ORIGINAL ARTICLE

General and Covid Anxiety: Observing the Outcome under Same Umbrella of Vaccination

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ABSTRACT

Background: Despite of our strong want, the datum is that the Covid-19 pandemic is still not over. Its physical and mental sufferings are well known. Mass vaccination is the true hope to eradicate this virus. Despite of large scale efforts, vaccination including boosters still needs optimization

Aim: To see the effect of vaccination against covid-19 on general and covid-19 related anxiety so to endorse the continuation of vaccination until the virus is completely eradicated.

Study Design: Observational, cross-sectional study

Place and Duration of Study: Shifa International Hospital Islamabad from 1st October 2021 to 31st March 2022.

Methodology: Three hundred and thirteen subjects with recent history of Covid-19 vaccination were enrolled and 281 subjects completed the survey, asked to fill out CAS (covid-19 anxiety scale) and GAD-7 (general anxiety disorder) scale based on the recall of their feelings before vaccination and then about after vaccination.

Results:. Majority were females (61.1%), had education graduation and above (71.2%), belonged to non-medical profession (71.4%). 47.3% had Covid-19 cases in family while 13.2% had covid-19 related deaths in family. Means of CAS were higher than the means of GAD-7 ($p < 0.001$). Drop in anxiety level was statistically significant for both Covid related anxiety and general anxiety after vaccination ($p < 0.05$).

Conclusion: Vaccination against covid-19 is crucial to manage Covid related and general anxieties because, future covid waves hence the anxiety waves are still expected. Bereaved families need further psychiatric support beyond vaccination to deal with their anxieties.

Keywords: Anxiety in covid, Vaccination and anxiety, Mental health in covid, Covid related anxiety

INTRODUCTION

COVID-19 not only posed serious threats to physical health but also triggered negative impacts on the social, psychological and mental health of the population.[1] The predictors of poor well-being found in a study were being a female, afraid of COVID-19, having any chronic illness, and absence of coping strategies. This demand for the development of psychological support and interventions by the policymakers, for the general population and specially for the high-risk groups.[2]

Rogowska et al[3] and Nurunnabi et al[4] found that coping strategies; exercise during lockdown; spending time with the family; taking healthy food; having a good sleep; participating in social welfare work; and spending time on their hobbies were significantly associated with better mental well-being. There were few studies conducted on a sample of university students in Poland and China, which have reported that certain coping strategies had a positive effect on mental well-being during COVID-19.

In spite of these proposed strategies, much burden of Covid related stress and anxiety has been identified in recent researches. Salari et al[5] found in their meta-analysis the prevalence of stress, anxiety and depression to be 29.6%, 31.9%, and 33.7% respectively.

Vaccination is crucial to limit the pandemic blowout of coVID-19. Therefore, besides the development and availability of vaccines, it is essential that individuals are also willing to get vaccinated.[6] However many people have fear of vaccination due to circulating myths about after effects of vaccination. So it remains difficult to estimate whether the anxiety among our society will increase or decrease after vaccination. One study on health professionals concluded that overall, the vaccination had a positive effect on the decrease of fear and anxiety levels of dental professionals.[7] We planned this study to see the direction of mental health after vaccination against covid-19 in general population so to make strategies accordingly.

MATERIALS AND METHODS

Due approval was taken from the IRB & Ethics Committee of SIH (Reg # 007-22). Sample size was calculated using Epitools, taking prevalence of Covid anxiety as 25%[8], 95% CI, 0.05 absolute precisions, 10% drop out, sample size calculated was 313. We enrolled 313 subjects who attended medical and psychiatry outpatient department from 1st October 2021 to 31st March 2022, who gave consent to participate, and who were vaccinated against covid-19 within past 6months for the first time. Anxiety was defined according to ICD-10 guidelines (a condition marked by excessive worry and feelings of fear, dread, and uneasiness that last six months or longer).[9] Two scales were used in Performa; CAS[10] (Covid-19 anxiety scale, to assess Covid related anxiety) and GAD-7[11] scale (general anxiety disorder scale, to assess general anxiety). Each scale consisted of 7 items with each item having 0, 1, 2, 3 levels on Likert scale with maximum score of 21. They were asked to fill the Performa of CAS and GAD-7 scales by recalling their feelings before vaccination. Then they were asked to again fill the CAS and GAD-7Performa based on their current feelings after vaccination. Subjects who had history of PCR positive covid-19 disease after vaccination, any level of end organ failure, malignancy, moderate to severe psychiatric known illness, current use of anxiolytics and anti-depressants were excluded. All information was entered in SPSS-23. Scores of CAS and GAD-7 before vaccination were compared with post vaccination CAS and GAD-7 scores using independent sample t-test while effect of; age, gender, profession, Covid family history and Covid family deaths on both scores was computed using paired sample t-test. The results of t-test were expressed as two-tailed significance (equal variance assumed) which less than 0.05 with 95% confidence interval was considered statistically significant.

RESULTS

The prevalence of CAS was 25.3%, 27.4%, 27%, 20.3%; minimal, mild, moderate and severe anxiety respectively while GAD-7 was 46.6%, 27.4%, 16%, 10%; minimal, mild, moderate, severe anxiety respectively (Table 1).

The means of CAS and GAD-7 before vaccination were higher than the means of CAS and GAD-7 after vaccination (p=0.000 and p=0.000 respectively). When the means of CAS before were compared with the GAD-7 before, means of CAS before were found higher (p=0.000). Similar results were seen with CAS after and GAD-7 after vaccination (p=0.000) [Table 2].

The means of CAS before and after vaccination were higher for females (p=0.000, p=0.016 respectively). However, gender did not affect the means of GAD-7 before and after vaccination (p=0.347 and p=0.578 respectively) (Table 3, Fig. 1)

The means of CAS before vaccination were not statistically different in both age groups (p=0.130) however after vaccination, means of CAS were higher for age below 40 years (p=0.020) (because the drop in anxiety score was observed more for age above 40, so the difference between the means of two age groups became statistically significant) so vaccination improved the Covid related anxiety more in elder age group. Means of GAD-7 before vaccination were not statistically different in both age groups (p=0.72). However, after vaccination, means of GAD-7 were higher for age below 40 years with borderline significance (p=0.063). So age differences were not really significant in terms of general anxiety before and after vaccination.

Table 1: Demographic features of participants

Variable	No.	%
Residence (n=258)		
Capital	89	34.5
Punjab	143	89.9
KPK	13	95.0
Others	36	12.8
Gender (n=280)		
Male	109	38.9
Female	171	61.1
Education (n=274)		
Under graduate	64	23.4
Graduate	131	47.8
Post graduate	79	28.8
Profession (n=270)		
Medical and allied	80	29.6
Non-medical	201	71.4
Vaccination type (n=280)		
Pfizer	51	18.2
Sino pharm	84	30.0
Sino vac	96	34.3
Others	50	17.8
Chronic illness (n=281)		
No	243	86.5
Yes	38	13.5
Covid cases in family (n=281)		
No	148	52.7
Yes	133	47.3
Covid deaths in family (n=281)		
No	243	86.1
Yes	38	13.2

We also computed independent sample t-test to see the effect of the profession, covid-19 cases in family and covid-deaths in family. Profession (medical vs non-medical, n=270)

did not affect the means of CAS and GAD-7 before and after vaccination significantly (2 tailed significance with equal variance assumed = 0.654, 0.942, 0.663, 0.1666) respectively. History of Covid-19 cases in family also did not affect the means of CAS and GAD-7 before and after vaccination significantly (2 tailed significance with equal variance assumed = 0.654, 0.942, 0.663, 0.166) respectively. When we computed results for effect of covid-19 related deaths in family, it did not affect the means of CAS and GAD-7 before vaccination (2 tailed significance with equal variance assumed = 0.145, 0.356 respectively), but higher means were observed of both CAS and GAD-7 after vaccination for those with positive family history of Covid- related deaths (2 tailed significance with equal variance assumed = 0.036, 0.028) respectively (because the drop in anxiety score was observed more for the non-bereaved group, so the difference between the means of two groups became statistically significant). That is Covid vaccination did not improve much the anxiety of having Covid related loss of family member (bereaved group) as compared to non-bereaved group.

Table 2: Comparison of CAS and GAD-7 before and after vaccination (n=281)

Variable	Mean±SD	P value
Pair 1		
CAS score before vaccination	9.12±5.68	0.000
CAS score after vaccination	6.32±5.55	
Pair 2		
GAD-7 score before vaccination	6.26±5.46	0.000
GAD-7 score after vaccination	4.89±5.01	
Pair 3		
CAS score before vaccination	9.12±5.68	0.000
GAD-7 score before vaccination	6.26±5.46	
Pair 4		
CAS score after vaccination	6.32±5.55	0.000
GAD-7 score after vaccination	4.89±5.01	

Table 3: Effect of Gender on CAS and GAD-7 before and after vaccination

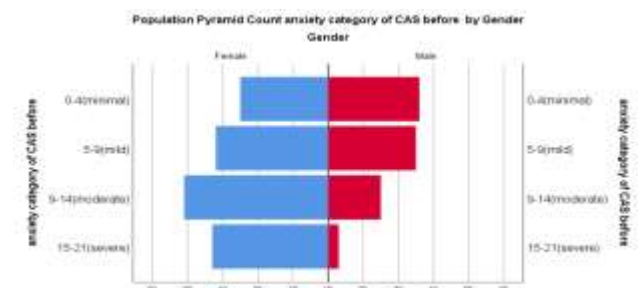| Variable	Gender		P value
	Male (n=109)	Female (n=171)	
CAS score before vaccination	7.51±5.08	10.09±5.80	0.000
CAS score after vaccination	5.28±4.55	6.91±5.98	0.016
GAD-7 score before vaccination	5.84±5.34	6.47±5.49	0.350
GAD-7 score after vaccination	4.65±5.05	4.99±4.96	0.557

Figure 1: Effect of gender on the frequency of different categories of Covid related anxiety before vaccination

DISCUSSION

Vaccination against Covid-19 is well established now in prevention against Covid disease and death.[12,13] However, some other benefits may be attributed to vaccination, one of them is reduction in anxiety and stress levels and management of mental health[14] so this study was planned.

General anxiety disorder has been well-known clinical entity centuries before the onset of current pandemic and initiation of vaccination for it. So when we wished to see the effect of covid-19 vaccination on anxiety, we considered to look for specified anxiety (other than the general anxiety) and an anxiety scale which could precisely measure Covid related anxiety and we could differentiate the effect of vaccination on these two types of anxieties separately to avoid the bias of general anxiety which might be underlying the Covid related anxiety. CAS as tool for specific Covid related anxiety has been in use for more than a year now. Ahn et al[15] reported that the CAS, could be applied to cancer patients to assess severe functional impairment related to mental health in the era of pandemic.

The anxiety clustering effect of vaccination, such as one report on a specific vaccine reported the clustering effect of vaccination on anxiety.[16] Our study results showed that the vaccination had an anxiety lowering impact in our patients. It simultaneously decreased the general anxiety and Covid related anxiety. Chen et al[17] has described the same effects of vaccination on person's anxiety. They reported that being vaccinated for Covid-19 was associated with lower odds of anxiety and/or depressive symptoms and those who were more middle-aged, were more likely to show these associations. Our study results endorsed their findings regarding effect of vaccination on anxiety with respect to age as well as our study results showed better effect of vaccination on the anxiety of above 40 years. Perez-Arce et al[18] stated that getting the first dose of Covid-19 resulted in significant improvements in mental health.

This study showed that Covid related anxiety was more prevalent in females. Tsukamoto and colleagues[19] also reported that during pandemic, females had higher levels of anxiety as compared to males.

The results of the present study showed that the vaccination did not control the anxiety of those who were bereaved with the experience of loss of family member due to covid-19 illness. Literature supports that the anxiety and stress is more pronounced in subjects with loss of some family member during pandemic.[20] However, we could not find any study so far which could tell the effect on vaccination on covid-19 related bereavement, so current study may help in providing insight into this situation also.

Probably the two terminologies for anxiety (general and Covid related) in era of pandemic are same, and Covid related anxiety looks like added up anxiety on general anxiety (the means of CAS were higher than the means of GAD-7 and vaccination not only dropped covid anxiety but also general anxiety, probably by dropping this added up element) and the one (Covid related anxiety) will vanish withthe time while general anxiety will persist. However, during pandemic, Covid related anxiety could explain some differences regarding gender and bereavement related anxiety and hence could tell areas of concerns to tackle during pandemic in terms of anxiety disorder. The medical community's understanding of the novel corona virus disease (COVID-19) was limited initially[21] which resulted in refusal of vaccination by a large number of communities. Our study could link the success of booster vaccination with its understanding about Covid anxiety.

CONCLUSION

Moderate to severe Covid related anxiety is more prevalent than the general anxiety in pandemic era, especially in females. Vaccination against covid-19 seems crucial to manage Covid related and general anxiety because SARS-COV 2 virus has not disappeared yet, future Covid waves hence the anxiety waves are still expected. So the booster vaccinations will remain the need for indefinite period of time. Bereaved families need further psychiatric support beyond vaccination to deal with their anxieties.

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