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ORIGINAL ARTICLE

COVID and influenza vaccination hesitancy in Maltese family doctors

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Introduction

An effective vaccine may help us to exit the COVID-19 pandemic. General Practitioners/Family Doctors (GPs/FDs) play a vital role in public vaccination in most countries and they also serve as role models. However, they may not always follow national vaccination policies. This study was carried out in order to ascertain the degree of vaccine hesitancy of GPs and GP trainees in Malta vis-à-vis influenza vaccination and a putative novel COVID-19 vaccine.

Methods

A short, anonymous questionnaire was emailed via the Malta College of Family Doctors.

Results

There were 123 responses from 288 GPs (33.3%) and 62 trainees (43.5%). Significantly more will take the influenza vaccine, at all ages. Almost two thirds of GPs are likely to take the COVID-19 vaccine but significantly less (a third) of trainees will. Older doctors were likelier to take this vaccine. The likelihood of taking influenza vaccination was significantly associated with that of taking COVID-19 vaccine. The majority of COVID-19 concerns pertained to insufficient knowledge and concern regarding potential long-term side effects.

Discussion

The vaccination rates for COVID-19 vaccination are less than those for influenza uptake.Vaccine hesitancy in younger doctors is a seemingly global youth phenomenon, an unwise insouchance when the possibility of long-term viral complications is considered. An information drive should be mounted with regard to COVID-19 vaccination as well as campaign to promote annual influenza vaccination.

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Introduction

While COVID-19 stalks the world, abated only by non-pharmaceutical interventions, the only real hope of controlling this pandemic is an effective vaccine. However, vaccine hesitancy is rampant,[1] abetted by social media,[2] such that for what should be a highly anticipated and avidly sought COVID-19 vaccine, hesitancy toward such a vaccine ranges from 2–6% in China to 43% in the Czech Republic and 44% in Turkey by the general public.[3]

General Practitioners/Family Doctors (GPs/FDs) play a vital role in public vaccination in most countries, and they also serve as role models in their own health behaviours.[4] In many countries, they are also the most utilised and trusted sources of information on this topic.[5]

The most commonly reported motives for GP's own vaccination were to protect themselves and their patients, while the commonest reasons for vaccine hesitancy included exposure to disease providing sufficient immunological protection, concerns regarding side effects, forgetfulness and their personal doubts about vaccine efficacy.[4]

With regard to vaccinating target patients, it is not unknown for GPs not to recommend nationally recommended vaccines. For example, a recent French study showed that 16%-43% of GPs sometimes/never recommended ≥1 vaccine to their target patients. This paper also noted that vaccines were more frequently recommended when GPs were comfortable explaining vaccine benefits and risks and trusted their official sources of vaccine information. On the other hand they failed to recommend vaccination when they felt that the risks of adverse effects were high or doubted the vaccine's effectiveness.[6] In Malta both the public and the medical profession are much more compliant with vaccination schedules with vaccination rates >90%.[7]

This study was carried out in order to ascertain the degree of vaccine hesitancy of GPs and GP trainees in Malta vis-à-vis influenza vaccination and a putative novel COVID-19 vaccine that might be provided later this year.

Methods

A short, anonymous questionnaire was sent out via email mailing list of the Malta College of Family Doctors. This email list comprises the email addresses of the membership roll. Additionally it was sent to the email addresses of the current cohorts of GP Trainees. The first mail was sent on 25/09 and a reminder was sent on 27/09. The questionnaire was available from the 25/09/2020 to the 29/09/2020. The questionnaire was hosted *via* Google forms and exported to bespoke Excel spreadsheets for analysis. It commenced with the following introduction:

Malta has been fortunate to have early allocation of a COVID-19 vaccine later this year. The vaccine will be one that is licensed and approved and will have passed through Phase 3 trials. Priority will be given to front liners and to the vulnerable, followed later by the rest of the population. This is totally anonymous and a very short, public health survey for healthcare workers, please fill completely.

The questions, formatted in tick boxes, covered demographic details including sex, faculty, role (GP/GP trainee), age bracket, whether the influenza vaccine was taken last winter and whether it would be taken this coming winter (yes/no). The following text was inserted in the questionnaire followed by several questions with a Likert scale of 1-5.

QUICK READ FOR INFORMATION: Vaccine development is a three-phase process. In Phase I, small groups of people receive the trial vaccine. In Phase II, the vaccine is given to people who have characteristics (such as age and physical health) similar to those for whom the vaccine is intended. In Phase III, the vaccine is given to thousands of people and checked for efficacy and safety. The COVID vaccine that will arrive in Malta will have gone through these Phases and will be approved and licensed.

Based on this information, how likely are you to take the COVID-19 vaccine?

- I am concerned as I don't know enough about the vaccine
- I am concerned about the short-term side effects (e.g. fever etc)
- I am concerned about possible long-term side effects
- I am concerned because I don't think the vaccine will be effective
- I am against vaccines in general

For the first question in the list above, it was assumed that scores 1 and 2 were "unlikely", 4 and 5 were "likely" and a score of 3 was taken as undecided. For the Likert questions following the first, all were allowed to tick options whatever their likelihood of taking the vaccine was.

Chi tests and chi tests for trend were used except for one two by two table with small values wherein a Fischer exact test was used. A p value ≤0.05 was taken to represent a statistically significant result.

RESULTS

Influenza

There were 123 responses from 288 GPs (33.3%) and 62 trainees (43.5%). Table 1 shows the percentage of participants who took the influenza vaccine last year, and those who will be taking it this year, by role. More will be taking the vaccine, this being a significant increase in the cohort of GPs. The projected increase in vaccination rate is significant at almost all ages (table 2).

COVID-19

Table 1 shows the percentages who are likely to take the COVID-19 vaccine. Almost two thirds of GPs are likely to take it but less than a third of trainees will. This was a significant difference (chi 23.5, $p<0.0001$) that was also reflected in the proportion likely to take this vaccine by age, with increasing age a significant predictor of vaccine uptake (chi=8.5, $p=0.003$). Males were more likely to take the vaccine than females (70% *vs* 54%) but this was not statistically significant.

The likelihood of taking the influenza vaccine was associated with the likelihood of taking the COVID-19 vaccine (chi=28.5, $p<0.0001$, table 3). The majority of COVID-19 vaccine related concerns pertained to insufficient knowledge with regard to this novel inoculation and concern with regard to potential long-term side effects.

Table 1 Percentage who took the influenza vaccine last year, who will take it this year, and likelihood of taking the COVID-19 vaccine by role

	Influenza vaccine				COVID-19 vaccine		
	Took%	Will take%	Chi	p	Unlikely%	Undecided%	Likely%
GPs	71.9	87.5	7.2	0.007	8.3	20.8	70.8
Trainees	37.0	59.3	3.8	ns	44.4	25.9	29.6
Total	64.2	81.3			16.3	22.0	61.8

Table 2 Percentage who took the influenza vaccine last year, who will take it this year, and likelihood of taking the COVID-19 vaccine by age

	Influenza vaccine				COVID-19 vaccine		
Age	**Took%**	**Will take%**	**Chi**	**p**	**Unlikely%**	**Undecided%**	**Likely%**
18-24	25.0	50.0	Fisher	ns	25.0	25.0	50.0
25-34	63.3	80.0	2.0	ns	20.0	23.3	56.7
35-44	45.8	79.2	5.7	0.02	37.5	20.8	41.7
45-54	68.0	84.0	3.8	ns	12.0	32.0	56.0
55-64	80.6	86.1	3.8	ns	2.8	16.7	80.6
>65	50.0	75.0	Fisher	ns	0.0	0.0	100.0

Table 3 Likelihood of taking flu vaccine (yes/no) by Likert likelihood of taking COVID-19 vaccine.

Unlikely to	**1**	**2**	**3**	**4**	**5**	**Likely to**
take COVID vaccine	0.5	3.0	2.0	9.3	44.0	**take COVID vaccine**

Table 4 Concerns and misgivings pertaining to a COVID-19 vaccine

Concern%	1	2	3	4	5	n
Insufficient knowledge	6.4	14.1	29.5	25.6	24.4	78
Short term side effects	32.5	26.0	16.9	9.1	15.6	77
Long term side effects	5.1	5.1	12.8	34.6	42.3	78
Vaccine effectiveness	17.1	22.4	32.9	15.8	11.8	76
Generally against vaccines	80.5	5.2	11.7	1.3	1.3	77

Discussion

This study has the typical limitation of any questionnaire – response rate and potential bias introduced therein. There is a particular risk of selection bias in that very busy practitioners who work for long hours may have elected to ignore this questionnaire. Furthermore, while most individuals in this cohort are members of the Malta College of Family Doctors, not all are and those who were not could not be contacted and included in this study.

The projected increased influenza vaccine uptake is probably related to increased awareness of respiratory disease due to COVID-19 and the very recent study which indicated that contracting influenza with COVID-19 may double the risk of death. The limitations of the study are the small numbers involved (*n*=58), but 43% of those with both infections died, compared with 26.9% of those who only had COVID-19 with the greatest risk being to those aged over 65.[8] Clearly the proportions in this cohort are lower than desirable and indeed, the rates described for GPs in this study are similar to influenza vaccine uptake by doctors in past years.[9]

With regard to COVID-19 vaccination, younger doctors and trainees were less likely to take the inoculation. Indeed, in many countries, it has been noticed that young people are less concerned with COVID-19 than the adult and elderly population, possibly because of perceived milder symptoms in their age group and their lower risk of complications.[10-11]

It could be argued that older individuals are at higher risk and therefore it is even more in their self-interest and in the interest of their family members to take the vaccine.[12] It is also possible that the younger and more social media active doctors may be more influenced by vaccine hesitant narratives.[13] This scenario is reinforced by the finding that the likelihood of taking the influenza vaccine was associated with likelihood of taking the COVID-19 vaccine, indicating hesitancy toward both vaccines. The concerns with regard to insufficient knowledge are not invalid but the country has been reassured that only vaccines that have passed through phase 3 will be purchased.

It has been estimated that COVID-19 herd immunity may be achieved at 55%-82%.[14] Since a non-trivial

proportion of the population will be ineligible for COVID-19 vaccination by virtue of age, immunological status or other pre-existing medical conditions, any significant vaccine hesitancy will hinder the attainment of this goal. Furthermore, given that a COVID-19 vaccine is unlikely to be 100% effective on all vaccinees, the population vaccinated should clearly approach totality. This is because even with vaccination efficacy of 95% efficacy, the required herd immunity level would be 63-76%.[15]

With the onset of the COVID-19 pandemic, and the clear urgency for the discovery of an effective vaccine, many assumed that this desire might well simply solve vaccine hesitancy that has vexed public health officials all over the world.[1] This has not been the case with substantial fractions of polled populations affirming that they would not take a vaccine even if it passed phase 3 trials and was accepted and approved by the relevant regulators.[6,16] The determinants of such hesitancy are composite and multiple and vary by country and temporality.[6] Confidence, complacency and convenience are perceived as key aspects for vaccine acceptance.[6] Truly, public health must extend beyond providing services and should focus its energy on tailoring narratives and polices to counteract fake news and inculcate confidence in said policies.[1] This should include vigilant planning so as to ensure the readiness of both the general public and the medical/health community for a COVID-19 vaccine.

Conclusion

Novel COVID-19 vaccine uptake in General Practitioners/Family Doctors reflect the rates of yearly influenza vaccination uptake of doctors in general.

GPs are instrumental in vaccination programs and it is crucial to commence an information campaign as soon as possible with regards to the efficacy and safety of the upcoming shot to this group of medical professionals.[5]

They will also almost certainly be involved in the eventual vaccine drive when a COVID-19 vaccine actually becomes available, and comprehensive knowledge with regard to the vaccine will empower them to bring the message across to the general public. This can be done by involving them in the vaccination program in similar fashion to the annual modus operandi vis-à-vis influenza vaccination.

Particular focus should be given to the GP Trainees who, as youths, can be role models for other youths, especially the vulnerable.

Additionally, an intense informational campaign targeted to all healthcare workers (including all doctors) should be embarked upon to promote the yearly influenza vaccination.

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