Supplementary material

Statistical analysis

Statistical analysis focused on two problems, concerning melasma and facial tattoos. For each of them we considered two issues, and we had two different datasets at our disposal: eye-gaze tracking data (n = 49 subjects, both for melasma and tattoos) and online surveys (n = 129 and n = 84, for melasma and tattoos, respectively). In all cases the variables in data were dependent, since for each respondent we collected multiple measurements at different levels of the variables of our interest. In the eye-tracking problem, i.a. numbers of fixations for various skin pigmentations and areas of the models' faces were recorded for each subject, while in the surveys the respondents rated the various facial pigmentation disorder on different model faces. For each dataset a separate statistical analysis was performed, and details are presented below in separate sections.

To examine whether the presence of analysed pigmentary patterns affect the mean number of gaze fixations to critical regions of the face, two-factorial (image type by anatomic part of the face – AOI) repeated measures analysis of variance (ANOVA) was conducted based on eye-gaze datasets with the number of fixations as the dependent variable. The data were appropriately restructured and aggregated so that for each subject, anatomic location of pigmentary lesions (image type) and anatomic part of the face (AOI) we used the means of fixations for all models, since not to all participants of the study all variants of models were presented on each image type.

In order to examine whether the presence of analysed pigmentary patterns affect personality trait ratings, we also used two-factorial (AOI by personality traits) repeated measures ANOVA based on survey results with the rating score as the dependent variable. Ratings obtained for attractiveness were divided by 2 to obtain the same scale range as for other personality traits.

All calculations and statistical procedures were conducted using the R environment (v4.2.2) and IBM SPSS Statistics (v28). Statistical tests were considered statistically significant if their respective p-values were less than 0.05.

Before conducting analysis of variance (ANOVA), we checked the data sphericity with use of Mauchly's tests. In the case of sphericity violation, we obtained p-values using the following rule for correcting degrees of freedom. If the Greenhouse-Geisser estimate of the sphericity (ε) was less than 0.75, then we used the Greenhouse-Geisser corrected degrees of freedom, otherwise the Huynh-Feldt correction was applied. We also report the F statistics with the partial eta squared (η^2) measuring the effect size. In order to explore the significant main effects as well as to break down the significant interactions, a post hoc and the simple effects analysis based on the multiple comparisons with the Bonferroni correction were performed.

Analysis of gaze patterns to faces with tattoos

We analysed the eye-tracking data from 49 subjects to whom various images of faces with tattoos and faces with melasma were presented using different variants of faces (models). We were interested whether there are significant differences in areas that attract attention of the eye gaze depending on the image that was presented to a subject. The data were appropriately restructured and aggregated so that for each subject, anatomic location of pigmentary lesions (image type) and anatomic part of the face (AOI) we used the means of fixations for all models, since not to all participants of the study all variants of models were presented on each image type.

Let us first present the results concerning images with tattoos. We conducted two-factorial repeated measures analysis of variance (ANOVA) based on the eye-gaze dataset. The design was the following: four (image type) by five (AOI) and the number of fixations as the dependent variable.

First we checked the data sphericity, and only for the image type the sphericity was assumed ($\chi^2(5) = 10.934$, $p = 0.053$). For the AOI and the interaction effect of image type and AOI, the sphericity assumption was violated ($\chi^2(9) = 100.566$, $\chi^2(77) = 448.967$, respectively, with all $p < 0.001$), therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity (ε = 0.553, ε = 0.276, for AOI and the interaction of AOI and the image type, respectively).

ANOVA results proved the significance of the interaction of the image type and area ($F(127.279; 2.474) = 51.443$, $p < 0.001$, $\eta^2 = 0.539$), hence one can observe statistically significant differences in mean fixations between AOIs depending on the image type and vice versa (Supplementary Table S3 and Supplementary Figure S1). Further, the main effect of the image type was found to be significant ($F(3; 132) = 12.191$, $p < 0.001$, $\eta^2 = 0.217$), which implies that images with tattoos were differently perceived regardless of the area that attracted the attention (Supplementary Table S1). The other main effect of the facial area was also significant ($F(2.211; 97.3) = 27.410$, $p < 0.001$, $\eta^2 = 0.384$) which means that when all images were analysed irrespective of tattoo location, the mean number of fixations between areas of interest occurred to be significantly different (Supplementary Table S2).

Presence of any of analysed tattoo patterns significantly decreased attention in the ocular area irrespective of its location ($p \leq 0.002$ for all image types) with no significant differences between locations (p from 0.153 to 1 for all image types except the healthy faces), which can be observed in Supplementary Table S4. In line with the previous study, attention to the chin area was affected only by a tattoo in the same region ($p < 0.001$), which is shown in Supplementary Table S3.

Supplementary Table S1. Main effect of the image type: estimated means and 95% confidence intervals for number of fixations in particular image types regardless of AOI and the post hoc test results of multiple comparisons with the Bonferroni correction with *p*-values underlined for the significant differences in means of fixations

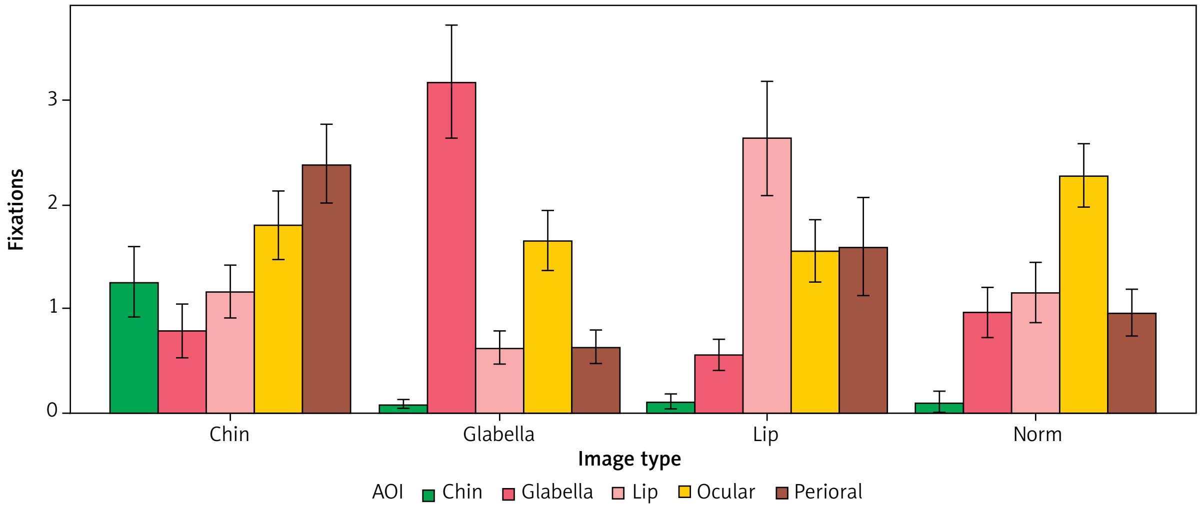
Image type	Mean of fixations	95% CI	Pairwise comparison with Bonferroni correction: *p*-values			
			Healthy	Chin	Glabella	Lip
Healthy	1.099	(0.979; 1.219)	–	< 0.001	0.070	0.094
Chin	1.486	(1.350; 1.622)	< 0.001	–	< 0.001	0.082
Glabella	1.242	(1.106; 1.378)	0.070	< 0.001	–	1
Lip	1.296	(1.110; 1.481)	0.094	0.082	1	–

Supplementary Table S2. Main effect of AOI: estimated means and 95% confidence intervals for number of fixations in particular AOIs regardless of the image type and the post hoc test results of multiple comparisons with the Bonferroni correction with *p*-values underlined for the significant differences in means of fixations

AOI	Mean of fixations	95% CI	Pairwise comparison with Bonferroni correction: *p*-values				
			Ocular area	Chin	Glabella	Lip	Perioral area
Ocular area	1.828	(1.564; 2.093)	–	< 0.001	0.096	0.308	0.345
Chin	0.393	(0.289; 0.498)	< 0.001	–	< 0.001	< 0.001	< 0.001
Glabella	1.379	(1.147; 1.611)	0.096	< 0.001	–	1	1
Lip	1.401	(1.177; 1.626)	0.308	< 0.001	1	–	1
Perioral area	1.401	(1.163; 1.640)	0.345	< 0.001	1	1	–

Supplementary Table S3. Interaction of the image type and AOI. Estimated means of fixations and 95% confidence intervals for a particular image type depending on AOI and simple effect analysis: multiple comparisons with the Bonferroni correction with *p*-values underlined for the significant differences in means of fixations

Image type	AOI	Mean of fixations (95% CI)	Pairwise comparison with Bonferroni correction: *p*-values AOI				
			Ocular	Chin	Glabella	Lip	Perioral
Healthy	Ocular	2.289 (1.988; 2.590)	–	< 0.001	< 0.001	< 0.001	< 0.001
	Chin	0.106 (0; 0.211)	< 0.001	–	< 0.001	< 0.001	< 0.001
	Glabella	0.972 (0.731; 1.214)	< 0.001	< 0.001	–	1	1
	Lip	1.161 (0.878; 1.444)	< 0.001	< 0.001	1	–	0.030
	Perioral	0.967 (0.737; 1.196)	< 0.001	< 0.001	1	0.030	–
Chin	Ocular	1.808 (1.483; 2.133)	–	0.406	< 0.001	0.063	0.417
	Chin	1.261 (0.925; 1.597)	0.406	–	0.448	1	< 0.001
	Glabella	0.794 (0.539; 1.050)	< 0.001	0.448	–	0.361	< 0.001
	Lip	1.172 (0.921; 1.423)	0.063	1	0.361	–	< 0.001
	Perioral	2.394 (2.017; 2.772)	0.417	< 0.001	< 0.001	< 0.001	–
Glabella	Ocular	1.661 (1.378; 1.944)	–	< 0.001	< 0.001	< 0.001	< 0.001
	Chin	0.089 (0.049; 0.129)	< 0.001	–	< 0.001	< 0.001	< 0.001
	Glabella	3.183 (2.644; 3.722)	< 0.001	< 0.001	–	< 0.001	< 0.001
	Lip	0.633 (0.476; 0.791)	< 0.001	< 0.001	< 0.001	–	1
	Perioral	0.644 (0.486; 0.803)	< 0.001	< 0.001	< 0.001	1	–
Lip	Ocular	1.556 (1.258; 1.853)	–	< 0.001	< 0.001	0.031	1
	Chin	0.117 (0.044; 0.189)	< 0.001	–	< 0.001	< 0.001	< 0.001
	Glabella	0.567 (0.417; 0.716)	< 0.001	< 0.001	–	< 0.001	0.003
	Lip	2.639 (2.094; 3.183)	0.031	< 0.001	< 0.001	–	< 0.001
	Perioral	1.600 (1.131; 2.069)	1	< 0.001	0.003	< 0.001	–



Supplementary Figure S1. Interaction between the image type and AOI: means and 95% confidence intervals for the mean number of fixations

Supplementary Table S4. Interaction of the AOI and image type. Estimated means of fixations and 95% confidence intervals for AOI depending on the image type and simple effect analysis: multiple comparisons with the Bonferroni correction with *p*-values underlined for the significant differences in means of fixations

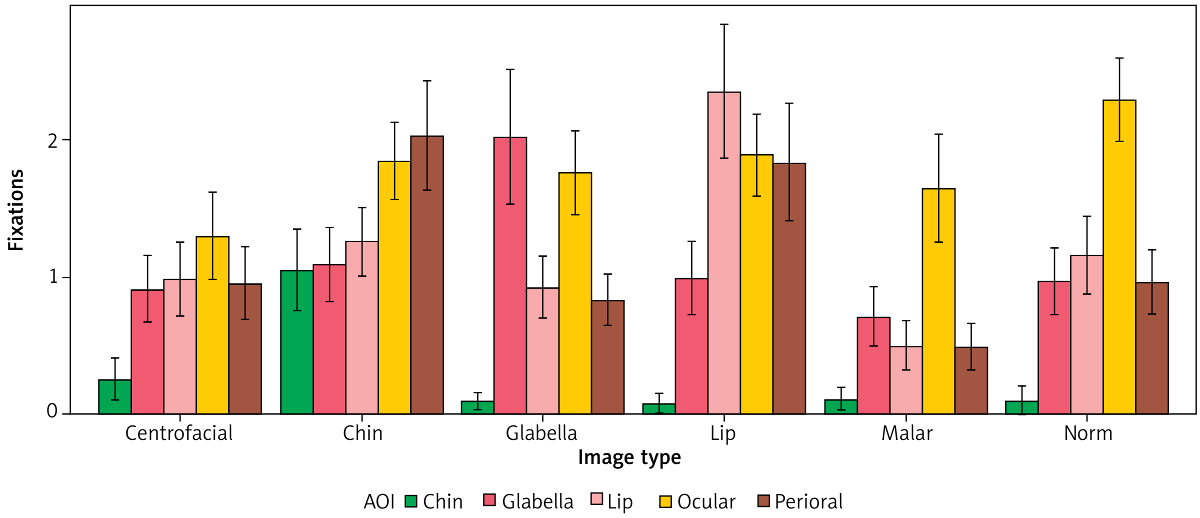
AOI	Image type	Mean of fixations (95% CI)	Pairwise comparison with Bonferroni correction: *p*-values Image type			
			Healthy	Chin	Glabella	Lip
Ocular	Healthy	2.289 (1.988; 2.590)	–	0.002	< 0.001	< 0.001
	Chin	1.808 (1.483; 2.133)	0.002	–	0.846	0.153
	Glabella	1.661 (1.378; 1.944)	< 0.001	0.846	–	1
	Lip	1.556 (1.258; 1.853)	< 0.001	0.153	1	–
Chin	Healthy	0.106 (0; 0.211)	–	< 0.001	1	1
	Chin	1.261 (0.925; 1.597)	< 0.001	–	< 0.001	< 0.001
	Glabella	0.089 (0.049; 0.129)	1	< 0.001	–	1
	Lip	0.117 (0.044; 0.189)	1	< 0.001	1	–
Glabella	Healthy	0.972 (0.731; 1.214)	–	0.602	< 0.001	0.002
	Chin	0.794 (0.539; 1.050)	0.602	–	< 0.001	0.135
	Glabella	3.183 (2.644; 3.722)	< 0.001	< 0.001	–	< 0.001
	Lip	0.567 (0.417; 0.716)	0.002	0.135	< 0.001	–
Lip	Healthy	1.161 (0.878; 1.444)	–	1	0.001	< 0.001
	Chin	1.172 (0.921; 1.423)	1	–	< 0.001	< 0.001
	Glabella	0.633 (0.476; 0.791)	0.001	< 0.001	–	< 0.001
	Lip	2.639 (2.094; 3.183)	< 0.001	< 0.001	< 0.001	–
Perioral	Healthy	0.967 (0.737; 1.196)	–	< 0.001	0.024	0.025
	Chin	2.394 (2.017; 2.772)	< 0.001	–	< 0.001	0.008
	Glabella	0.644 (0.486; 0.803)	0.024	< 0.001	–	< 0.001
	Lip	1.600 (1.131; 2.069)	0.025	0.008	< 0.001	–

Tattoo in the glabellar area increases attention ($p < 0.001$ for all AOIs) to homonymous area (mean = 3.183, 95% CI: (2.644; 3.722)) and this increase of attention has the greatest amplitude compared to normal images among all analysed AOIs and media (see Supplementary Table S3 and Supplementary Figure S1). Tattoo in the glabella significantly decreases attention to the upper lip area compared to non-tattooed faces ($p = 0.002$).

In images with chin tattoos the attention to the perioral area is significantly increased compared to normal images ($p < 0.001$) exclusively due to the increase of attention to the homonymous area without affecting the attention paid to the upper lip ($p \approx 1$). Upper lip tattoos attract more attention to the perioral area compared to normal images ($p = 0.025$), but significantly less than chin tattoos ($p = 0.008$) and this is mediated exclusively by increased attention to the upper lip ($p < 0.001$ for all image types). Images with chin tattoos attracted significantly more fixations (regardless of the area) than images of glabellar tattoos ($p < 0.001$) and healthy reference images ($p < 0.001$). When all images were analysed irrespective of the tattoo location, the chin area was found to attract significantly less fixations than remaining analysed areas ($p < 0.001$, for all areas). This is in line with a previous study which showed that the chin area falls within a low-attention cluster, while remaining analysed areas fall within a high-attention cluster. Images with chin tattoos attracted significantly more fixations than images of glabellar tattoos ($p < 0.001$) and healthy reference images ($p < 0.001$).

Supplementary Table S5. Interaction of the chloasma image type and AOI. Estimated means of fixations and 95% confidence intervals for a particular image type depending on AOI and simple effect analysis: multiple comparisons with the Bonferroni correction with *p*-values underlined for the significant differences in means of fixations

Image type	AOI	Mean of fixations (95% CI)	Pairwise comparison with Bonferroni correction: *p*-values AOI				
			Ocular	Chin	Glabella	Lip	Perioral
Healthy	Ocular	2.289 (1.988; 2.590)	–	< 0.001	< 0.001	< 0.001	< 0.001
	Chin	0.106 (0; 0.211)	< 0.001	–	< 0.001	< 0.001	< 0.001
	Glabella	0.972 (0.731; 1.214)	< 0.001	< 0.001	–	1	1
	Lip	1.161 (0.878; 1.444)	< 0.001	< 0.001	1	–	0.030
	Perioral	0.967 (0.737; 1.196)	< 0.001	< 0.001	1	0.030	–
Chin	Ocular	1.847 (1.570; 2.125)	–	0.006	0.004	0.073	1
	Chin	1.056 (0.759; 1.352)	0.006	–	1	1	< 0.001
	Glabella	1.094 (0.826; 1.363)	0.004	1	–	1	0.004
	Lip	1.261 (1.012; 1.511)	0.073	1	1	–	< 0.001
	Perioral	2.028 (1.631; 2.425)	1	< 0.001	0.004	< 0.001	–
Glabella	Ocular	1.761 (1.458; 2.064)	–	< 0.001	1	< 0.001	< 0.001
	Chin	0.106 (0.047; 0.164)	< 0.001	–	< 0.001	< 0.001	< 0.001
	Glabella	2.017 (1.531; 2.502)	1	< 0.001	–	< 0.001	< 0.001
	Lip	0.928 (0.700; 1.156)	< 0.001	< 0.001	< 0.001	–	1
	Perioral	0.839 (0.653; 1.024)	< 0.001	< 0.001	< 0.001	1	–
Lip	Ocular	1.892 (1.597; 2.187)	–	< 0.001	< 0.001	1	1
	Chin	0.078 (0; 0.161)	< 0.001	–	< 0.001	< 0.001	< 0.001
	Glabella	0.994 (0.729; 1.260)	< 0.001	< 0.001	–	< 0.001	0.032
	Lip	2.350 (1.864; 2.836)	1	< 0.001	< 0.001	–	< 0.001
	Perioral	1.833 (1.407; 2.260)	1	< 0.001	0.032	< 0.001	–
Malar	Ocular	1.647 (1.256; 2.038)	–	< 0.001	< 0.001	< 0.001	< 0.001
	Chin	0.117 (0.036; 0.198)	< 0.001	–	< 0.001	< 0.001	< 0.001
	Glabella	0.717 (0.500; 0.934)	< 0.001	< 0.001	–	1	1
	Lip	0.506 (0.328; 0.684)	< 0.001	< 0.001	1	–	1
	Perioral	0.494 (0.325; 0.664)	< 0.001	< 0.001	1	1	–
Centrofacial	Ocular	1.303 (0.988; 1.617)	–	< 0.001	0.404	1	1
	Chin	0.261 (0.110; 0.412)	< 0.001	–	< 0.001	< 0.001	< 0.001
	Glabella	0.917 (0.676; 1.157)	0.404	< 0.001	–	1	1
	Lip	0.989 (0.720; 1.257)	1	< 0.001	1	–	1
	Perioral	0.956 (0.692; 1.219)	1	< 0.001	1	1	–



Supplementary Figure S2. Interaction between the chloasma image type and AOI: means and 95% confidence intervals for the mean number of fixations

Analysis of gaze patterns to faces with melasma

First, the data sphericity was verified with use of Mauchly's tests and for all effects: the image type, AOI and their interaction the sphericity assumption was violated ($\chi^2(14) = 97.287$ for image type, $\chi^2(9) = 127.351$ for AOI and $\chi^2(209) = 713.659$ for the interaction, with all $p < 0.001$), therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = 0.461$, $\varepsilon = 0.566$, and $\varepsilon = 0.286$, respectively).

According to the ANOVA results, the interaction of the image type and area was found to be significant ($F(30.106; 1.667) = 18.064$, $p < 0.001$, $\eta^2 = 0.291$), which implies that there are significant differences in mean fixations between AOIs depending on the image type and vice versa (Supplementary Table S5 and Supplementary Figure S2).

The main effect of the image type was significant ($F(2.306; 101.449) = 28.511$, $p < 0.001$, $\eta^2 = 0.393$), which means that respondents reacted differently to images with different types of chloasma, regardless of the area that attracted their attention (Supplementary Table S6).

The main effect of the area of interest was significant as well ($F(2.266; 99.7) = 31.009$, $p < 0.001$, $\eta^2 = 0.413$) and this implies that when looking at chloasma images in various locations, the mean number of fixations between areas of interest was significantly different, regardless of the image type presented (Supplementary Table S7).

In line with results seen in more visually salient tattoo images, the attention to the chin area was affected only by chloasma in the homonymous region ($p < 0.001$ for all areas). Chloasma in the glabellar area increases attention to the homonymous area and this increase of attention has the greatest amplitude compared to normal images (difference in means = –1.044, $p < 0.001$) among all analysed media for glabellar AOI. Despite the fact that centrofacial chloasma involves lesions in the glabella, yet we have seen no significant increase of attention to the glabellar AOI in that type of chloasma ($p = 0.404$ compared to ocular AOI, $p \approx 1$ compared to lip and AOI = 5, only compared to the chin area there is a significant increase in the glabellar area: $p < 0.001$).

Upper lip chloasma significantly increases attention to the homonymous region ($p < 0.001$ for differences in means between lip and all other areas except ocular, where $p \approx 1$) while malar chloasma has a significant negative effect (significantly highest mean of fixations is present in the ocular area with $p < 0.001$, means between glabella, lip and perioral areas are similar with $p \approx 1$, and significantly lowest mean is observed in the chin area, $p < 0.001$).

In images with chin chloasma the attention to the perioral area is significantly increased compared to normal images ($p < 0.001$) exclusively due to increase of attention to the homonymous area ($p < 0.001$) without affecting the attention paid to the upper lip ($p \approx 1$ for the lip area and differences between normal images and chin chloasma).

Upper lip chloasma attracts more attention to the perioral area compared to normal images ($p < 0.001$), but slightly less (insignificant, $p \approx 1$) than chin chloasma and this is mediated exclusively by increased attention to the upper lip ($p < 0.001$ for means between lip area and all other AOIs except ocular, where $p \approx 1$).

Malar chloasma significantly decreases attention to the perioral area ($p = 0.007$ for means between malar and normal images). Despite the fact that centrofacial chloasma involves lesions in the upper lip, yet we have seen no significant increase of attention to the upper lip ($p \approx 1$) nor perioral area in general ($p \approx 1$) in that type of chloasma. When all images were analysed irrespective of

Supplementary Table S6. Main effect of the chloasma image type: estimated means and 95% confidence intervals for number of fixations in particular image types regardless of AOI and the post hoc test results of multiple comparisons with the Bonferroni correction with *p*-values underlined for the significant differences in means of fixations

Image type	Mean of fixations	95% CI	Pairwise comparison with Bonferroni correction: *p*-values					
			Healthy	Chin	Glabella	Lip	Malar	Centrofacial
Healthy	1,099	(0.979; 1.219)	–	< 0.001	1	< 0.001	< 0.001	0.284
Chin	1,457	(1.313; 1.601)	< 0.001	–	< 0.001	1	< 0.001	< 0.001
Glabella	1,130	(0.998; 1.262)	1	< 0.001	–	< 0.001	< 0.001	0.120
Lip	1,429	(1.266; 1.593)	< 0.001	1	< 0.001	–	< 0.001	< 0.001
Malar	0,696	(0.580; 0.813)	< 0.001	< 0.001	< 0.001	< 0.001	–	0.002
Centrofacial	0,885	(0.740; 1.030)	0.284	< 0.001	0.120	< 0.001	0.002	–

Supplementary Table S7. Main effect of AOI: estimated means and 95% confidence intervals for number of fixations in particular AOIs regardless of the chloasma image type and the post hoc test results of multiple comparisons with the Bonferroni correction with *p*-values underlined for the significant differences in means of fixations

AOI	Mean of fixations	95% CI	Pairwise comparison with Bonferroni correction: *p*-values				
			Ocular area	Chin	Glabella	Lip	Perioral area
Ocular area	1.790	(1.540; 2.040)	–	< 0.001	0.002	0.021	0.016
Chin	0.287	(0.195; 0.379)	< 0.001	–	< 0.001	< 0.001	< 0.001
Glabella	1.119	(0.909; 1.328)	0.002	< 0.001	–	1	1
Lip	1.199	(0.996; 1.403)	0.021	< 0.001	1	–	1
Perioral area	1.186	(0.994; 1.378)	0.016	< 0.001	1	1	–

the chloasma location, the chin area was found to attract significantly less fixations than remaining analysed areas (all $p < 0.001$). This is in line with a previous study which showed that the chin area falls within a low-attention cluster, while remaining analysed areas fall within a high-attention cluster. Upper lip and chin chloasma attract significantly more attention to the face in general compared to healthy faces ($p < 0.001$), while the impact of glabellar and centrofacial lesions was not significant ($p \approx 1$ and $p = 0.284$, respectively).

Personality ratings for faces with tattoos

Firstly, each respondent was presented 3 photographs of model faces with the tattoos on the chin, glabella, lip, respectively. We asked respondents to rate their perception of pictured individuals' dominance based on a questionnaire. Further, we repeated this procedure in the context of other personality traits we were interested in: trustworthiness, confidence, attractiveness, aggressiveness. Face stimuli were rated for dominance, trustworthiness, confidence, aggressiveness on a 5-point Likert-like scale and for attractiveness on a 10-point Likert-like scale. However, the ratings obtained for attractiveness were divided by 2 to obtain the same range of scales.

The data were aggregated so that for each respondent we obtained the rating score in three variants of AOI (chin, glabella, lip) by five variants of personality traits (trustworthiness, confidence, attractiveness, aggressiveness). Thus, for each respondent 15 ratings were received.

For $n = 84$ subjects we performed two-way repeated measures ANOVA according to the following design: five (personality traits) by three (AOI) with the rating score as the dependent variable. For the effect of personality traits and its interaction with AOI the sphericity assumption was violated (Mauchly's tests χ^2 (9) = 32.340, χ^2 (35) = 70.190, respectively, with all $p < 0.001$), therefore degrees of freedom were corrected using Huynh-Feldt estimates of sphericity ($\varepsilon = 0.877$, $\varepsilon = 0.892$, respectively). For the effect of AOI the sphericity of data was assumed, since the Mauchly's test result did not allow to reject the null hypothesis (χ^2 (2) = 4.837, $p = 0.089$). According to the results, the main effect of personality traits was significant (F(3.508; 291.126) = 16.023, $p < 0.001$, $\eta^2 = 0.162$) as well as the effect of its interaction with AOI (F(7.138; 592.483) = 2.843, $p = 0.006$, $\eta^2 = 0.033$). However, the main effect of AOI was not significant (F(2; 166) = 0.476, $p = 0.622$, $\eta^2 = 0.006$) thus the pairwise comparison was not performed.

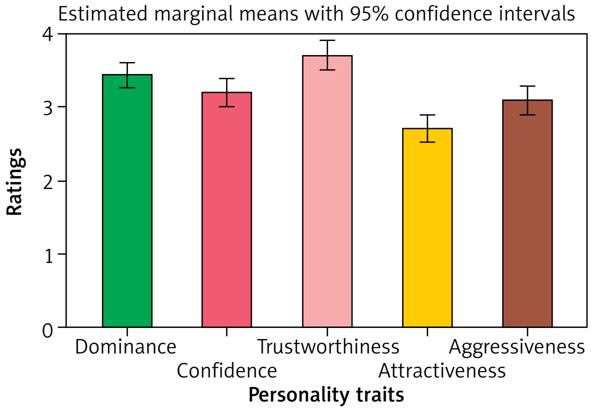
In Supplementary Table S8, the estimated means of rating score in various personality traits are presented. Moreover, we add also the post hoc test results. Respective error bars for the main effects of personality traits are presented in Supplementary Figure S3. A post hoc pairwise comparison using the Bonferroni correction showed that the rating score for attractiveness (mean = 2.710) is significantly smaller than for dominance (mean = 3.433; $p < 0.001$), trustworthiness (mean = 3.202; $p < 0.001$) and confidence (mean = 3.706; $p < 0.001$). More-

Supplementary Table S8. Main effects of personality traits: estimated means and of rating score 95% confidence intervals in particular personality traits regardless of AOI (chin, glabella, lip) and the post hoc test results of multiple comparisons with the Bonferroni correction with *p*-values underlined for the significant differences in means of rating scores

Personality traits	Mean of rating scores	95% CI	Pairwise comparison with Bonferroni correction: *p*-values				
			Dominance	Trustworthiness	Confidence	Attractiveness	Aggressiveness
Dominance	3.433	(3.268; 3.597)	–	0.769	0.207	< 0.001	0.086
Trustworthiness	3.202	(3.011; 3.394)	0.769	–	0.005	< 0.001	1
Confidence	3.706	(3.505; 3.908)	0.207	0.005	–	< 0.001	< 0.001
Attractiveness	2.710	(2.528; 2.893)	< 0.001	0.001	< 0.001	–	0.095
Aggressiveness	3.095	(2.905; 3.285)	0.086	1	< 0.001	0.095	–

over, the increase of the rating score reached the significance when comparing confidence (mean = 3.706) via trustworthiness (mean = 3.202; $p = 0.005$) and aggressiveness (mean = 3.095; $p < 0.001$), respectively.

In order to understand the nature of interactions between personality traits and AOI, the simplest effects analysis was conducted, based on multiple comparisons with Bonferroni correction, which results are presented in Supplementary Table S9. It should be noticed that the faces with upper lip tattoos were perceived significantly more aggressive (mean = 3.357) than faces chin tattoos (mean = 2.821; $p = 0.004$). There was a trend towards increased attractiveness for chin tattoos (mean = 2.964) compared to upper lip (mean = 2.577; $p = 0.189$), and glabella tattoos (mean = 2.589; $p = 0.055$) although it did not reach statistical significance.



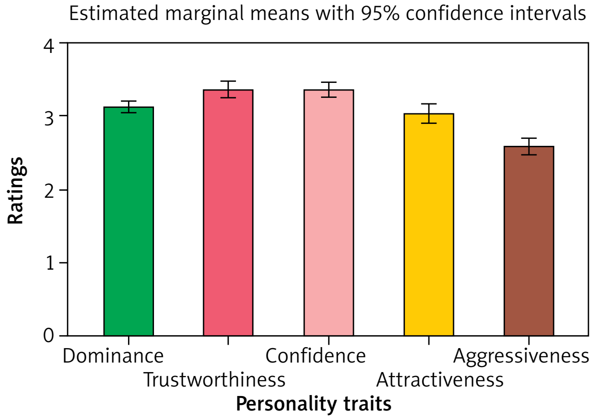
Supplementary Figure S3. Main effects of personality traits: means and 95% confidence intervals for the means of rating scores

Supplementary Table S9. Interaction of the personality traits and AOI. Estimated means of rating score and 95% confidence intervals for particular personality traits depending on AOI and simple effects analysis: multiple comparisons with the Bonferroni correction with *p*-values underlined for the significant differences in means of rating scores

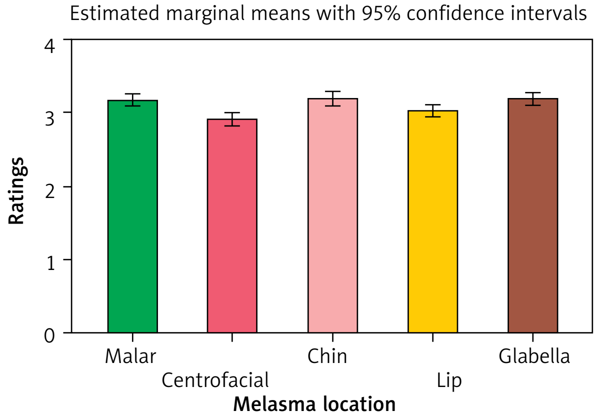
Personality traits	AOI	Mean of rating scores (95% CI)	Pairwise comparison with Bonferroni correction: *p*-values AOI		
			Chin	Glabella	Lip
Dominance	Chin	3.512 (3.221; 3.803)	–	0.448	1
	Glabella	3.238 (2.961; 3.515)	0.448	–	0.342
	Lip	3.548 (3.295; 3.801)	1	0.342	–
Trustworthiness	Chin	3.262 (2.996; 3.527)	–	1	0.800
	Glabella	3.298 (3.002; 3.593)	1	–	0.581
	Lip	3.048 (2.756; 3.339)	0.800	0.581	–
Confidence	Chin	3.750 (3.459; 4.041)	–	1	1
	Glabella	3.643 (3.354; 3.932)	1	–	1
	Lip	3.726 (3.438; 4.015)	1	1	–
Attractiveness	Chin	2.964 (2.668; 3.260)	–	0.055	0.189
	Glabella	2.589 (2.363; 2.815)	0.055	–	1
	Lip	2.577 (2.280; 2.875)	0.189	1	–
Aggressiveness	Chin	2.821 (2.558; 3.085)	–	0.215	0.004
	Glabella	3.107 (2.864; 3.350)	0.215	–	0.275
	Lip	3.357 (3.082; 3.632)	0.004	0.275	–

Supplementary Table S10. Main effect of the personality traits: estimated means of rating scores and 95% confidence intervals for a particular personality trait regardless of melasma location (malar, centrofacial, chin, lip, glabella) and the post hoc test results of multiple comparisons with the Bonferroni correction with *p*-values underlined for the significant differences in means of rating scores

Personality traits	Mean of rating scores	95% CI	Pairwise comparison with Bonferroni correction: *p*-values				
			Dominance	Trustworthiness	Confidence	Attractiveness	Aggressiveness
Dominance	3.127	(3.048; 3.206)	–	0.024	< 0.001	1	< 0.001
Trustworthiness	3.361	(3.248; 3.474)	0.024	–	1	< 0.001	< 0.001
Confidence	3.357	(3.259; 3.454)	< 0.001	1	–	< 0.001	< 0.001
Attractiveness	3.028	(2.891; 3.165)	1	< 0.001	< 0.001	–	< 0.001
Aggressiveness	2.581	(2.469; 2.694)	< 0.001	< 0.001	< 0.001	< 0.001	–



Supplementary Figure S4. Main effects of personality traits: means and 95% confidence intervals for the means of rating scores



Supplementary Figure S5. Main effects of melasma location: means and 95% confidence intervals for the means of rating scores

Supplementary Table S11. Main effect of melasma location: estimated means of rating scores and 95% confidence intervals in particular melasma locations regardless of the personality traits (dominance, trustworthiness, confidence, attractiveness, aggressiveness) and the post hoc test results of multiple comparisons with the Bonferroni correction with *p*-values underlined for the significant differences in means of rating scores

Melasma location	Mean of rating stores	95% CI	Pairwise comparison with Bonferroni correction: p-values				
			Malar	Centrofacial	Chin	Lip	Glabella
Malar	3.164	(3.083; 3.245)	–	< 0.001	1	0.083	1
Centrofacial	2.904	(2.811; 2.997)	< 0.001	–	< 0.001	0.254	< 0.001
Chin	3.186	(3.092; 3.281)	1	< 0.001	–	0.042	1
Lip	3.020	(2.936; 3.104)	0.083	0.254	0.042	–	0.021
Glabella	3.180	(3.097; 3.262)	1	< 0.001	1	0.021	–

Personality ratings for faces with melasma

The data were appropriately restructured and aggregated so that for each subject, personality trait (dominance, trustworthiness, confidence, attractiveness, aggressiveness) and melasma location (malar, centrofacial, chin, lip, glabella) we had the rating score for model for our disposal, since to all participants of the study a single variant of the model was presented on each area. Then the ratings obtained for attractiveness were divided by 2 to obtain the same range of scales as for other personality traits.

For n = 129 subjects we conducted two-way repeated measures ANOVA (5 personality traits x 5 melasma locations) again with the rating score as the dependent variable. First, we checked the data sphericity with use of Mauchly's tests. For the tested personality traits, and

Supplementary Table S12. Interaction of the personality traits and melasma location. Estimated means of rating scores and 95% confidence intervals for particular personality traits depending on melasma location and simple effect analysis: multiple comparisons with the Bonferroni correction with *p*-values underlined for the significant differences in means of rating scores

Personality traits	Melasma location	Mean of rating scores (95% CI)	Pairwise comparison with Bonferroni correction: p-values AOI				
			Malar	Centrofacial	Chin	Lip	Glabella
Dominance	Malar	3.140 (2.953; 3.327)	–	0.504	1	1	1
	Centrofacial	2.868 (2.683; 3.053)	0.504	–	0.024	0.094	1
	Chin	3.302 (3.097; 3.507)	1	0.024	–	1	1
	Lip	3.217 (3.043; 3.391)	1	0.094	1	–	1
	Glabella	3.109 (2.899; 3.318)	1	1	1	1	–
Trustworthiness	Malar	3.450 (3.285; 3.614)	–	1	1	0.274	1
	Centrofacial	3.326 (3.151; 3.500)	1	–	1	1	0.576
	Chin	3.287 (3.092; 3.482)	1	1	–	1	0.200
	Lip	3.202 (3.023; 3.380)	0.274	1	1	–	0.005
	Glabella	3.543 (3.377; 3.708)	1	0.576	0.200	0.005	–
Confidence	Malar	3.372 (3.178; 3.566)	–	0.008	1	1	0.056
	Centrofacial	2.868 (2.647; 3.090)	0.008	–	< 0.001	0.055	< 0.001
	Chin	3.543 (3.341; 3.745)	1	< 0.001	–	0.472	1
	Lip	3.256 (3.055; 3.457)	1	0.055	0.472	–	0.004
	Glabella	3.744 (3.552; 3.937)	0.056	< 0.001	1	0.004	–
Attractiveness	Malar	3.209 (3.031; 3.387)	–	< 0.001	1	0.069	0.782
	Centrofacial	2.729 (2.544; 2.913)	< 0.001	–	< 0.001	0.178	0.015
	Chin	3.225 (3.045; 3.405)	1	< 0.001	–	0.007	1
	Lip	2.922 (2.742; 3.103)	0.069	0.178	0.007	–	1
	Glabella	3.054 (2.872; 3.236)	0.782	0.015	1	1	–
Aggressiveness	Malar	2.651 (2.447; 2.855)	–	1	1	1	1
	Centrofacial	2.729 (2.539; 2.918)	1	–	1	0.803	0.297
	Chin	2.574 (2.374; 2.773)	1	1	–	1	1
	Lip	2.504 (2.315; 2.693)	1	0.803	1	–	1
	Glabella	2.450 (2.252; 2.647)	1	0.297	1	1	–

the interaction effect of personality traits and melasma location the sphericity assumption was violated (χ^2 (9) = 71.942, χ^2 (135) = 549.299, respectively, with all p < 0.001), therefore degrees of freedom were corrected using Huynh-Feldt estimates of sphericity (ε = 0.770) for the personality traits, and Greenhouse-Geisser estimates of sphericity for the interaction of personality traits and melasma location (ε = 0.621). For the effect of melasma location, the sphericity of data was assumed, since the Mauchly's test result did not allow to reject the null hypothesis (χ^2 (9) = 10.397, p = 0.319).

ANOVA results allow to state the significance of the main effect of the personality traits (F(3.163; 404.856) = 34.441, p < 0.001, η^2 = 0.212), which implies that personality traits were differently perceived regardless of the melasma location that attracted the attention (Supplementary Table S10 and Supplementary Figure S4). The other main effect of melasma location was also significant (F(4; 512) = 10.026, p < 0.001, η^2 = 0.073). Hence when all personality traits were analysed irrespective of melasma location, the mean of rating scores between melasma locations occurred to be significantly different (Supplementary Table S11 and Supplementary Figure S5). Finally, the interaction effect of personality traits and melasma location was found to be significant (F(9.942; 1272.540) = 4.291, p < 0.001, η^2 = 0.032). Thus we can observe significant differences in mean of rating scores between melasma locations depending on the personality traits and vice versa (Supplementary Table S12).