ORIGINAL RESEARCH PAPER

Psychiatry

IMPACT OF VACCINATION ON COVID APPROPRIATE BEHAVIOUR AMONG THE JUNIOR RESIDENTS OF A MEDICAL COLLEGE IN BENGALURU.

KEY WORDS: vaccination, covid protocols, psychiatric illnesses.

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ABSTRACT

Background:The outbreak of COVID 19 had impacted the existence of millions of people. Residents of medical colleges have been one among the frontline workers during the COVID 19. Physical exhaustions, burnouts significantly affected the physical and mental health of the residents. The aim of the study was to investigate the effectiveness of vaccine in adherence to COVID appropriate behavior, mental illness and professional quality of life among the junior residents. A Comparative cross-sectional study was among 176 junior residents of a medical college in Bengaluru. Data was collected through a self-structured questionnaire with sociodemographic profile, Depression Anxiety Stress Scale and Professional Quality of Life. Since vaccination helped reduced anxiety, traumatic stress and depression whereas improved compassion satisfaction in the residents, the impact and interplay between vaccines and adherence to preventive measures are complicated and needs to be studied well to develop strategies to imbibe benefits of both these measures to douse this covid-19 pandemic.

INTRODUCTION

Lately, the outbreak of COVID 19 had impacted the existence of millions of people. It had significantly strained physical and psychological health[1]. WHO had proposed various restrictive measures in view of controlling the spread of the disease[2].Medical college residents are one among the frontline workers and it had affected their lives both personally and professionally[3]. During the pandemic, the health care workers had faced various challenges in terms of increased work-load, decreased rest, impacting on their health and leading to a plunge in the health care system [4]. Physical exhaustions and burnouts, inadequate personal care, isolation from family during the pandemic had made the residents vulnerable to various mental illnesses like Anxiety, Depression, insomnia and stress[5]. Personal and work-related loss had impacted their physical and mental health as well[6]. Although usage of PPE kits along with N95 masks or triple layered masks had been the measures followed during the pandemic, immunization was the preferred method of protection. A nationwide vaccination programme was initiated prioritizing the frontline workers [7], this could have influenced their covid appropriate behaviour.

METHODOLOGY

A Cross sectional comparative study conducted over a duration of six months among the residents of Rajarajeswari medical college and hospital in Bengaluru in 2022. Residents were chosen by convenient sampling technique. A questionnaire was developed to study the socio-demographic profile, vaccination status including the safety measure practices. Standardized questionnaires like Depression anxiety and stress scale(DASS-21)[8],professional quality of life questionnaire (Pro-QOL)[9] was used to assess their stress, depression and quality of life respectively. Data was analysed using descriptive and inferential statistics using statistical software SPSS-V23.

By descriptive statistics, data was summarized using frequencies and percentages. By inferential statistics, all behavioural changes with respect to post vaccination was estimated in one group. Considering the total number of junior residents 310. Sample size was calculated using the formula

- n=N/1+Ne2

Where N is the population size, e is the margin of error [ME] (for 95% confidence interval , ME=0.05). sample size for the study was 176.

IEC approval was obtained and consent was taken from the junior residents of the medical college.

RESULTS

Table 1

Comparison of the responses to questions on Adherence to COVID behaviour Protocol between Pre & Post Vaccination period

Questions	Responses	Pre-Vaccination		Post-Vaccination		p-value
		n	%	n	%	
Do you use face masks ?	Yes	171	97.2%	171	97.2%	..
	No	5	2.8%	5	2.8%	
If the answer to the above question is yes, then kindly specify	All time when I step out of house	69	40.4%	51	29.8%	0.001*
	Most of the times (only at outdoors)	46	26.9%	33	19.3%	
	Most times of the day (at home as well)	31	18.1%	52	30.4%	
	Only during social interactions	7	4.1%	20	11.7%	
	Only while going to hospital	18	10.5%	15	8.8%	
Do you maintain social distance while interacting with people?	Yes	170	96.6%	159	90.3%	0.02*
	No	6	3.4%	17	9.7%	
Do you practice handwashing / use sanitizer after coughing or sneezing?	Yes	169	96.0%	155	88.1%	0.001*
	No	7	4.0%	21	11.9%	

Table 2

Comparison of mean values of DASS-21 scale scores between Pre and Post-Vaccination time using Wilcoxon Signed Rank Test

Parameters	Time	N	Mean	SD	Mean Diff	p-value
Depression	Pre Vaccination	176	24.43	10.76	0.84	0.11
	Post Vaccination	176	23.59	9.12		
Anxiety	Pre Vaccination	176	27.60	11.06	3.91	<0.001*
	Post Vaccination	176	23.69	8.96		
Stress	Pre Vaccination	176	24.25	10.16	0.49	0.37
	Post Vaccination	176	23.76	7.75		

Table 3

Comparison of mean values of Pro-QOL scale scores between Pre and Post-Vaccination time using Wilcoxon Signed Rank Test

Parameters	Time	N	Mean	SD	Mean Diff	p-value
Compassion Satisfaction	Pre Vaccination	176	34.20	6.55	-2.14	<0.001*
	Post Vaccination	176	36.34	6.86		
Burnout	Pre Vaccination	176	29.45	2.75	0.37	0.13
	Post Vaccination	176	29.08	3.41		
Sec. Traumatic Stress	Pre Vaccination	176	33.97	9.47	1.20	0.004*
	Post Vaccination	176	32.77	7.63		

DISCUSSION

Covid -19 has affected everybody's lives especially the front line workers like the medical college residents. It had caused immense psychological stress along with physical ill health. A study conducted by Kaplan et al among the medical residents in New York showed that 29.7% showed symptoms of MDD, GAD and covid related PTSD and 35.8% had positive screening of Burnout. [10] These effects have been universal all over the world, as Rumeysa et al showed among the physicians 64.7% had depression, 51.6% anxiety and 41.2% stress before vaccination [11]. The story was same in our country, Nishi et al showed that 47%, 50% and 45% health care workers had depression, anxiety low quality of life respectively. Work-related stress was associated with 46% increased risk of combined depression and anxiety. Moreover, depression and anxiety were also associated with increased risk of low quality of life. [12] Whereas in our study it was inferred that 86.3% of medical residents had depression, 80.1% had anxiety and 95.5% were screened to have burnout. Academic stress, financial burden, staying alone and devoid of family support could contribute to these higher rates of psychological morbidity in our residents. (Table – 2&3)

As a result of COVID -19 pandemic, WHO brought-out a list of preventive measure to curb the further spread of it. Vaccines proved to be shot in the arm in this endeavour and frontline health care workers were offered the vaccines first. The impact of vaccination on the physical, psychological and emotional wellbeing of the recipient as well the effect of vaccination on the adherence to preventive measures is unclear. A cross sectional study by Tufan et al conducted among the Turkish health care workers showed positive co-relation between knowledge scores and preventive behavior. Though all the participants knew contracting COVID 19 could cause death, only 66.93% were willing to get vaccinated and the level of competence in terms of preventive behavior was low especially in males [13]. Among the vaccinated medical residents there was a significant reduction in compliance of COVID practices(Table -1) as there was a decline in the number of COVID 19 cases and anxiety of contracting the disease was reduced post-vaccination.

In Brazil a quantitative study by Victor among 3071 non-vaccinated residents showed that depression and burnouts of 70.5% and 55.1% were high among second year residents [14]. Whereas in our study it was observed that 86.3% had depression and 95.5% had burnouts in pre-vaccinated residents, however post-vaccination they decline to 75% and 90.9% respectively implying that vaccination had improved their mental health. (Table-2)

Buselli et al studied the healthcare workers exposed to COVID 19 and found a significant positive association with burnout and secondary traumatic stress. The impact of vaccine on these factors have not been well studied, and we found vaccines to have a positive influence as there was an increase in compassion satisfaction levels (0.001*) and decrease in secondary traumatic stress (0.004*) post vaccination (Table 3). A sense of success which was perceived by the direct effects of their treatment of their patients and the security provided by vaccination could contribute to this. [15]

WHO prescribed preventive measures to control the spread of infections, Raina et al conducted a study among the citizens of new York and found that there was a 20% reduction in the number of cases and death, after the usage of mask showing that non-pharmacological interventions were also required to control the pandemic. [16] The interplay between vaccination and adherence to preventive behaviour is complex and not well understood, vaccinated residents had a significant decline in adherence to COVD appropriate protocols(Table 1) as there was a reduction in the incidence of cases post vaccination and a lower levels of anxiety related to the illness might be implied for this non-adherence.

CONCLUSION

Vaccination had been the most effective means to bring the pandemic under control, but by no means it reduces the importance of COVID appropriate behaviours in seeing the end of this pandemic. Vaccination reduced anxiety, traumatic stress and depression associated with COVID while improving compassion satisfaction in the residents, implicating a positive impact. At the same time post vaccination residents were significantly more non-adherent to preventive measures which is counter-productive . Thus the impact and interplay between vaccines and adherence to preventive measures are complicated and needs to be studied well to develop strategies to imbibe benefits of both these measures to douse this pandemic.

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