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Vaccine hesitancy and access to psoriasis care in the COVID-19 pandemic: findings from a global patient-reported cross-sectional survey

Dear Editor,

COVID-19 vaccines protect against severe COVID-19 outcomes, however many individuals remain unvaccinated[1,2]. Vaccine hesitancy (delayed acceptance/refusal of vaccination despite service availability) threatens public health. In the UK general population, vaccine hesitancy is higher in women, younger age and ethnic minority groups[3,4]. Individuals with psoriasis, particularly those taking systemic immunosuppressants, are prioritised for COVID-19 vaccination[5]. However, information on vaccine hesitancy and its contributing factors in psoriasis patients is scarce[6].

We used global patient-reported PsoProtect*Me* survey data[7] to explore the impact of organisational and individual factors on COVID-19 vaccine hesitancy. Data from 802 individuals with psoriasis from 89 countries were available (extracted 09/08/2021). 322 (40.1%) reported disrupted access to psoriasis care. These individuals were younger (median age 44 [IQR 33-56] versus 54 [IQR 42-64]) and more likely to be of non-white ethnicity (13.8% versus 10.2%). They had a shorter psoriasis duration (median 23 years [IQR 10-36] versus 31 years [IQR 17-44]) and more severe psoriasis (6.1% versus 2.8%). The proportion of participants taking systemic immunosuppressants was similar between those with and without disrupted access to care, but a smaller proportion with disrupted care were taking targeted immunosuppressants than those without disruption (72/131 [55.0%] versus 140/194 [72.1%]).

611 (80.9%) of 755 participants had received at least 1 vaccine dose. Sixty-three (8.3%) were vaccine hesitant. These individuals were younger (median age 36 [IQR 30-50] versus 52 [IQR 39-63]), more likely to be of non-white ethnicity (20.0% versus 7.2%), live outside the UK (13.6% versus 5.1%), have a numerically lower BMI (median 24.5kg/m^2 [IQR 21.7-28.3] versus 26.5kg/m^2 [23.2-30.9]) and a shorter disease duration (median 19 years [IQR 9-32]

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versus 28 years [IQR 14-42]). They were less likely to be taking systemic immunosuppressants (26.0% versus 45.3%). The commonest reasons for hesitancy were concerns regarding side-effects, the vaccine being new and psoriasis worsening post-vaccination.

In an unadjusted logistic regression model, strongly agreeing that psoriasis care was disrupted associated with vaccine hesitancy compared to strongly disagreeing (OR 2.97, 95%CI 1.23-7.13, p=0.015). The direction of association remained after adjusting for age, sex, ethnicity, although was not statistically significant (adjOR 1.90, 95%CI 0.72-5.05) (Fig.1). In the imputed multivariate model (fitted due to missing demographic data), the association was stronger but non-significant (adjOR 2.32, 95%CI 0.94-5.71). 56/320 (17.5%) individuals taking standard/targeted/combination immunosuppressants were non-adherent. Non-adherence and vaccine hesitancy were not significantly associated (adjOR 2.96, 95% CI 0.77-11.3).

We observe an association between disrupted access to psoriasis care and COVID-19 vaccine hesitancy, partly mediated by confounding demographic variables. Individuals feeling disenfranchised by healthcare services were more likely to be vaccine hesitant. In support, higher vaccine hesitancy in the general population is observed in those with negative experiences of healthcare and negative perceptions of doctors[4]. Higher care expectations, sometimes seen in individuals with worse disease[8], may also be contributory. Patients taking targeted immunosuppressants were less likely to report disrupted access to care, possibly due to more frequent monitoring in secondary care, which may have been prioritised during the pandemic.

A minority (8%) of our sample reported vaccine hesitancy. These findings support current limited data on vaccine hesitancy amongst psoriasis patients[6]. In contrast to a prior report in psoriasis[6], but in keeping with general population trends[4], hesitancy was more prominent amongst younger people. Our study was conducted after the COVID-19 vaccine roll-out commenced, addressing a limitation of studies characterising intention rather than actual behaviour[6]. In keeping with other studies, our findings also indicate greater hesitancy in individuals of non-white ethnicity, however there were no gender differences[4].

We are unable to directly compare our global psoriasis dataset to the general population/other diseases due to a lack of control samples. Participants were mostly from UK, female and of white ethnicity, limiting generalisability. Proportionally more patients reported receiving

targeted versus standard immunosuppression, indicating ascertainment bias. Directions of associations cannot be definitively ascertained due to the cross-sectional study design. Impacts on care and/or vaccine uptake may have been underestimated since individuals participating in health surveys may be more engaged with healthcare/vaccination services. PsoProtect*Me* was updated one year following its launch to include COVID-19 vaccine hesitancy/access to care questions, hence the current sample may not be representative of the original larger sample[7].

Taken together, these data indicating that a minority of individuals with psoriasis have vaccine hesitancy are promising for current/future COVID-19 booster vaccine uptake. Identifying individuals who are disenfranchised by healthcare services and addressing their concerns regarding COVID-19 vaccination will help mitigate risks from the ongoing pandemic.

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Conflicts of interest:

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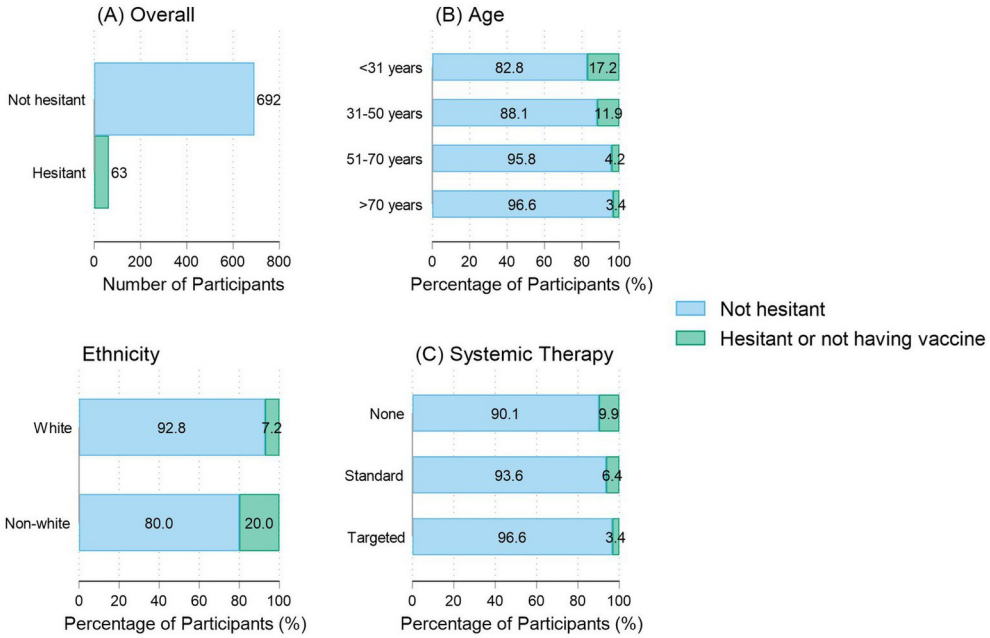
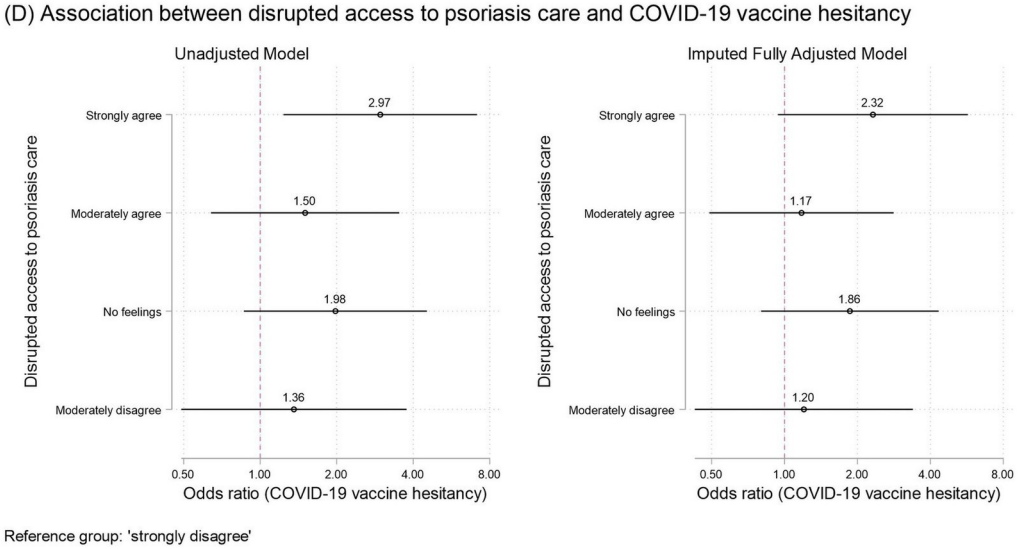
Prof. Spuls has done consultancies in the past for Sanofi 111017 and AbbVie 041217 (unpaid), received a departmental independent research grant for TREAT NL registry LeoPharma December 2019; is involved in performing clinical trials with many pharmaceutical industries that manufacture drugs used for the treatment of diseases such as psoriasis and atopic dermatitis, for which financial compensation is paid to the department/hospital; and is chief investigator of the systemic and phototherapy atopic eczema registry (TREAT NL) for adults and children, as well as one of the main investigators of the SECURE-AD registry.

Figure legends

Fig 1. COVID-19 vaccine hesitancy in individuals with psoriasis: (A) overall count, (B) by age and ethnicity (age <31 years n=93, 31-50 years n=219, 51-70 years n=261, >70 years n=58; white ethnicity n=559, non-white ethnicity n=70), (C) by systemic immunosuppressant therapy (no therapy n=406, standard therapy n=110, targeted therapy n=207), (D) association between disrupted access to psoriasis care and COVID-19 vaccine hesitancy.





Reference group: 'strongly disagree'

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