explores the psychological status of the medical workforce to get a deep insight regarding depression, anxiety and stress status among health care worker.

Material And Methods:-

It was a questionnaire based descriptive cross- sectional study carried out between March to July 2020.

Study Population-

This study was conducted among medical health personal which included doctors, nurses, medical technician and non medical health personnel included allied health professionals, pharmacists, administrative staff, security staff, and housekeeping workers.

Medical workforce from a Tertiary hospital in Bihar region fighting against COVID 19 have included in this study.

Study tools-

A self-administered online questionnaire was prepared for data collection with Google form. To minimize human contact and maintain social distancing online platform was used. The study questionnaire was in English and Hindi. Each respondent was asked to complete four main component of the questionnaire, namely sociodemographic characteristics, HAMD, HAMA and PSS questionnaire.

Sociodemographic performa contains gender, age, marital status, residential status, educational status, profession, working experience, economical status, where do they stay, alcohol consumption, cigarette smoking, medical history (comorbidities), have worked in isolation wards or involved in high risk procedure etc.

To assess the depression and anxiety HAM-D (Hamilton Depression scale) and Hamilton Anxiety Scale (HAM-A) were used and for stress PSS (Perceived stress scale).

HAM-D contains 17 questions, each question includes 5 items. The total score of HAM-D can be classified into normal (score 0–6), mild and moderate (score 7–23), severe depression (score ≥ 24).

The HAM-A scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety. Overall, the total score of HAMA is operationally categorized as follows: no anxiety (score 0–6), mild and moderate anxiety (score 7–13), severe anxiety (score ≥ 14).

Perceived Stress Scale (PSS):Emotional stress of COVID-19 was evaluated using a perceived stress scale (PSS). The PSS consisted of 14 items scored between 0 to 13 as low stress, 14-26 as moderate stress and 27-40 as high perceived stress.

Lastly, a small section was included, strategies to cope with covid stress, it consists of 3 items.

Medical professional included those who were involved in direct patient care as a part of their routine like doctors, nurses, medical technician and non-medical included allied health professionals, pharmacists, administrative staff, security staff, and housekeeping workers.

High risk exposure applied to working in isolation ward, CCU/ICU set, surgical department and fever clinics.

Data analysis

Data were analysed using Statistical Package for the Social Science software (SPSS Inc.,Released 2007.SPSS for Window,Version 20,Chicago). Association of categorical variables among the groups was compared by using Chi-square/Fisher's exact test. Student's *t*-test was used to compare mean values in the two independent groups, and one-way ANOVA was used for more than two groups. The variables with $P < 0.05$ were considered as statistically significant.

Results:-

Participants characteristics-

A total of 164 were surveyed, and of which 160 questionnaires were completely and properly filled and returned, giving a response rate of 97.56%.

The respondents were compromised of 94 (58.1%) medical staff (Doctors and nurse) and 66 (41.25%) administrative state (medical technician and hospital staff). There were 90 (56.25%) men and 70 (43.75%) female. The details of demographic characteristics were presented in table1.Majority of participants (58.12%) were in the age range of 20-35. A total of 53.19% and 30.3% of female participants were found in both medical and non medical health care personnel. The leading age- band was 20-35 years old accounting approximately 58.12% in both groups. In comparison with the administrative staff group, the medical staff group presented with a higher duration of education ($p < 0.000$).

There was significant difference in sex, education status, monthly income, high risk exposure and contact with COVID positive suspect or case.

There was no significant difference in marital status, residential status, profession, alcohol consumption, cigarette smoking, with whom they stay and existing medical comorbidities.

Table 1:- Participant characteristics at baseline.

Variables	**Medical health personnel (n = 94)**	**Non medical health personnel (n =66)**	**P value**	**X^2**
Sex			**0.004**	8.254
Male	44(48.35%)	46 (69.9%)		
Female	50(53.19%)	20(30.30%)		
Median age (in years)			0.612	
20-35	56(59.57%)	37(56.06%)		
36-50	37(39.36%)	29(43.93%)		
51-60	01(1.06%)	00		
Marital status			0.153	0.981
Married	65(69.14%)	52(78.78%)		
Unmarried,	29(30.85%)	14(21.21%)		
Divorced,separated,widowed	-			
Residential status			0.287	2.494
Rural	08(8.51%)	03(4.54%)		
Suburban	09(9.57%)	11(16.66%)		
Urban	77(81.91%)	52(78.78%)		
Educational status			**0.000**	94.061
< matriculation	00	13(19.69%)		
Matriculation-12th pass	01(1.06%)	31(46.96%)		
Graduate	30(31.91%)	18(27.27%)		
Post graduate	63(67.02%)	04(6.06%)		
Working experience			**0.002**	15.404
(in years)	48(51.06%)	18(27.27%)		
< 5	21(22.34%)	32(48.48%)		
5-10	18(19.14%)	08(12.12%)		
10-19	07(7.44%)	08(12.12%)		
>20				
Monthly income			**0.000**	69.093
<5k/month	08(8.51%)	03(4.54%)		
5-15k/month	11(11.70%)	45(68.18%)		
15-50k/month	21(22.34%)	16(24.24%)		
>50k/month	54(57.44%)	02(3.03%)		
With whom you stay			**0.011**	6.466
With family member	63(67.02%)	56(84.84%)		
Alone	31(32.97%)	10(15.15%)		

Alcohol consumption None Occasionally < 3times per week > 3times per week	 77(81.91%) 17(18.08%) - 	 51(77.27%) 15(22.72%) - -	0.470	0.522
Ciggrate smoking None Occasionally < 10 cigareete per week > 10 cigareete per week	 79(84.04%) 15(15.95%) - -	 54(81.81%) 09(13.63%) 02(3.03%) 01(1.51%)	0.218	4.435
H/o Medical comorbidity (HTN, Hyperlipidemia, D.M, Asthma, Migraine Ischemic heart disease) No medical comorbidity	 31(32.97%) 63(67.02%)	 15(22.72%) 51(77.27%)	0.158	1.98
High risk exposure- isolation ward, surgical intervention, CCU/ICU, fever clinic etc YES NO	 64(68.08%) 30(31.91%)	 19(28.78%) 47(71.21%)	**0.000**	23.985
Have you come across a suspected/confirmed COVID case YES NO	 63(67.02%) 31(32.97%)	 21(31.81%) 45(68.18%)	**0.000**	19.269

Average distribution of depression, anxiety and stress

To explore the psychological status of medical workforce after the occurrence of coronavirus pneumonia, we investigated the mean of depression, anxiety and stress among these individuals using questionnaires.

As shown in Table 2, the score of depression, anxiety and stress scale was significantly enhanced as compared to the administrative staff group ($p = 0.004$, $p= 0.004$ and $p= 0.007$) respectively and there is showing medical health care personnel having a depression is 15.138 times higher, 14.180 times feeling of anxiety and stress is 5.140 times higher among them.

Table 2:- Comparison the average level of depression, anxiety, stress between Medical health care personnel and Non-Medical health care personnel.

Variables	**Medical health care personnel 95% CI of mean**		**Non-Medical health care personnel 95% CI of mean**		**Test of significance**	**P- value**	**X^2**
	Lower bound	**Upper bound**	**Lower bound**	**Upper bound**			
HAM D	2.148	3.988	2.224	3.912	Independent t test (f=8.545)	**0.004**	15.138
HAM A	2.127	3.967	2.203	3.891	Independent t test (f=8.47)	**0.004**	14.180
PSS	3.090	5.104	3.164	5.031	Independent t test (f=7.600)	**0.007**	5.140

Comparison of psychological status based on working department

To provide a better understanding of the results, further research was necessary including engaging in several departments to review the psychological stress, anxiety and depression level. SARS-CoV-2 was a highly contagious respiratory virus and will be transmitted easily by droplets (Jiang et al., 2020a).[7] We further divided all the participants into three subgroups according to the possibility to contact with coronavirus pneumonia patients of their departments: high-risk contact (working in department of respiratory, emergency, ICU and infectious disease), low-risk contact (working in the other clinical departments), and non-clinical (working in administrative, technical operation). As shown in Table 3, there were no significant differences noted in depression (p=0.617), anxiety (p=0.069) and stress (p= 0.098) among three subgroups. Additionally, comparisons of three subgroups with each other, the staff working in the departments with high-risk contact with patients exhibited greater depression, anxiety and fear than those non-clinical staff.

Table 3:- Comparison of depression, anxiety and stress among different departments.

Variables	High risk contact	Low risk contact	Non clinical	P-value
HAM D	2.59 ± 0.718	2.43 ± 0.514	2.40 ± 0.548	0.617
HAM A	2.61 ± 0.719	2.32 ± 0.477	-	0.069
HAM A	2.59 ± 0.703	2.14 ± 0.378	-	0.098

Strategies to cope with covid stress

Figure 1 shows distribution of behavioral factors related to covid among study participants. Responses were further sub categorized into always, sometime, often and never. In this study nearly 46% participants were spent time to read about COVID, its prevention and the mode of transmission always, 28% were oftenly read, 19% sometimes and 7% were not indulge in reading or following any prevention measure. Regarding avoiding going public places, 46% of the study participants were completely avoid, 28% often used to go, 16% sometime went out and 10% were never stopped visiting public places. Whereas 32% participants were constant on media news updates and 26% often respectively. A total of 16% of the study participants were completely avoided media news.

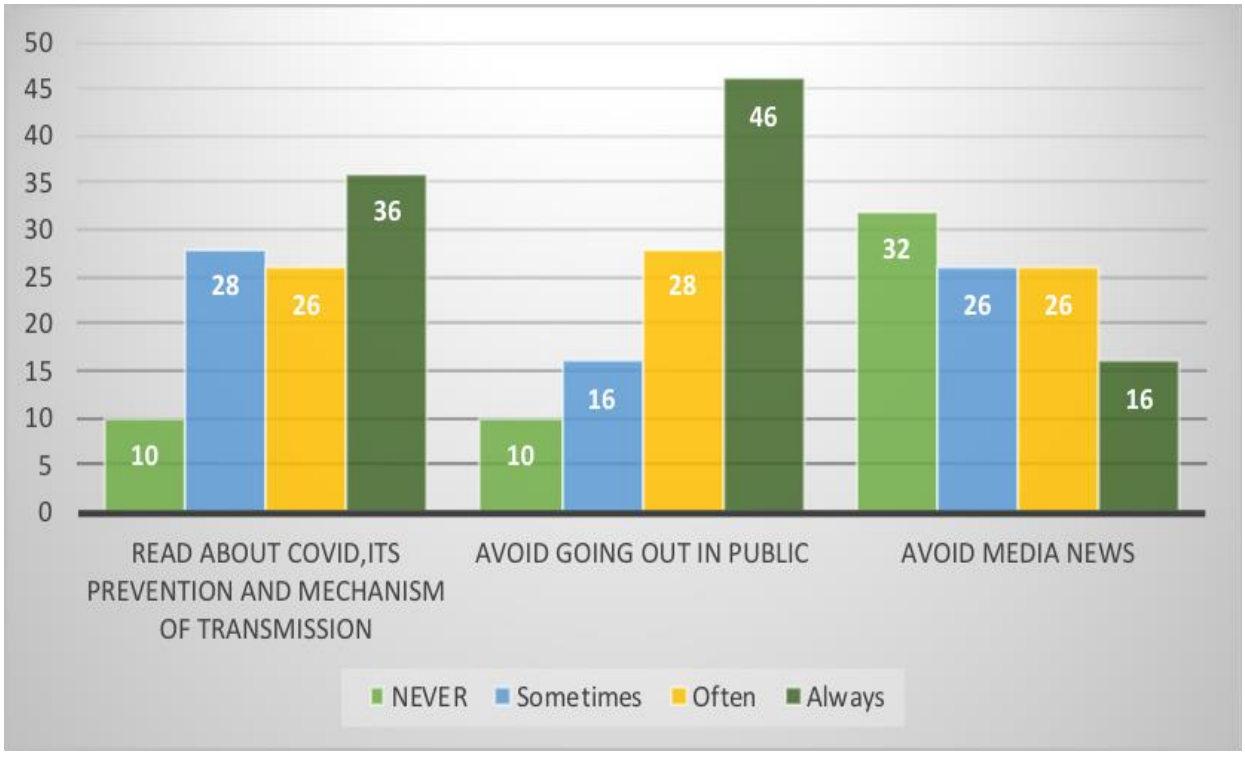

Figure 1:- Distribution of behavioral factors related to COVID among study participant.

Discussion:-

From a data analysis perspective, comparing the average values of stress, anxiety and depression between two groups, medical staff unfolded greater depression, anxiety and stress than administrative staff ($p<004$, $p<.004$, $p<.007$). similar finding were also obtained, which shows considering that HCWs are by and large at a higher risk of exposure to the infection, they may likewise encounter nervousness about one's own wellbeing and about communicating the contamination to friends and family. Similarly, many published studies have assessed the psychological impact of COVID-19 and have also found high levels of psychological distress.[8-13] Significant psychological distress and post-traumatic stress in HCWs also have been accounted for during the episode of SARS in 2002 to 2003 as well.[14-16] HCWs who are directly involved within the prevention, diagnosis, treatment and care of patients with COVID-19 could be at high risk of developing anxiety and stress.[17] This psychological pressure can reduce the health care services of the patients.[18] If anxiety is left untreated, it is likely to have long-term health effects and prevent them from fulfilling their duties, including the operations aimed at optimal control of the COVID-19 pandemic.[17] The psychological status impacted by enormous factors like the rapid increase in the number of confirmed COVID-19 cases, shortage of medical instruments, broad media inclusion, absence of explicit medications, and lack of social support, discrimination and stigma.[2,8,18] may all add to the mental burden of these health care workers.

The further analysis presented that the medical staff working in those departments close contacted with coronavirus pneumonia patients, such as respiratory department, emergency department, intensive care unit, and infectious diseases department, revealed more psychological disorders, compared to the non-clinical staff with hardly possibility to contact with coronavirus pneumonia patients.

As, SARS-CoV-2 highly infectious and spreads rapidly, front line health workers were bearing significantly increased workload. Directly contacting with confirmed patients, the shortage of protective equipment, suspected patients are concealing their medical history, all of those could increase the risk of being infected for them. Besides, they were afraid of bringing the virus to families and incapability when facing with critical patients. The greater number of these hurdles that they experienced, the greater likelihood that they felt incapable of reaching their aspirations. The resulting strain may then, in turn, be internalized and create anxiety and depression.[19,20]

These specific situations posed considerable stress on them, which could cause high levels of psychological distress. Our discussion was consistent with studies regarding epidemic of SARS and MERS.[6,21] The Indian government has initiated strategies to emphasis the control of transmission, and issued numbers of documents calling for attention to the mental and physical health of medical staff, even offered a series of supports and encouragements, like provide an area for rest with food and supplies, replenished the protective equipment, medical team reinforcements, and strengthened security forces to maintain the order of medical treatment. The symptoms may worsen as the caseload increases.

The interventions for the psychological problem due to COVID-19 needs to be prioritized. The programs need to consider mental health programs at work sites, tele-conversations, and periodic counseling by psychiatrists and clinical psychologists to address the issue. The work at the institutional level may be decreased or periodic shifts to be implemented to reduce the stress.[22] As very few had explored the psychological status between medical staff and administrative staff during SARS-CoV-2 pandemic in INDIA especially in the Bihar region.

Conclusion:-

During this COVID-19 pandemic, HCWs reported a high prevalence of depression, anxiety and stress than the administrative staff.

Moreover, the frontline medical staff working in department of respiratory, emergency, ICU and infectious disease, were twice more likely to suffer anxiety and depression than the non-clinical staff with hardly any possibility of coming to contact with coronavirus pneumonia patients. The government need to explore in-depth on psychological impact on health care worker. The necessary strategies needs to be formed to promote mental well-being among HCWs. Special attention needs to be paid to health care workers by providing counselling at each health service venue. Improved facilities and tools to improve security for health care providers.

References:-

1. Organization https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen. Published 2020. Accessed 13 March 2020. - Bing [Internet]. [cited 2021 Oct 21]. Available from: https://www.bing.com/search?q=Organization+https%3A%2F%2Fwww.who.int%2Femergencies%2Fdiseases%2Fnovel-coronavirus-2019%2Fevents-as-they-happen.+Published+2020.+Accessed+13+March+2020.&pc=COS2&ptag=D071221-N0340AD42D1DB7E9&form=CONBDF&conlogo=CT3334497
2. Si M-Y, Su X-Y, Jiang Y, Wang W-J, Gu X-F, Ma L, et al. Psychological impact of COVID-19 on medical care workers in China. Infect Dis Poverty. 2020 Aug 12;9(1):113.
3. (PDF) Determinants psychological distress of indonesian health care providers during COVID-19 pandemic [Internet]. [cited 2021 Oct 21]. Available from: https://www.researchgate.net/publication/343180560_Determinants_psychological_distress_of_indonesian_health_care_providers_during_COVID-19_pandemic
4. Matsuishi K, Kawazoe A, Imai H, Ito A, Mouri K, Kitamura N, et al. Psychological impact of the pandemic (H1N1) 2009 on general hospital workers in Kobe. Psychiatry Clin Neurosci. 2012;66(4):353–60.
5. Tam: Severe acute respiratory syndrome (SARS) in... - Google Scholar [Internet]. [cited 2021 Oct 21]. Available from: https://scholar.google.com/scholar_lookup?journal=Psychol+Med&title=Severe+acute+respiratory+syndrome+(SARS)+in+Hong+Kong+in,+2003:+stress+and+psychological+impact+among+frontline+healthcare+workers.&author=CWC+Tam&author=EPF+Pang&author=LCW+Lam&author=HFK.+Chiu&volume=34&issue=7&publication_year=2004&pages=1197-1204&pmid=15697046&doi=10.1017/S0033291704002247&
6. Lee SM, Kang WS, Cho A-R, Kim T, Park JK. Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. Compr Psychiatry. 2018 Nov 1;87:123–7.
7. Jiang F, Deng L, Zhang L, Cai Y, Cheung CW, Xia Z. Review of the Clinical Characteristics of Coronavirus Disease 2019 (COVID-19). J Gen Intern Med. 2020 May;35(5):1545–9.
8. Lai: Factors associated with mental health outcomes... - Google Scholar [Internet]. [cited 2021 Oct 21]. Available from: https://scholar.google.com/scholar_lookup?journal=JAMA+Netw+Open&title=Factors+associated+with+mental+health+outcomes+among+health+care+workers+exposed+to+coronavirus+disease+2019&author=J+Lai&author=S+Ma&author=Y+Wang&author=Z+Cai&author=J+Hu&volume=3&issue=3&publication_year=2020&doi=10.1001/jamanetworkopen.2020.3976&
9. Zhang W, Wang K, Yin L, Zhao W, Xue Q, Peng M, et al. Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in China. Psychother Psychosom. 2020;89(4):242–50.
10. Zhu: Prevalence and influencing factors of anxiety... - Google Scholar [Internet]. [cited 2021 Oct 21]. Available from: https://scholar.google.com/scholar_lookup?journal=Front.+Psychiatry&title=Prevalence+and+influencing+factors+of+anxiety+and+depression+symptoms+in+the+first-line+medical+staff+fighting+against+COVID-19+in+Gansu&author=J+Zhu&author=L+Sun&author=L+Zhang&author=H+Wang&author=A+Fan&volume=11&publication_year=2020&pages=386&pmid=32411034&doi=10.3389/fpsyt.2020.00386&
11. Raj R, Koyalada S, Kumar A, Kumari S, Pani P, Nishant, et al. Psychological impact of the COVID-19 pandemic on healthcare workers in India: An observational study. J Fam Med Prim Care. 2020 Dec 31;9(12):5921–6.
12. Grover S, Sahoo S, Mehra A, Avasthi A, Tripathi A, Subramanyan A, et al. Psychological impact of COVID-19 lockdown: An online survey from India. Indian J Psychiatry. 2020;62(4):354–62.
13. Gupta AK, Mehra A, Niraula A, Kafle K, Deo SP, Singh B, et al. Prevalence of anxiety and depression among the healthcare workers in Nepal during the COVID-19 pandemic. Asian J Psychiatry. 2020 Dec;54:102260.
14. Psychological impact of the 2003 severe acute respiratory syndrome outbreak on health care workers in a medium size regional general hospital in Singapore | Occupational Medicine | Oxford Academic [Internet]. [cited 2021 Oct 21]. Available from: https://academic.oup.com/occmed/article/54/3/190/1390874?login=true
15. May RM, McLean AR, Pattison J, Weiss RA, Maunder R. The experience of the 2003 SARS outbreak as a traumatic stress among frontline healthcare workers in Toronto: lessons learned. Philos Trans R Soc Lond B Biol Sci. 2004 Jul 29;359(1447):1117–25.
16. The Psychological Impact of the SARS Epidemic on Hospital Employees in China: Exposure, Risk Perception, and Altruistic Acceptance of Risk - Ping Wu, Yunyun Fang, Zhiqiang Guan, Bin Fan, Junhui Kong,

Zhongling Yao, Xinhua Liu, Cordelia J Fuller, Ezra Susser, Jin Lu, Christina W Hoven, 2009 [Internet]. [cited 2021 Oct 21]. Available from: https://journals.sagepub.com/doi/abs/10.1177/070674370905400504
17. Kibret S, Teshome D, Fenta E, Hunie M, Tamire T. Prevalence of anxiety towards COVID-19 and its associated factors among healthcare workers in a Hospital of Ethiopia. PloS One. 2020;15(12):e0243022.
18. Teshome A, Glagn M, Shegaze M, Tekabe B, Getie A, Assefa G, et al. Generalized Anxiety Disorder and Its Associated Factors Among Health Care Workers Fighting COVID-19 in Southern Ethiopia. Psychol Res Behav Manag. 2020 Nov;Volume 13:907–17.
19. Liu Y, Zhang J, Hennessy DA, Zhao S, Ji H. Psychological strains, depressive symptoms, and suicidal ideation among medical and non-medical staff in urban china. J Affect Disord. 2019 Feb 15;245:22–7.
20. Secondary stressors are associated with probable psychological morbidity after flooding: a cross-sectional analysis | European Journal of Public Health | Oxford Academic [Internet]. [cited 2021 Oct 21]. Available from: https://academic.oup.com/eurpub/article/27/6/1042/4566124?login=true
21. Post-SARS Psychological Morbidity and Stigma Among General Practitioners and Traditional Chinese Medicine Practitioners in Singapore.
22. Current Psychosomatic Practice - Abstract - Psychotherapy and Psychosomatics 2017, Vol. 86, No. 1 - Karger Publishers [Internet]. [cited 2021 Oct 21]. Available from: https://www.karger.com/Article/Abstract/448856