

*Dear Dr Merino,*

*Thank you for the opportunity to respond to the reviewers' comments. We are very grateful to the committee members and to the reviewers for their helpful suggestions which, we believe, have improved our manuscript. The manuscript has been revised by updating the search of the systematic review to October 2019 which has identified 29 news studies. We have also updated the statistical model to incorporate the new data.*

*Below we have provided a point-by-point response to each of the reviewers' comments. All the changes have been tracked in the text and table of the revised manuscript.*

### **Committee's comments**

**- This is largely based on country reports and is a summary of a full report which is due to be published. We did not understand the methods by which the adherence with the WHO guidance has been assessed. The methods do not really describe what has been done and what the scoring system is which has been used. Please provide additional details: how did you get to the data used in the analysis?**

*Thank you to the committee members for their comments.*

*We would like to clarify that the World Health Organisation (WHO) report in 2016<sup>1</sup> highlighted global knowledge gaps in understanding the epidemiology of psoriasis which this study sets out to address. In addition, there is no existing full report of the current study. This is the first study providing estimates on the epidemiology of psoriasis at national, regional and global level.*

*We have added additional text to describe the methods. Specifically, in the section "Study Design", page 5, we have described that the research consisted of a systematic review and meta-analysis of the incidence and prevalence of psoriasis. All the steps included in the systematic review (Search strategy, Inclusion and exclusion criteria and Data extraction) are described in the "Data Identification and extraction" section. All the studies identified have been assessed using the Appraisal tool for Cross-Sectional Studies (AXIS)<sup>2</sup>. We have now added further details regarding the risk of bias assessment tool in the main manuscript (Page 6, "Data extraction", lines 5-10) and a full description in the Supplementary Material (pages 17-8, Text 2.5 Quality Assessment and a table including the 20-items included in the tool).*

“This quality assessment tool includes 20-items covering the following domains: identification of research aims, appropriateness of study design, use of valid measures and statistical analyses and consideration of bias. Full details are available in the Supplementary Material”

*We have also added a table which includes the risk of bias assessment for each individual study table (Supplementary material, eTable 15).*

*The data included in the statistical model have been identified from the systematic review. In particular, the data extracted from each study (meeting eligibility criteria) reporting on the prevalence of psoriasis were included in the statistical model. All the studies and data included in the statistical model are summarised in the Supplementary Material, pages 19-61, eTables 1-5. We have also added text in the main manuscript, Study Design, page 5, point iii), which says:*

“A systematic review of the incidence and prevalence of psoriasis was conducted involving the following steps: i) data identification and extraction; ii) a descriptive summary of incidence data; and iii) a statistical analysis to generate estimates of the global, regional and country-specific prevalence of psoriasis using the information extracted from the included studies examining the prevalence of psoriasis.”

**- Incidence in the results – numbers such as 58.0 do not have denominator or time period. We need additional context. There is a lack of confidence intervals for reporting on incidence, and not always clearly labelled elsewhere.**

*Thank you to the committee members for their comment. Due to the limited number of studies reporting on the incidence of psoriasis, these were summarized descriptively. Rates for incidence were presented as rate/100,000 person-years. Missing information, such as incidence rate and their 95% CIs, were calculated when not reported in the study, as long as information on the number of new cases of psoriasis and population sample size and/or follow-up period in person years were provided. Nevertheless, some studies did not report these information (number of new cases of psoriasis, the population sample size, and the time period), therefore it was not possible to estimate the 95% CIs. These studies are listed in the table at the end of this document and in the main manuscript, Table 1, page 18.*

**- There is a danger when generalizing from a single country to a whole continent. For example, seems like Argentina is the only South American country, and the findings from Argentina are being labelled in the tables as being “South America.” Similarly, how can the paper give results for no less than 4 sub-Saharan regions of Africa when the map shows data available from only Tanzania?**

*We used a Bayesian hierarchical model (or multi-level model) to generate the prevalence estimate for each country. A multi-level model implies that there are different levels where smaller units (for instance countries) are nested within higher level units. The model used in the study has four levels (or random effects): countries nested within regions, nested within super-regions, plus a random intercept. We used the same classification of the United Populations<sup>3</sup> and the Global Burden of Disease to group countries into regions and super-regions. Therefore, the country Argentina is nested within the region “High-income Southern Latin America” together with Chile and Uruguay. Other countries in South America belong to other regions. (Please see Supplementary Material, page 65, eTable 6, for the classification of the countries, regions and super-regions).*

*In the statistical model, the geographical groups are used for two reasons: 1) to generate the estimates of the prevalence of psoriasis for those countries with no information thus, if a country had no data the estimates of the higher levels were the main drivers of the country estimate, controlling for the fixed effects in the model (a similar approach has been used in Chawanpainboon et al., 2014<sup>4</sup>); and 2) the statistical model used is considered the gold standard in situations where data are sparse and heterogeneous<sup>5</sup>. In the Bayesian hierarchical model, the estimates of the prevalence of psoriasis are informed both by study data from the same country, if available, and by study data from other countries, mainly due to the structure of the model. However, as already stated in the paper (please see Discussion, page 12, lines 4-8), the data are sparse in some regions, and “estimates from countries with no data might be helpful in guiding policymakers, healthcare practitioners and patients but need to be interpreted with caution”.*

**- Also, the model appears gives less precise estimates for areas where there are more countries with data, as where there are more countries there is more heterogeneity, and the model accounts for heterogeneity (for example, where there is only one country there is no heterogeneity). It might be improved by using shared estimates of the heterogeneity parameter (if that is not already done).**

*Thank you for this insightful comment. We checked whether the heterogeneity is higher for countries with a higher number of studies compared to countries with only one study. This is not*

*the case (as shown in the Figure attached at the end of this document). The Figure shows the prevalence of psoriasis for each country providing data. The countries are sorted according to the number of studies, for example the UK, “GRB”, has 12 studies, whereas Algeria (“DZA”), Croatia (“HRV”), Japan (“JPN”) have only 1 study.*

*We believe the results are heterogeneous in terms of the way the prevalence has been estimated (eg lifetime vs period prevalence), diagnostic method or data sources used. We adjusted for these possible sources of heterogeneity, such as type of prevalence estimate (point prevalence, period prevalence, and lifetime prevalence) and type of diagnostic method (physician/dermatologist vs self-reported). However, it is possible that not all the heterogeneity is entirely explained by these covariates.*

*Finally, we have used a shared heterogeneity parameter as follows. Using the posterior distribution generated from the model, each country estimate has been calculated by summing the intercept, a specific country (random effect), the region the country belonged to (random effect), and the super-region the country belonged to (random effect).*

**- Risk of bias assessments not presented (says in Appendix 1 but not in the pdf file). We are not familiar with this RoB tool so would be good to have some more information presented. Please include risk of bias information in the main manuscript.**

*Thank you for this comment and the important suggestion. We have now added more details and amended the Supplementary material, pages 17-18, to include a section on “Quality Assessment”. In this section, we describe in detail the risk of bias assessment tool we used to assess the quality of the studies included in our systematic review. The text now reads:*

*“A formal assessment of the quality of the included studies was performed independently by two members of the research team (R.P. and I.Y.K.I) using the Appraisal tool of Cross-Sectional Studies (AXIS tool)<sup>2</sup>. The AXIS tool is a 20-item quality assessment tool covering the following domains: identification of research aims, appropriateness of study design, use of valid measures and statistical analyses and consideration of bias. In the current systematic review, studies were classified as having high, medium, or low risk of bias or rated as unclear according to the overall quality of the methods used and reporting of results in the study.”*

*Furthermore, we have now included eTable 15 in the Supplementary material which contains the quality assessment of all studies reporting on the incidence and prevalence of psoriasis, included in the current systematic review.*

*We have also amended the text on Page 6, lines 4-9, of the main manuscript to explain the risk of bias assessment that we conducted and directed the reader to the Supplementary material for more information.*

## Comments from Reviewers

Reviewer: 1 - Carole Bailey

This is my first review for the BMJ and I am grateful for the opportunity to be involved. I review for several charities and universities, and they all have different formats to conform to, so please bear with me if I get anything wrong, and feedback would be gratefully received so that I can improve my reviewing techniques to meet the BMJ standard.

Psoriasis is a terrible condition that affects a persons' life on a daily basis. I know that because I suffer from it myself. It's embarrassing, debilitating, painful, and arduous to control. As a reviewer, I found this research very interesting.

This paper has really surprised me, in that studies into the prevalence of psoriasis in South Asia is so low (i.e. 3 in total – as cited by the paper). According to Wikipedia and Google, there is a population of over 663 million people in Asia, whereas in Western Europe, where the current the population is over 747 million, there have been 64 studies. There is a definite need for further data collection, from the countries that don't have demographics for people with Psoriasis. The knowledge of the prevalence and epidemiology will be integral to helping physicians predict future treatments and outcomes for both patients and carers.

It is clear that psoriasis can be life changing for people that suffer from it, and healthcare provision needs to have the infrastructure to deal with it, especially with an ageing generation. The authors state that 83% of the countries in the world lack information about the epidemiology of psoriasis. This information is extremely important because it will affect how future treatment and healthcare services are provided. This can only be achieved by data collection, and the sharing of such information. What we know, why it happens, and when and where it's likely to occur, is paramount to improving specialist knowledge, which, in turn, could greatly improve the lives of sufferers.

The strengths and limitations of the study are quite difficult to assess, because the researchers had limited information, but it's very interesting that the research revealed the relationship between psoriasis, income and age, and I feel that this needs more investigation. If I could ask anything of the authors to add to their paper, it would be to mention that many people with psoriasis feel isolated and excluded. The condition is not cosmetically acceptable to some people, and there is no way to disguise it, especially when it appears on your neck or face. Your face is the only thing you can't hide. It's your window to the world.

Finally, I feel that the paper has covered pretty much everything that it intended to do, even down to the dissemination, which sometimes tends to leave the general public (lay people) out. But, knowledge is always good for those that wish to learn, so if health promotion is to be efficient, then everyone should have the opportunity to know what's what. Also, as there was no requirement for ethical need, I am assuming that patient anonymity was respected. I have really enjoyed reading this paper, and wish all the authors and people involved in it, the best for the future.

Kind regards

*Thank you for sharing your personal experience with psoriasis. We are aware of the stigmatizing nature of the disease. Based on published evidence, we have included in the Introduction of the paper, page 4, lines 3-4, that “The condition greatly affects people’s quality of life to the extent that it may be life-ruining and stigmatizing”.*

*No ethical approval was needed, because we used existing data extracted from published papers.*

**Reviewer: 2 - Eleni Linos**

**Overall this is a well conducted, rigorous study that addresses an important research question. The topic is of great interest to many stakeholders within the Dermatology community including patients with psoriasis, dermatologists, pharmaceutical companies and researchers.**

**- My main concern is about the novelty of this research question. It seems like there have been several recent systematic reviews on the epidemiology of psoriasis including some by the same authors of this one. So it was not clear to me what the specific need for or novelty of this particular systematic review is. I did not see substantial differences in the findings or conclusions of the other recent reviews compared to this one, so perhaps the authors could clarify that?**

*Thank you for this comment. We have previously conducted a systematic review on the incidence and prevalence of psoriasis<sup>6</sup>, which included published studies up to 2011. In 2017, Michalek et al.,<sup>7</sup> updated the systematic review on the same topic with a search until November 2015.*

*The present study includes both a systematic review and statistical modelling (meta-regression). The novelty is two-part: first, it provides an update of the systematic review published in 2013, which has searched for the available evidence published until 2019 and which has identified 168 studies (compared to 53<sup>6</sup> and 76<sup>7</sup> previous studies); second, and more importantly, we created and used an advanced statistical model that can generate estimates on the prevalence of psoriasis and number of people affected by the disease for each country of the world which has never been done before.*

**- Additional minor comments:**

**- One of the more interesting findings was the relationship between psoriasis prevalence and country income. I thought your explanations for this could be expanded and highlighted more, as this is one novel part of your analysis**

*As suggested, we believe the findings regarding the relationship between prevalence and country income is interesting. However, it is difficult to expand on this, because we are not sure the driver is indeed income, since the relationship may be confounded. For example, high-income countries may contribute more reliable data due to the data resources they have in place, and they also have better access to healthcare which likely leads to earlier diagnosis and higher reported prevalence of psoriasis. Due to the limited data available from low/middle-income countries, it is difficult to test this hypothesis. These points have already been presented in the Discussion, pages 12, last paragraph:*

*“Countries located in high-income regions had a higher prevalence of psoriasis compared to low-income countries/regions. Possible explanations for this observed pattern are: i) the results might be an artefact due to high-income countries having better healthcare systems, more awareness of the disease, better data quality, and studies from these countries reporting data from large population-based and nationally representative databases; ii) high-income countries also have a higher proportion of the population that is comprised of the elderly, which means life expectancy is higher thus yielding a higher prevalence of psoriasis<sup>8</sup>; and iii) the lack of access to healthcare for many people with psoriasis will contribute to an underestimate of its prevalence in many least developed countries”.*

**- the conclusion paragraph of the discussion currently reads more like opinion than science-based conclusion. The authors may want to tone this down a little.**

*Thank you for this comment. We have now edited the Conclusion, page 13. The Conclusion statement now focuses on the main findings of the study.*

**- If this is the first study to estimate country-specific incidence and prevalence of psoriasis, could the authors convert figure 2 (the world map) to have a little number on each country reflecting the incidence, or color code it so that you have countries with high, medium or low incidence in different colors so the reader can get more information from that figure?**

*We agree with the reviewer on the usefulness of the Figure. We have now added a Figure of the map of the world showing different colours according to the level (very low, low, medium, high, very high) prevalence of psoriasis.*

**Reviewer: 4 - Mackenzie R. Wehner**

**I commend the authors for what must not have been an easy or simple undertaking in this systematic review, with the goal of improving our understanding of the epidemiology of psoriasis. I have a few significant concerns, and hope the following comments will serve to improve this manuscript.**

**Major comments**

**1. One of the biggest issues with this study in my mind is the combination of a potential conflict of interest with a somewhat liberal use and interpretation of the data. I am not a psoriasis expert, so I'm not well versed in this, but the Global Psoriasis Atlas has industry funding, is a .com not a .org, and certainly stands to benefit from a report that shows a high incidence/prevalence of psoriasis. This in combination with the use of a Bayesian model that takes data from 17% of countries and projects an estimate to include 100% of countries makes me as a reader feel uncomfortable with the potential conflict of interest.**

*We are grateful to the reviewer for his comment. The Global Psoriasis Atlas is supported by charity, patients' organisations and industry. However, the funders and supporting organisations had no influence in the design and conduct of the study as declared with submission with our paper. The Global Psoriasis Atlas website, which was still under development at the time of the submission, has now been changed to ".org" also to demonstrate that the research team has no specific conflict of interest in undertaking the study.*

**a. Sentences like page 10 line 52-57, which takes a Bayesian estimate that I already have concerns about (see #2) and uses an upper estimate to say that the global prevalence 'may be as high as' 48 million (rather than the 30 million from the main analysis), really highlighted this issue for me.**

*We are grateful to the reviewer for the comment. The statistical model has been adjusted for three fixed effects (covariates): age strata; type of diagnosis; and type of prevalence measure. The covariate "type of diagnosis" indicates whether the diagnosis was made by a physician/dermatologist or was self-reported. The main results in the manuscript are reported for the prevalence of psoriasis according to a physician/dermatologist diagnosis. However, we have also calculated the prevalence of psoriasis according to a self-reported diagnosis (these results were originally not reported in the manuscript). We believe the estimate according to a self-reported diagnosis might be an indication of underdiagnosed psoriasis, given that not all individuals with the disease access healthcare. However, given that self-reported diagnosis is not always confirmed by a clinician, there might be a risk of misclassification when using that estimate. We acknowledge the text in the original submission did not clarify where the 48 million estimate came from, therefore we have added a table with the self-reported lifetime prevalence of psoriasis in the Supplementary Material, page 90-115, eTables 10-12.*



*Additionally, in the main manuscript, page 11, we refer the reader to the Supplementary material for the full information on the physician/dermatologist and self-reported prevalence of psoriasis.*

*“The full prevalence estimates by 21 regions and 189 countries and according to the different type of diagnoses (physician/dermatologist or self-reported) and lifetime prevalence are shown in Supplementary material eTables 7-12.”*

**2. I also have concerns about the use of the Bayesian model on its own. I realize that the data is sparse for much of the world, and that this methodology is a way to combat sparse/heterogenous data, but I am concerned about the validity of making a global estimate in this way in the first place. It appears that there is data from a single country in South America and four countries in Africa. There are only 17% of countries represented, mostly Caucasian and affluent ones. Why is it important, and why is it valid, to make global estimates including all countries based on these data?**

*In 2016, the WHO called for a better understanding of the epidemiology of psoriasis<sup>1</sup> emphasising the need to better understand the global burden of the disease so as to inform policy-makers and healthcare professionals.*

*As mentioned in the response to the committee members (please see response to comment 3, page 2), the model, like any, has limitations. However:*

*In the statistical model, one of the reasons for using the geographical groups was to generate the estimates of the prevalence of psoriasis for those countries with no information. Therefore, if a country had no data, the estimates of the higher levels are used. In the Bayesian hierarchical model, the estimates of the prevalence of psoriasis are informed both by study data from the same country, if available, and by study data from other countries, mainly due to the structure of the model. We have already acknowledged that data are very sparse and that “estimates from countries with no data might be helpful in guiding policymakers, healthcare practitioners and patients but need to be interpreted with caution” (please see Discussion, page 12, first paragraph). In order to estimate prevalence in countries with no data we followed a similar approach to Chawanpainboon et al., 2014<sup>4</sup>.*

*Although the model has its limitations, it is helpful in: i) providing an estimate of the number of people affected by the disease in individual country; and ii) identifying gaps in the data which will allow us to undertake new research to fill these gaps. The GPA aims to be a long-term*

*project, the statistical model will be updated regularly by identifying new data and in future editions it will provide better and more accurate estimates of the global epidemiology of psoriasis. This is a priority especially in countries from low-income and middle-income countries where we know psoriasis is a burden however, given the limited information available, clinicians and policy makers face several challenges (such as planning for services or allocating resources) due to lack of estimates on the incidence and/or prevalence of the disease.*

*Finally, we have employed the same approach used by the Global Burden of Disease for other disorders to estimate a global estimate of the prevalence of psoriasis.*

**3. As a systematic review author, I am loath to bring this up, but November 2017 is nearly two years ago. Many journals have a ‘within one year’ search requirement. I would consider updating the search.**

*We have now updated the systematic review search up to October 2019 and updated our statistical model. Therefore, all the results in the manuscript and supplementary material have been revised according to the additional studies and data identified.*

*The search between 2017 and 2019 has resulted in the identification of:*

- *8,573 new records (after removing duplicates)*
- *36 new studies were critically appraised*
- *29 new studies were included:*
  - *1 additional study reported on the incidence of psoriasis*
  - *20 studies reported on the prevalence of psoriasis*
  - *8 additional studies reported on the incidence and prevalence of psoriasis*
- *Data from three new countries (Portugal, Nepal and Saudi Arabia) were identified which contributed to the statistical model.*

**4. As a reader, I wasn’t sure why this project was important, given the GBD information and estimates that are available for 2017. In the introduction, I think it would be helpful to be clearer about what this study adds compared to the GBD.**

*We are grateful to the reviewer for his comment. Compared to the GBD estimates available for 2017, our study incorporates several important developments:*

1. *We have completed the most comprehensive systematic review on the epidemiology of psoriasis which includes:*

- a. *A more recent search including published studies up to October 2019 (whereas the GBD search included data up to 2016)*
  - b. *A more extensive search of the scientific literature using eleven electronic and regional databases (whereas the GBD searched only two databases Pubmed and Google search)*
  - c. *Data identified from 35 countries (compared to 30 countries included in the GBD).*
1. *Our statistical model also takes account of important sources of heterogeneity such as type of diagnosis (whether the diagnosis was made by a physician, dermatologist or self-reported) and by type of prevalence measures (such as whether the estimate provided in the study was point, period or lifetime prevalence).*
  2. *Finally, the GBD provides global and regional estimates of the prevalence of psoriasis but estimates are not provided for individual countries. We believe this is an important step forward because healthcare professionals and policy makers can have information on the number of people affected by the disease in each country.*

*We have now added text to the main manuscript which reads (Discussion, page 12, Comparison with other studies).*

*“A major strength of our research compared to Hay *et al*<sup>9</sup> and James *et al*<sup>10</sup> is that we were able to provide a measure of the prevalence of psoriasis for 189 countries. . And importantly, data included in our study covers the most comprehensive existing scientific literature identified from eleven electronic and regional databases compared to two electronic databases searched in to Hay *et al*<sup>9</sup> and James *et al*<sup>10</sup>.”*

#### **Minor comments**

**5. Page 4 line 54, I would appreciate seeing a statement about funding for GPA in the text of the manuscript – perhaps something like on the website, “funded by pooled grants from dermatological societies, foundations and industry”**

*We are grateful to the reviewer for his comment. In the Funding statement on the main manuscript, page 14, we have already included a sentence stating we are supported by dermatological societies, patients’ organisations and industry. We have also stated that the funders had no influence on the study design, methods and findings of the research.*

**6. In the results (eg page 8 line 31), the incidence denominator should be present (per 100,000 person-years) somewhere in the text**

*We are grateful to the reviewer for this suggestion. We have now amended the text in the Results section in pages 8 and 9 of the main manuscript to present the incidence denominator (per 100,000 person-years).*

## References

1. World Health Organization. Global report on psoriasis, 2016.
2. Downes MJ, Brennan ML, Williams HC, et al. Development of a critical appraisal tool to assess the quality of cross-sectional studies (AXIS). *BMJ Open* 2016;6(12):e011458. doi: 10.1136/bmjopen-2016-011458
3. United Nations, Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision, Volume II: Demographic Profiles.
4. Chawanpaiboon S, Vogel JP, Moller A-B, et al. Global, regional, and national estimates of levels of preterm birth in 2014: a systematic review and modelling analysis. *The Lancet Global Health* 2019;7(1):e37-e46. doi: 10.1016/S2214-109X(18)30451-0
5. Finucane M, Paciorek C, Danaei G, et al. Bayesian Estimation of Population-Level Trends in Measures of Health Status. *Statistical Science* 2014;29(1):18–25.
6. Parisi R, Symmons DPM, Griffiths CEM, et al. Global Epidemiology of Psoriasis: A Systematic Review of Incidence and Prevalence. *Journal of Investigative Dermatology* 2013;133(2):377-85. doi: <https://doi.org/10.1038/jid.2012.339>
7. Michalek IM, Loring B, John SM. A systematic review of worldwide epidemiology of psoriasis. *Journal of the European Academy of Dermatology and Venereology* 2017;31(2):205-12. doi: 10.1111/jdv.13854
8. Springate DA, Parisi R, Kontopantelis E, et al. Incidence, prevalence and mortality of patients with psoriasis: a U.K. population-based cohort study. *British Journal of Dermatology* 2017;176(3):650-58. doi: doi:10.1111/bjd.15021
9. Hay RJ, Johns NE, Williams HC, et al. The Global Burden of Skin Disease in 2010: An Analysis of the Prevalence and Impact of Skin Conditions. *Journal of Investigative Dermatology* 2014;134(6):1527-34. doi: <https://doi.org/10.1038/jid.2013.446>
10. James SL, Abate D, Abate KH, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet* 2018;392(10159):1789-858.

**Table – Response to reviewers: Studies reporting on the incidence of psoriasis not providing sufficient information to calculate confidence intervals.**

Study	Country	Study period	People with Ps	Incidence rate per 100,000 person-years (95% CI)	Incidence rate per 100,000 person-years (95% CI) female	Incidence rate per 100,000 person-years (95% CI) male
Vena et al. (2010)	Italy	2001 - 2005	5,792			
		2001		321.01	291.01	357.01
		2005		230.01	207.01	254.01
Egeberg et al. (2017)	Denmark	2003 - 2012				
		2003		140.1 (137.1 to 143.2)	146.81	133.41
		2004		122.2 (119.4 to 125.1)	130.71	113.61
		2005		104.0 (101.4 to 106.7)	107.51	100.51
		2006		105.5 (102.9 to 108.2)	110.41	100.41
		2007		111.5 (108.7 to 114.2)	110.81	112.21
		2008		128.6 (125.7 to 131.6)	128.81	128.41
		2009		174.8 (171.4 to 178.3)	192.61	156.81
		2010		181.0 (177.5 to 184.5)	199.51	162.31
		2011		171.3 (167.9 to 174.7)	187.91	154.51
2012	151.2 (148.0 to 154.5)	165.91	136.41			
Jacob et al. (2016)	Germany	2007-2010	14,686	521.11		
Sewerin et al. (2019)	Germany	2009			46.3 to 58.2	35.4 to 50.3
		2010			35.3 to 45.6	26.4 to 39.4

		2011			21.7 to 30.5	17.3 to 29.3
		2012			19.1 to 26.4	17.1 to 26.3
Znamenskaya et al. (2012)	Russian Federation	2009	99988	70.51		
		2010	99348	69.81		
		2011	99436	69.61		
Kubanova et al. (2017)	Russian Federation	2010		69.81		
		2011		69.61		
		2012		68.41		
		2013		65.91		
		2014		64.71		
		2015		62.81		
		2016		65.01		
Odinets et al. (2017)	Russian Federation	2010	1180	42.51		
		2011	1136	40.81		
		2012	1257	45.11		
		2013	875	31.41		
		2014	945	33.81		
		2015	941	33.61		
		2016	1094	39.01		
Huerta et al. (2007)	UK	1996 - 1997	3,994	140.01		

**Figure – Response to reviewers. Prevalence of psoriasis for countries reporting data and uncertainty intervals estimated by the statistical model. Countries are ranked according to the number of studies identified in each country.**

