

of the personal protective equipment used significantly differed according to risk of exposure (Supplemental S5).

Ninety-six per cent of the respondents reported a decrease in weekly income, with a median decrease of 60% (IQR 50%-75). Twenty-nine per cent ventured into alternate sources of income: e-commerce and sales (69%), stocks and investments (24%), real estate (15%), practice of non-dermatological profession (9%) and others (7%).

Limitations of our study include possible recall and non-response biases due to the methodology. Another is that 79% practice in the National Capital Region, the region with the most cases. It is possible that respondents who were profoundly affected by the pandemic were more motivated to complete our survey.

Our study shows the profound impact of the COVID-19 pandemic and the ensuing safety measures on dermatology practice in the Philippines, specifically in terms of consultation practices, hospital practices, procedural practices, infection control and income. In addition, it shows how TD can be utilised to complement FTF consults for dermatologists to continue to provide care to patients in this pandemic.

### ACKNOWLEDGEMENTS

We would like to thank our content experts, Dr. Charmaine Castillo, Dr. Nancy Garcia-Tan, Dr. Victoria Guilano, Dr. Zharlah Gulmatico-Flores and Dr. Jacqueline Melendres for helping us to validate our questionnaire.

### ETHICS APPROVAL

This study was approved by the University of the East Ramon Magsaysay Memorial Medical Center Research Institute for Health Sciences Ethics Review Committee (ERC approval number: 0869/H/2020/097).

Camille Angeles<sup>1</sup>  | Czarina Chavez<sup>2</sup>  | Hester Lim<sup>3</sup>  | Bryan Guevara<sup>4</sup> | Lian Jamisola<sup>1</sup>

<sup>1</sup>University of the East Ramon Magsaysay Memorial Medical Center Inc., Quezon City, <sup>2</sup>Rizal Medical Center, Pasig, <sup>3</sup>Cebu Institute of Medicine, Cebu City and <sup>4</sup>Southern Philippines Medical Center, Davao City, Philippines

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### Supporting Information

Additional Supporting Information may be found online in Supporting Information:

**Table S1.** Most common pathologic and aesthetic concerns seen before and during the COVID-19 pandemic.

**Table S2.** Engineering and administrative control measures utilized during the COVID-19 pandemic.

**Table S3.** Personal protective equipment used according to risk of exposure.

doi: 10.1111/ajd.13681

### Research Letter

Dear Editors,

*Australian Teledermatology experience during COVID-19*

In March 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a pandemic [1]. Victoria declared a 'state of emergency', restrictions including a

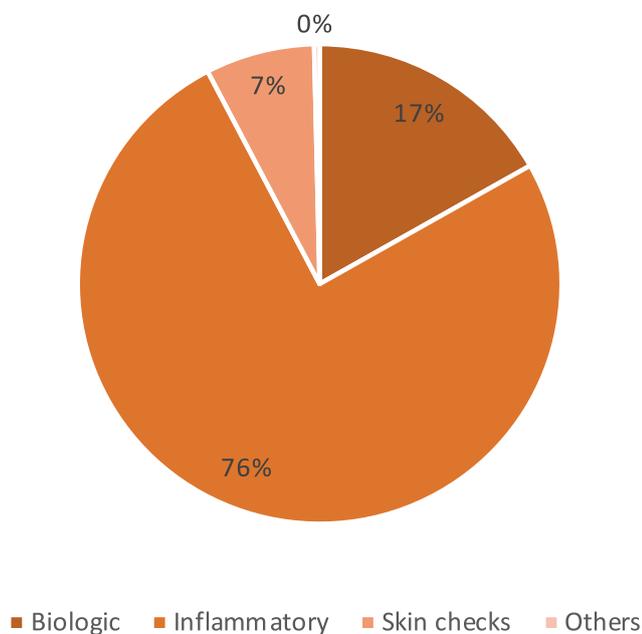
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Correspondence: Johannes S Kern, Dermatology Department, The Royal Melbourne Hospital, Parkville, Victoria, Australia. Email: [johannes.kern@mh.org.au](mailto:johannes.kern@mh.org.au)

Funding source: None.

Conflict of interest: The Royal Melbourne Hospital Foundation received an unrestricted grant for Fellowship support for a Dermatology Rural Outreach Registrar from Janssen-Cilag Pty Ltd. Janssen-Cilag Pty Ltd had no role in the study design, data collection, data analysis, interpretation of data, writing of the manuscript or publication decisions.

## Type of dermatological conditions



**Figure 1** Type of dermatological conditions during RMH 2.5-month teledermatology period.

lockdown were put in place. These lasted for 2.5 months [2]. This study analyses the dermatology telehealth experience at the Royal Melbourne Hospital (RMH) during this period and compares it to the experience of dermatologists Australia wide. RMH runs 5 medical and 2 surgical dermatology sessions a week, serving on average 135 patients. During the pandemic teledermatology became the normal, surgical dermatology was reduced to 1 session of category 1 and 2 cases. During this 2.5-month period, 554 telehealth encounters and 453 face-to-face consultations were conducted. The largest group of cases were inflammatory conditions (Fig 1).

We carried out a local audit after each clinic to assess clinicians' impression on telehealth consultations for one month. There were 267 telehealth consultations and 124 face-to-face consultations. Most clinicians found that telehealth consultations were inadequate or inferior to face-to-face consultations. Only 27% of the telehealth encounters were found to be equal to face-to-face consultations.

To put this local experience into broader context, we evaluated the telehealth experience of Australian dermatologists via a 22-question online survey on June 29, 2020 [RMH HREC QA 2020060]. 137 of 559 dermatologists completed the survey, 50% women and 87.1% working in metropolitan area. The largest group (34.5%) had been practicing for over 20 years. 53.24% reported that they had utilized telehealth consultation prior to 2020 (Fig 2). During the pandemic, 79 of the 89 dermatologists in public hospitals started using telehealth via hospital telehealth

platform or telephone. 92.6% of the 136 dermatologists in private practice, started telehealth, frequently using informal software such as WhatsApp, Facetime and Skype. There are four main teledermatology care delivery methods – store-and-forward, video conferencing, mobile teledermatology and hybrid teledermatology [5]. Hybrid teledermatology – where photographs are used in combination with videoconferencing – was the most popular amongst dermatologists, with 92% preferring photos prior to consultation. Only 3 dermatologists (2.2%) did not require photos in addition to telehealth consultation (Fig 2). 65.8% reported that telehealth consultations were more time consuming than face-to-face consultations.

The use of teledermatology for different conditions had varying acceptance (Fig 3). Only 4 of the 159 responses found skin checks via telehealth 'good' or 'average'. 78.4% found that skin checks via telehealth were inappropriate. In our audit finding, all skin check telehealth consultations were deemed inappropriate or inferior. Interestingly, 62.6% of survey respondents did not think that telehealth consultation should be used as a screening tool for skin checks. 64.3% reported that telehealth was an appropriate method in providing care for patients on biologic therapy. Our audit found that 76% of telehealth consultations for biologic patients were superior or equal to face-to-face consultations. For inflammatory conditions, 54% reported that telehealth was reasonable, 2.2% that it was excellent. Overall, Australian dermatologists found that their experience with telehealth was as expected [*median of 50 (25-63)*] with 64.8% reporting that they would continue using telehealth after the COVID-19 pandemic.

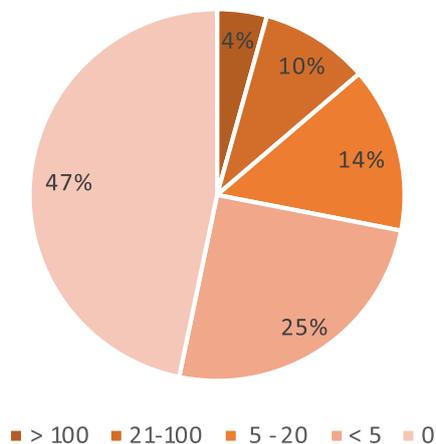
Teledermatology is often perceived to be more challenging than face-to-face consultations [4]. Prior to COVID-19, the evaluation of healthcare provider telehealth experience was limited. The European Academy of Dermatology and Venereology (EADV) conducted an online survey early in the pandemic with 444 European dermatologists completing the survey [5]. The Indian group of Sharma *et al.* conducted an online survey and 184 dermatologists completed the survey [4]. Both papers showed that there was a positive change in attitude with the increased use of teledermatology during the pandemic. Our results confirm these findings. In our study, the percentage of telehealth consultations that were found to be equal to face-to-face consultations and the percentage reported as reasonable for inflammatory conditions were lower than published in the literature [6]. This may be in part because a substantial group of dermatologists represented here had not used teledermatology prior. Future research would be valuable to address why this was the case and how it could be best approached, for example, with appropriate training.

## CONCLUSION

The COVID-19 pandemic has led to most dermatologists in Australia gaining first-hand experience in teledermatology. Moving forward, hybrid teledermatology seems to be the preferred delivery method, using practical telehealth guidelines created for the Australian context [7]. The

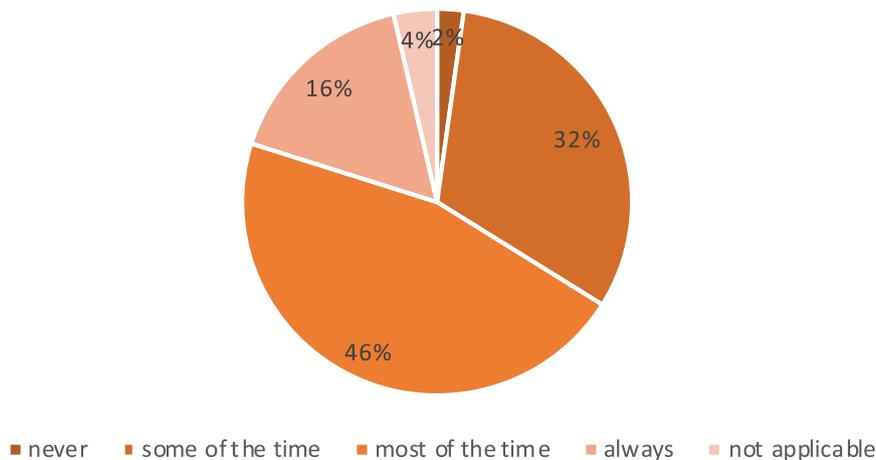
(a)

How many telehealth consultations did you do per year prior to 2020?



(b)

How often do you require photos in addition to phone/video telehealth consultations?



**Figure 2** Findings of 22-question survey on telehealth experience by 137 Australian dermatologists. (a) Telehealth consultations prior to 2020. (b) Photos in addition to phone/video telehealth consultations.

results presented here include responses from a significant number of dermatologists who had not used telehealth before. They indicate that teledermatology may be most suited for ongoing care of patients on biologic therapy and with certain inflammatory conditions. For skin checks, specific set ups may be required.

**ACKNOWLEDGEMENT**

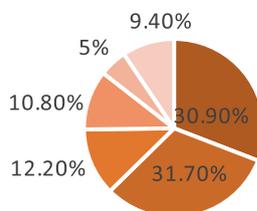
The authors would like to thank their colleagues who participated in the national Dermatology Telehealth survey.

**ETHICS APPROVAL STATEMENT**

The Royal Melbourne Hospital HREC approval number QA2020060.

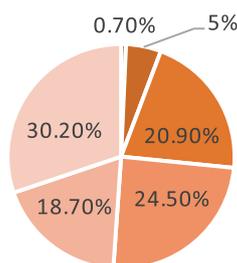
Zhi Mei Low<sup>1</sup>  | Laura Scardamaglia<sup>1,2</sup> |  
 Vanessa Morgan<sup>1</sup> | Johannes S Kern<sup>1,2</sup>   
<sup>1</sup>Dermatology Department, The Royal Melbourne Hospital, Parkville, Victoria Australia and <sup>2</sup>Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne, Parkville, Victoria Australia

(a) I find that telehealth consultation serves as a helpful screening tool for patients needing skin checks.



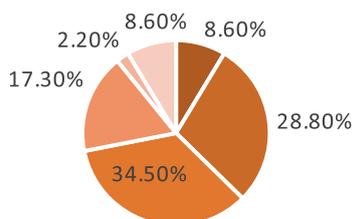
■ strongly disagree ■ disagree ■ neutral ■ agree ■ strongly agree ■ Not applicable

(b) How would you rate your experience assessing patients on biological therapy via telehealth?



■ Very poor ■ Poor ■ Average ■ Good ■ Excellent ■ Not applicable

(c) How would you rate your experience assessing patients with inflammatory conditions via telehealth?



■ Very poor ■ Poor ■ Average ■ Good ■ Excellent ■ Not applicable

**Figure 3** Findings of 22-question survey on telehealth experience by 157 Australian dermatologists. (a) Skin examination and telehealth. (b) Patients on biologic therapy and telehealth. (c) Patients with inflammatory conditions and telehealth.

Correspondence: Johannes S Kern, Dermatology Department, The Royal Melbourne Hospital, Parkville, Victoria, Australia. Email: johannes.kern@mh.org.au

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doi: 10.1111/ajd.13711

## Research Letter

Dear Editor,

### *The relationship between rosacea and smoking: A systematic review and meta-analysis*

Rosacea is a common disease, with a reported prevalence between 0.5% and 10% peaking between 40 and 50 years of age.<sup>1</sup> Clinical manifestation of rosacea is characterized by flushing, erythema, telangiectasia, papules, and pustules on the cheeks, nose, and central forehead.<sup>2</sup> Based on its clinical manifestation, rosacea could be divided into erythematotelangiectatic (ETR), papulopustular (PPR) and phymatous rosacea (PhR).<sup>3</sup> Currently, rosacea is considered as a chronic inflammatory skin disease, which is characterized by dilation of cutaneous vessels, neovascularization and apparent facial erythema with telangiectasias.<sup>4</sup>

Cigarette smoking is identified as a risk factor for multiple inflammatory diseases, such as Crohn's disease and psoriasis.<sup>5</sup> Many studies retrospectively evaluated the association between rosacea and smoking, but contradictory conclusions were reported. The role of smoking in the occurrence of rosacea remained unclear. Therefore, to clarify the exact role of smoking in rosacea, and for applying better causal treatment, we conducted a systematic

review and meta-analysis to clarify the relationship between smoking status and rosacea.

A literature search on five databases (PubMed, MEDLINE, Web of Science, EMBASE, and Cochrane Library) was performed in March 2021 without restriction on region or publication type. Two researchers independently assessed the title and abstract of the searched studies. Studies were included if they were prospective or retrospective studies mentioned the association of smoking and the occurrence of rosacea or subtypes of rosacea. The quality of each included study was assessed using the 'Newcastle-Ottawa Scale (NOS)' for case-control or cohort studies. Odds ratio (OR) and 95% confidence interval (CI) were extracted from each study. Meta-analysis was performed using Meta package on R software (Version 4.0.3 for Mac; R Foundation for Statistical Computing, Vienna, Austria). Values of  $P < 0.05$  were considered statistically significant. Higgins  $I^2$  statistic were used to assess heterogeneity across studies. Egger's test was used to evaluate publication bias.

A total of 729 studies were identified through electronic searches, and 16 studies were finally included (Fig. S1). Baseline characteristics of the included studies were summarized in Table 1. All studies were published between 2010 and 2020, including 14 case-control studies and two population-based cohort studies. The results of quality assessment were presented in Table S1. A total of 321 874 patients were included, and the characteristics of included patients were shown in Table S2.

The meta-analysis suggested that, in general, smoking was associated with the occurrence of rosacea ( $I^2 = 87%$ , OR: 1.25, 95% CI: 1.03–1.19,  $P = 0.025$ ) (Fig. S2). In subgroup analysis, smoking was only related to the occurrence of PhR ( $I^2 = 51.0%$ , OR: 4.39, 95% CI: 1.22–15.71,  $P = 0.025$ ), but not with ETR ( $I^2 = 88.4%$ , OR: 1.68, 95% CI: 0.56–5.09,  $P = 0.557$ ) and PPR ( $I^2 = 76.6%$ , OR: 1.75, 95% CI: 0.79–3.85,  $P = 0.166$ ) (Fig. 1). In addition, meta-analysis based on five case-control studies suggested that ex-smokers were statistically related to the occurrence of rosacea ( $I^2 = 78%$ , OR: 1.95, 95% CI: 1.50–2.91,  $P = 0.001$ ). The result of two cohort studies also indicated that ex-smokers showed an increased risk of rosacea ( $I^2 = 0%$ , HR: 1.14, 95% CI: 1.07–1.21,  $P < 0.001$ ), while active smokers had a decreased risk of rosacea ( $I^2 = 0%$ , HR: 0.61, 95% CI: 0.55–0.68,  $P < 0.001$ ) (Fig. 2).

Cigarette smoking was related to the reduction of relaxant response, leading to microvascular vasoconstriction.<sup>6</sup> In addition, nicotine was demonstrated as an immunosuppressive factor, which may decrease the inflammatory component of rosacea.<sup>7</sup> This mechanism would decrease the inflammation process of rosacea. Our study also indicated that active smoking was potentially related to the decreased risk of rosacea. However, nicotine withdraw would cause a rebound of immune activity and vasodilatation, which could partially explain the increased risk of rosacea among patients with smoking cessation.<sup>8</sup> We also paid attention to the subtypes of rosacea. Our study indicated that smoking was related to the occurrence of PhR, but not ETR and PPR. One of the included studies indicated

Funding: National Natural Science Foundation of China (81872555 and 82075475). The 1.5.5 Project for Disciplines of Excellence, West China Hospital, Sichuan University (ZYJC21036).

Conflict of interest: None of the contributing authors have any conflicts of interest.

Consent for publication: This manuscript is approved by all authors for publication.