1 **COSMETIC MEDICINE**

2

3 **ORIGINAL ARTICLE**

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5 **Redefining Beauty: A Qualitative Study Exploring Adult Women's Motivations for Lip**

6 **Filler Resulting in Anatomical Distortion**

7

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29 Level of Evidence: Risk IV

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1 ABSTRACT

2 **Background:** Lip Filler enhancement has fast become one of the most popular minimally

3 invasive cosmetic procedures. Motivations for 'over-treatment' with lip fillers are poorly

4 understood.

5 **Objectives:** To explore women's motivations for and experiences of procedures that achieve an

6 aesthetic of distorted lip anatomy.

7 **Methods:** Twenty-four women who had undergone lip filler procedures resulting in strikingly

8 distorted lip anatomy, determined using The Harris Classification of Filler Spread, took part in

9 semi-structured interviews about their motivations, experiences and perceptions related to lip-

10 fillers. A qualitative thematic analysis was carried out.

11 **Results:** Four major themes are discussed: (1) the normalization of lip-fillers, (2) perceptual drift

12 which is mediated by exposure to repetitive images of larger lips on social media, (3) perceived

13 financial and social benefits of larger lips, and (4) the relationship between mental health and

14 seeking repeated lip filler procedures.

15 **Conclusions:** Motivations for seeking lip fillers vary, however most women described social

16 media impacting perceived aesthetic norms. We describe a process of perceptual drift where

17 mental schema encoding expectations of 'natural' facial anatomy can adapt through repeated

18 exposure to enhanced images. Our results can inform aesthetic practitioners and policy makers

19 seeking to understand and support those seeking minimally-invasive cosmetic procedures.

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1   The past decade has witnessed exponential growth in the popularity of both invasive and

2   minimally invasive cosmetic procedures. Dermal fillers are the second most common- global

3   cosmetic procedure with 4.3 million procedures carried out annually and an annual rise in

4   number of procedures of 15.7%.[1] In comparison to invasive surgery, "injectables" are largely

5   reversible, relatively low cost and have minimal downtime, adding to their general appeal. Fillers

6   may be administered to a range of sites including lips, cheeks, jaw, chin, nose, acne

7   scars, nasolabial folds and genitalia, thus enabling individuals to subtly or drastically remodel

8   their appearance. More recently some practitioners have identified a trend in individuals seeking

9   facial remodelling outside of what would be considered a natural anatomical range for the

10   individual, a term coined "alienization".[2] Reasons for the popularity of this phenomena, also

11   sometimes referred to as the 'Instagram face', has been a subject of interest in popular media.

12   Female body image dissatisfaction is a well-documented finding[3] with

13   approximately 40% of women describing moderate to strong dissatisfaction with both individual

14   body parts as well as their body as a whole.[4] Within the past decade research into the relationship

15   between body image and cosmetic surgery has increased.[5,6] Longstanding concerns have been

16   raised around the prevalence of underlying pathologically distorted body image, in particular

17   body dysmorphic disorder (BDD) and eating disorders (ED), in those seeking more extreme or

18   repetitive cosmetic procedures. Whilst the estimated weighted prevalence of BDD is reported as

19   roughly 1.9% in community adults and 3.3% in student populations[7] this number is reportedly

20   much higher in cosmetic procedure cohorts.[8,9] Previous research suggests people requesting

21   cosmetic procedures have a range of other pre-existing mental health disorders such as eating

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1. disorders, depression or anxiety.[10] A number of mental health symptoms including depression,

2. deliberate self-harm, suicidal ideation, anxiety and illicit drug might predict an individual's

3. likelihood of seeking cosmetic procedures.[11]

4.   Whilst previous studies have explored the demographics, social characteristics and

5. motivations of individuals seeking a broader range of minimally invasive cosmetic procedures,

6. including botulinum toxin injections and soft tissue filler injections,[12,13] there are as yet no

7. known studies exploring in depth motivations for lip filler procedures. More specifically there

8. are no studies investigating the motivations of those individuals whose outcomes distort the

9. normal anatomical range. The rising popularity and demand for increased frequency and larger

10. volume lip-filler procedures, and concern from practitioners wanting to avoid over-treatment, has

11. highlighted the importance of understanding this cohort.

12.   The aim of this study was to conduct an in-depth exploration of women's motives and

13. reasons for choosing lip filler procedures, encapsulated in the following research question: What

14. are the motivations for women choosing lip filler injections resulting in outcomes outside the

15. anatomical norm?

16.

17. METHODS

18. **Study Design**

19. This qualitative study was carried out between October 2020 and August 2021. Participants

20. completed an online questionnaire and were asked to email a series of facial photographs to the

21. study email account which were used to classify the anatomical outcomes of their lip-filler

22. procedures based on the Harris classification scale.[14] They were then invited to take part in a 60-

4

1 minute semi-structured interview. Interviews were transcribed verbatim and uploaded to NVivo

2 (QSR International, Burlington, MA) for thematic analysis as described by Braun and Clarke.[15]

3

4 **Recruitment of Participants**

5 In order to recruit participants, we created a study page on Instagram (Meta Platforms, Menlo

6 Park, CA). The search term #lipfiller was used to identify individuals with interest in lip fillers.

7 Messages were sent to these individuals with contact details and the words, 'We are conducting a

8 study into the experiences of women aged 18 and over who receive lip fillers of various sizes.

9 This will be a virtual study requiring submission of a series of facial photographs, online

10 questionnaires and with some participants also being invited to complete a telephone interview'.

11

12 **Categorization of Filler Spread**

13 Photographs were submitted by participants with frontal and profile views of their face.

14 Photographs were systematically categorized into one of 4 classes based on the Harris

15 Classification of lip filler spread (Figure 1). An example photograph of a participant included in

16 the study (classified as Harris 4) is shown in Figure 2.

17

18 **Screening for Inclusion Criteria**

19 Self-report information on the following variables was obtained via an online questionnaire: age,

20 ethnicity, nationality, sexual orientation, marital status, self-reported mental health diagnoses,

21 and number of times lip fillers received. Participants were included if they were assigned female

22 at birth, over the age of 18 and were currently receiving lip filler injectables. Participants were

23 excluded if they were unable to complete a questionnaire or interview in English, were

5

1 dissatisfied with their current lip appearance due to clinical error or were categorized by the

2 researchers as having less extreme aesthetic outcomes (class 1–3 on the Harris Lip Classification

3 System). All participants who completed an interview were reimbursed with a £20 Amazon

4 voucher for their time.

5

6 **Interviews**

7 Women with experience of receiving lip fillers were consulted in the design of the interview,

8 helping inform question content. Question topics included: women's definition of beauty; body-

9 image; general attitudes and views towards lip fillers; personal motivations and influences for

10 getting lip fillers; perceptions of why lip filler popularity had changed over the past decade;

11 compulsive aspects of seeking lip fillers; and how lip fillers impacted psycho-social wellbeing.

12 (See Appendix A for the final interview guide). Semi-structured in-depth interviews were

13 conducted via telephone or remote conferencing and lasted on average 53 minutes (range: 36-

14 108 minutes). Interviews were recorded on an encrypted audio device.

15

16 **Qualitative Data Analysis**

17 Each interview was transcribed verbatim and allocated a pseudonym. A systematic inductive

18 thematic coding approach was used, where patterns and common themes are identified to

19 describe a dataset and to understand a given phenomenon.[15] The following steps were used:

20   1. Transcripts were read and re-read to ensure familiarity.

21   2. Transcripts were uploaded to NVivo qualitative analysis software.

22   3. Data was systematically coded line by line by 2 authors.

23   4. Codes were organized into subthemes. Subtheme relationships and patterns were then

6

1   examined to identify overarching themes. Themes capture a common, recurring pattern

2   across the dataset and are relevant to the study aim.

3   5.   Analysis was iterative, involving continuous comparison of data, codes, subthemes and

4   themes.

5   6.   Transcripts were re-read to ensure the analysis was grounded in the data. The final

6   codebook is available in Appendix B.

7

8 Codes, subthemes and themes discussed within the study team until a coherent and consistent

9 pattern was agreed upon. Whilst the utility of Qualitative ICR calculation is debated, inter-coder

10 reliability (ICR) was carried out on 10% of transcripts during the analytic phase, aiming to

11 increase rigour and transparency surrounding the coding process.[16] Krippendorf's Alpha was

12 calculated as 0.74 (95% CI 0.69–0.79).

13

14 **Ethical Considerations**

15 The study was submitted and authorised by Kings College London Research ethics committee

16 19/20-20763. Written consent was gained from all participants. Participant anonymity was

17 preserved using pseudonyms and broad demographic categories. Participants were debriefed

18 after the interview and signposted to relevant organizations for further support if necessary.

19

20 RESULTS

21 **Participant Demographics**

22 One hundred-seven women contacted via social media platforms expressed an interest in the

23 study, 40 of whom completed the online questionnaire. At this stage 6 participants declined to

1   complete the semi-structured interview due to feeling uncomfortable discussing their personal

2   experiences with a further 6 lost to follow up with no further contact following initial

3   questionnaire completion. 28 women took part in semi-structured interviews, 24 of whom were

4   classified as Harris Class 4, and therefore included in this analysis. The Table represents the

5   demographic characteristics of the participant cohort on which this study is based. The mean age

6   of participants was 24, and the age range was 18 to 39.

7

8   **Qualitative Analysis**

9   *Theme 1: Normalization and Fitting In*

10   All respondents recognised a shift in beauty standards towards a preference for fuller lips. Some

11   described this as part of the fashion for a 'slim-thick' aesthetic. Others, like Amanda, perceived a

12   more integral norm had shifted so that, for her, something about the face was not quite right

13   without the addition of lip-filler:

14

15   "…Obviously it's become the norm to have a bigger lip. I'll even look at my friends and

16   say, 'God, you need a bit of filler in those lips' even though there's nothing wrong with their

17   lips. But now it just seems normal to have a fuller lip…" – Amanda

18

19   The relative affordability of fillers (as compared to more expensive cosmetic procedures)

20   was also identified as a contributory market factor to this perceived normalisation. Targeted

21   advertising was also mentioned:

22

23   "…I would see all these offers, I was constantly seeing [ads] saying 'come get lip filler'

8

1   'come get jaw filler', they got into my head, and I would just sit there and think about it like

2   all the time, so I started to think I may as well just do it then I can stop thinking about it…"

3   – Rachel

4

5   Although some women reported a normalisation of fillers among their real-life friendship

6   groups, others saw a discrepancy between what was perceived as normal in their local streets

7   versus on their social media feeds:

8

9   "…I have seen a lot of these trends going around the internet, but in real life you don't see it

10 as much." – Eloise

11

12 The perception that everyone on social media was getting cosmetic surgery was attributed to

13 many of our respondents wanting their own 'stuff done' to fit in, and being rewarded with virtual

14 attention (likes/followers) if your own pictures fit in with certain popular aesthetics.

15 "…I used to get them done so that I would feel more like I fit in, so that I'd look more like

16 pretty and you know just fit in with everyone. At that time I think it was because I felt more

17 insecure. Once I had them [fillers], I kind of felt like, now I'm getting a good amount of

18 attention (which I was definitely getting more of) and I suppose that's what pushed me to get

19 it again and again. Because I felt like, everyone is doing it, it's all over social media, and I

20 just wanted to be part of that…" - Lottie

21

22 *Theme 2: Lip Perception Drift*

23 Although some of the women interviewed described intentionally seeking an artificial look,

many of the respondents considered themselves to be achieving a natural look:

"…I think they look natural. But obviously some people who have like an eye for these sorts of things, they could tell that I've had them done… To be honest I don't really want a response as I don't really want people to know I get them done, I like to pass myself off as natural, so that's why I get a more natural plumping look…" - Poppy

'Natural' itself, though generally considered a desirable thing, was considered a flexible concept to some of the respondents. Emily, quoted below, holds on to the concept of 'natural' but describes using it to mean 'increased to the size that I think looks good on me':

"…For me if its natural then it's increased to the size I think looks good on me. That's how I understand natural to mean…" – Emily

Participants described a process of repeated exposure to specific aesthetics on social media leading to the development of their ideas of societal beauty standards. Some women were aware of the experience of their subjective perception of normal lip anatomy changing over time, sometimes referring to this phenomenon as 'filler blindness'. This is accelerated by the swelling that occurs in the two weeks immediately following lip injections:

"…When I get used to them, I kind of look in the mirror and wonder if they've gone down, to me they have, but to like other people they're like "they literally have not moved… please

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1   do not get anymore filler"… but to me my face just looks wrong as soon as they start to

2   deflate a little… you get stuck in a bit of a vicious cycle really…" - Helena

3

4   Alice describes this shifting in a dynamic and multi-directional fashion over time, striking her as

5   'bizarre' and 'strange':

6

7   "…It was really bizarre, the whole psychology of it… Like they were really big looking

8   back at them now, whereas at the time, I was adamant I needed more… really strange…" -

9   Alice

10

11 *Theme 3: Perceived Benefits*

12 Large-volume lip-fillers were understood by participants to have a mixed impact on conventional

13 employment opportunities:

14

15 "…I think having bigger lips, to me, makes me look better, and I think people listen when

16 attractive people speak, and my issue is that no one ever listens to me. So I feel like if I …

17 change the way I look, then maybe they'll give me a chance and respect me… I suppose

18 maybe going too far, is the opposite of what I want to achieve in my professional life, too

19 much filler, too much surgery, too much of any enhancement might make people not take

20 me seriously…" – Emily

21

22 Despite most participants' ambiguity as to whether lip-fillers were associated with uncomplicated

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benefits, some respondents expressed optimism that fulfilling a 'new beauty standard' increases

'engagement' in the economic landscape of social media influencers:

"…being on Instagram it's all about engagement … At first, I didn't think it would make a

big difference to my social media engagement and stuff, but then when I started taking my

pictures, it did make a lot of difference…" – Julia

Many respondents denied they were motivated by tangible external benefits that might come

from having filled lips. It was a frequent claim that women's motivation to get lip fillers arose in

themselves and that perceived benefits were personal. Speaking within the current psycho-

political 'wellbeing' rhetoric[17], many participants commented on how lip fillers made them feel

better about themselves and improved their 'mental health', with procedures described as acts of

self-care:

"…I'd actually probably say it improves my mental health, I feel better about myself… I'm

always the one who gets something done, or looks after my appearance, and I feel like it

makes me feel better, like I'm looking after myself in a way…" – Sarah

Whilst many participants stated that they now felt content with their appearance and felt that

the procedure had improved their sense of wellbeing, others acknowledged that this contentment

was somewhat precarious or even illusionary:

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1   Lottie: "…One of my biggest insecurities was my lips, but fillers have let me sort that out.

2   At the moment I am happy with it, but I feel like all it will take is someone to comment or

3   make a remark and I'll just over think again…"

4   Interviewer: "What if you hadn't had lip fillers, how would life be different?"

5   Lottie: "Probably happier, in a strange way I'd be happier. Thinking back there were no

6   issues… if I hadn't of messed with them in the first place, I'd have been as happy as I

7   was…"

8 ***Theme 4: Mental Health***

9 Respondents typically described a short process of becoming dissatisfied with their lips

10 preceding their first procedure. However many respondents described struggling with a more

11 pervasive generalised negative body-image. The impact of social media was a pervasive theme:

12

13   "…I find that if I had a bad day or I'm feeling bad about myself, there is kind of like a

14   correlation between how much time I spend on social media…" – Felicity

15

16   Some respondents described seeking a 'buzz' they experienced after getting fillers. Other

17 participants reported lying to aesthetic practitioners to get larger filler volumes or more frequent

18 procedures than advised despite awareness of the risks. Some wished to cut down or stop lip

19 filler use but were struggling to do so. Others continued to get procedures despite reporting a

20 negative impact that their change of lip size had had upon relationships. Julia gave detailed

21 description of the compulsive cycle of seeking repeated procedures:

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23   "…I do think they are addictive, mainly because, there are different stages you go through

13

1   when you get your lips done… when your lips have fully healed within a month maybe two,

2   you're now thinking, oh my gosh they're so small… even though they're not, it's just the

3   way you now think of them and see them, it makes you want to get them done again and

4   again…" – Julia

5

6   Although rates of self-reported mental illness were generally high, only one participant

7   reported having received a formal diagnosis of Body Dysmorphic Disorder (BDD). She had

8   struggled to access psychological treatment due to the lock-down and waiting lists and reported

9   that she had never been asked about her mental health by the practitioners who carried out her

10   procedures. However, many other participants described a spectrum of preoccupation and

11   distress with appearance and associated checking behaviours.

12

13   "…I'd say quite a lot of the day, maybe 40% involves either me thinking of things I could

14   do, or products that I could use to improve my appearance or me checking my makeup in the

15   mirror. Me going to the bathroom at work so I can see how my body looks. So just

16   constantly thinking what do I look like? Am I okay? Can I improve myself?…" – Emily

17

18   For some respondents, the mutability of the lip shape that follows administration of filler, could

19   itself be a source of preoccupation.

20

21   "…I'll just keep like double checking my lips in the mirror to see that it still has like its

22   volume, to see that it still looks big, or whether I need like a touch up, to see anything really,

14

like if it's left markings or if its lumpy…" - Julia

Body dysmorphic disorder was not the only diagnosed mental illness in the participant group. Rachel, who had been diagnosed with bipolar disorder, described the impulsivity of a manic episode impacting on her decision to get lip fillers. Another respondent described depression exacerbating her desire to get lip fillers.

Participant views regarding the role of aesthetic practitioners in enforcing boundaries around more extreme lip filler requests, as well as screening for mental health difficulties, were variable. Some women felt that lip fillers were purely a financial transaction and as such client autonomy should be prioritized:

"…I feel like personally you should be allowed to make your own opinion… like I feel you are paying for the lip fillers so I feel like you should be able to say how much you want. I feel like even if they have a problem with it not looking "natural" or how they would like it, you should still be able to do and get what you want…you're paying for it, so they should do it for you…" – Gaby

Others felt practitioners had a responsibility to take a more holistic approach towards an individual's motives for such procedures:

"…some [practitioners] probably just want to take your money from you, but actually, they're not doing a good job. They should be looking at you as an overall person, and your

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background, like whether you have body dysmorphia. Because if you don't like yourself and your doing it to hopefully make things change, they should say, like 'look, that's enough now, you've gone overboard'…" - Becky

DISCUSSION

The results of this study provides insights into the motivations and experiences of women who seek lip-filler procedures resulting in intentional filler spread beyond anatomical borders. Whilst the experiences reported were heterogenous, 4 core themes were developed. Participants perceived a shift had occurred whereby cosmetic enhancements had become the norm within society and felt a need to fit in by achieving this aesthetic (theme 1). Some participants described noticing a perceptual drift had occurred whereby their expectations of normal facial anatomy had adapted over time (theme 2). Where financial or social benefits were important, these tended to cluster in the virtual world (theme 3). Bidirectional relationships between lip-filler procedures and a range of mental illness related phenomena were suggested by participants (theme 4).

Fitting in with beauty norms might contribute to an individual's self-acceptance through the process of receiving recognition and validation.[18] Participants typically described previous contentment with their lip size which changed to dissatisfaction through constant comparison to images they perceived represented a 'new normal' in beauty. Participants suggested numerous factors contributing to normalization of large lips.[19] The role of media in motivating individuals to seek cosmetic procedures has been documented previously[20] and was firmly endorsed in this study, with the majority of our participants specifically referencing Instagram and influencer culture,[21] adding further weight to the well-established sociocultural theory of the role of the media in contributing to female body image dissatisfaction.[22] There were different assessments

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1   as to how pervasive this beauty norm was, with some noticing that the aesthetic appeared less

2   common in their local streets than it did in their online worlds. We suggest that algorithms that

3   expose an individual to images are based on personal patterns of social media use lead to an

4   assemblage of beauty norms within a society which is not always perceptible to an individual.

5   This relates to our theme that participants reported changes over time in how they expected

6   a natural face to look or described losing track of what was a normal lip shape for them. We

7   attempt to explain this as a shift in the perceptual processing of lip size and shape over time,

8   termed 'Perceptual Drift'.[23] Perceptual Drift is understood in terms of a predictive coding model

9   of perception,[24] whereby the brain is constantly generating and updating a mental model of the

10   environment with a goal to minimize discrepancies between expected and perceived images. If

11   you are repeatedly exposed to images of large lips, as well as coming to believe lip fillers to be

12   more ubiquitous, your mental model of a face will be unconsciously updated over time to expect

13   large lips. Non-enhanced lips, either on yourself or on others, that do not match this new

14   prediction, therefore are perceived as 'not right' in some way, without you necessarily being

15   conscious of the shift. We theorize that in interaction with the Instagram algorithm, an extra

16   reinforcing loop is introduced. The predictive coding apparatus of the brain has developed an

17   expectation for larger lips and is therefore attracted to images that fit this expectation. Detecting

18   you prefer these images, the algorithm exposes you to more of them. To keep users interested

19   and engaged on the platform over time, novelty is introduced as increasingly extreme versions of

20   the aesthetic. In time these are integrated into the brain's prediction of what to expect when

21   viewing a face, an experience akin to what it is to perceive a 'normal' or 'natural' face.

17

1   Some participants described dynamic perceptions of lip size, particularly when reviewing

2   sequential photographs of their own face. This flexibility suggests that the trends for more and

3   more extreme cosmetic enhancements will not necessarily continue in one direction. Indeed, a

4   number of the respondents were already noticing a change in the behaviours of influencers they

5   followed, towards dissolving their lip fillers and publicly celebrating a more 'natural' aesthetic.

6   Perceived benefits of lip-fillers were usually discussed in an abstract or hypothetical manner

7   within the interviews, rather than reflecting the participants lived experience of having benefited

8   in these ways. In previous studies women have described the process of cosmetic surgery as

9   having a "restorative" effect between body and image.[25] Some participants in the current study

10   did report such an improvement in their self-image and confidence as a result of lip filler.

11   However other participants recognised this improved self-image to be a temporary or transient

12   relief, with their attention subsequently redirected to other areas of their bodies they should, and

13   could, now try to improve.

14   There is a particular interest in the relationship between Body Dysmorphic Disorder (BDD)

15   and individuals seeking cosmetic surgery.[26] In our sample, numbers diagnosed with BDD would

16   be comparable to formally calculated prevalence rates found amongst patients presenting to

17   aesthetic specialties.[7] Although specific preoccupations with the lips were relatively uncommon

18   amongst our participants, we suggest that a spectrum of body image related difficulties exist in

19   this cohort with only the tip of this ice-burg reaching threshold for a clinical diagnosis of mental

20   disorder. Participants frequently described struggling with negative body-image particularly with

21   regards to weight and body proportions. Our data suggests that general anxieties about the body

18

and appearance are a prominent factor in predisposing women towards easily accessible,

instantly gratifying cosmetic procedures such as lip filler injections. Image-related dissatisfaction

might be prevalent for women in our culture, but the impacts should not be overlooked.

Our data suggests that different mental illnesses might impact Women when seeking

procedures and that any screening process for mental illness should be multidimensional. Our

evidence suggests that a significant minority of people using lip fillers are vulnerable to

developing addictive cycles of compulsive use akin to a behavioural addiction.[27] An individual's

connection to their body, tolerance of their own suffering as well as their response to situational

social demands have been suggested as factors that can predispose someone to addiction to

plastic surgery.[28]

Study Limitations

Whilst the current study provides unique insights into women's experiences of lip filler over-

treatment, some limitations must be considered when interpreting the results. Recruitment via

social media lead to a variable response rate. This impacts on how representative our sample can

be considered: we may be missing the views on the more 'successful' influencers with this

aesthetic, as well as perhaps the views of those struggling to greater degrees with poor mental

health. Secondly, as all participants were all recruited via Instagram, this might have led to an

exaggeration of the role of this particular social-media platform in our findings. The

generalisability of our findings is also restricted by study methodology. Including only English-

speaking participants prevented representation of other cultural and geographical perspectives.

Due to predefined inclusion criteria, our sample only includes women assigned female at birth

aged over 18. The perspectives of men and transgender people, as well as 16 to 18-year-olds are

therefore not included. Both men and transgender women may have contributed a valuable

different perspective on the increasing lip size phenomenon. Adolescence was considered by

many of our participants to have been when their own wish for procedures started, so inclusion

of this cohort may have provided further interesting perspectives as to the early dynamic changes

in body image and self-esteem. We also only included women who were pleased with the

appearance of their lips following their procedures, so we are not able to comment on the

experience of people who have had very negative experiences of lip fillers. Diagnosed mental

illnesses are based on self-report only, limiting the reliability of the information.

Implications and Future Research

The results of this study have implications for those seeking to understand the impact of social

media on body-image and aesthetic practitioners wanting to better understand and support

women pursuing over-treatment with lip fillers. Our findings suggest that the images we are

repeatedly exposed to shape our perception of norms, even in such fundamental tasks as the

perception of human facial anatomy, and social media algorithms can accelerate this process. It

may be helpful for practitioners to understand that their clients may have been through a process

of perceptual-drift where their expectation of natural lip anatomy no longer matches that of wider

society. Practitioners who themselves undergo filler procedures should be aware of their own

perceptual-drift which might play into the aesthetics they achieve for their clients.

We also suggest that there is a spectrum of underlying difficulties with body image and

behavioural addiction in this group, with a significant minority suffering from mental disorder

which may be frequently undiagnosed. Although many aesthetic practitioners are not medical

20

1 professionals, opening up conversations with clients about topics such as the impact of social-

2 media use, mental health and poor self-image may ultimately result in some clients feeling more

3 understood and more holistically treated.

4 A key issue in cosmetic surgery research is how to best ensure satisfaction with the

5 procedure in the long term. Many practitioners wish therefore not to 'over-treat'. This study

6 suggests that what constitutes 'over-treatment' will differ for different clients. Future studies

7 may wish to consider exploring the experiences of lip filler procedures amongst other genders,

8 adolescents and those who were left unsatisfied with the outcomes of filler procedures. It may

9 also be of interest to investigate the role of socio-economic circumstances on motivations for lip-

10 fillers. Furthermore, the results of this study could inform a quantitative study looking at overall

11 rates of mental illness, body-image disturbance, and perceptual drift phenomena, in cohorts

12 seeking lip filler. One approach could be to explore potential group differences between

13 individuals seeking lip filler within the normal anatomical range versus those seeking a more

14 distorted outcome. A neuro-cognitive experimental paradigm, would be necessary to clarify the

15 role that we suggest image-based algorithmic social-media plays in perception-drift.[29]

16

17 CONCLUSIONS

18 This current study explores women's motivations for seeking filler procedures which result in lip

19 size and shape outside the normal anatomical range. This phenomenon, although widespread and

20 increasing, has not been previously investigated. Motivations for seeking excessive lip filler are

21 often underpinned with a desire to fit in with a shifting perception of norms, mediated in large

22 part via social media. We provide evidence that significant minorities of women seeking

1 procedures are likely to have undiagnosed mental illness or compulsive aspects to their

2 behaviour. These findings draw attention to the heterogeneity of women seeking extreme

3 aesthetic outcomes through minimally invasive cosmetic procedures and suggest a need for more

4 open discussion between clients and practitioners.

5

6 **Supplemental Material**

7 This article contains supplemental material located online at www.aestheticsurgeryjournal.com.

8

9 REFERENCES

10 1. Aesthetic Plastic Surgery National Databank Statistics 2020-2021. *Aesthet Surg J.*

11   2022;42(Suppl 1):1-18. doi:10.1093/asj/sjac116]

12 2. Harris S. Alienization. *Plastic and Reconstructive Surgery - Global Open*.

13   2022;10(1):e4025. doi:10.1097/gox.0000000000004025

14 3. Worell J, Goodheart CD. *Handbook of Girls' and Women's Psychological Health*:

15   *Gender and well-being across the lifespan. Oxford series in clinical psychology*

16   *pp 69-76.* Oxford University Press; 2006.

17 4. Monteath SA, McCabe MP. The Influence of Societal Factors on Female Body

18   Image. *The Journal of Social Psychology*. 1997;137(6):708-727.

19   doi:10.1080/00224549709595493

20 5. Sarwer DB, Al E. *Psychological Aspects of Reconstructive and Cosmetic Plastic*

21   *Surgery : Clinical, Empirical, and Ethical Perspectives*. Lippincott Williams &

22   Wilkins; 2006.

6. Sarwer DB, Cash TF, Magee L, et al. Female College Students and Cosmetic Surgery: An Investigation of Experiences, Attitudes, and Body Image. *Plastic and Reconstructive Surgery*. 2005;115(3):931-938. doi:10.1097/01.prs.0000153204.37065.d3

7. Veale D, Gledhill LJ, Christodoulou P, Hodsoll J. Body dysmorphic disorder in different settings: A systematic review and estimated weighted prevalence. *Body Image*. 2016;18:168-186. doi:10.1016/j.bodyim.2016.07.003

8. Phillips KA, Dufresne RG, Wilkel CS, Vittorio CC. Rate of body dysmorphic disorder in dermatology patients. *Journal of the American Academy of Dermatology*. 2000;42(3):436-441. doi:10.1016/s0190-9622(00)90215-9

9. De Jongh A, Aartman IHA, Parvaneh H, Ilik M. Symptoms of body dysmorphic disorder among people presenting for cosmetic dental treatment: a comparative study of cosmetic dental patients and a general population sample. *Community Dentistry and Oral Epidemiology*. 2009;37(4):350-356. doi:10.1111/j.1600-0528.2009.00469.x

10. Auer D. Understanding body image from a psychosocial stance: how this connects with patients requesting cosmetic procedures. *Journal of Aesthetic Nursing*. 2020;9(3):128-131. doi:10.12968/joan.2020.9.3.128

11. von Soest T, Kvalem IL, Wichstrøm L. Predictors of cosmetic surgery and its effects on psychological factors and mental health: a population-based follow-up study among

23

Norwegian females. *Psychological Medicine*. 2011;42(3):617-626. doi:10.1017/s0033291711001267

12. Sobanko JF, Taglienti AJ, Wilson AJ, et al. Motivations for Seeking Minimally Invasive Cosmetic Procedures in an Academic Outpatient Setting. *Aesthet Surg J*. 2015;35(8):1014-1020. doi:10.1093/asj/sjv094

13. Maisel A, Waldman A, Furlan K, et al. Self-reported Patient Motivations for Seeking Cosmetic Procedures. *JAMA Dermatology*. 2018;154(10):1167. doi:10.1001/jamadermatol.2018.2357

14. Harris S. The Harris classification of filler spread. *PRIME Journal. 2020;10:*18–27.

15. Braun V, Clarke V. Using Thematic Analysis in Psychology. *Qualitative Research in Psychology*. 2006;3(2):77-101.

16. O'Connor C, Joffe H. Intercoder reliability in qualitative research: Debates and practical guidelines. *International Journal of Qualitative Methods*. 2020;19. doi:10.1177/1609406919899220

17. Greco M, Stenner P. Happiness and the Art of Life: Diagnosing the psychopolitics of wellbeing. *Health, Culture and Society*. 2013;5(1):1-19. doi:10.5195/hcs.2013.147

18. Hagerty BM, Williams RA, Coyne JC, Early MR. Sense of belonging and indicators of social and psychological functioning. *Archives of Psychiatric Nursing*. 1996;10(4):235-244. doi:10.1016/s0883-9417(96)80029-x

19. Heyes CJ. NORMALISATION AND THE PSYCHIC LIFE OF COSMETIC SURGERY. *Australian Feminist Studies*. 2007;22(52):55-71. doi:10.1080/08164640601145061

20. Tait S. Television And The Domestication Of Cosmetic Surgery. *Feminist Media Studies*. 2007;7(2):119-135. doi:10.1080/14680770701287076

21. Khamis S, Ang L, Welling R. Self-branding, "micro-celebrity" and the rise of Social Media Influencers. *Celebrity Studies*. 2016;8(2):191-208. doi:10.1080/19392397.2016.1218292

22. Grabe S, Ward LM, Hyde JS. The role of the media in body image concerns among women: A meta-analysis of experimental and correlational studies. *Psychological Bulletin*. 2008;134(3):460-476. doi:10.1037/0033-2909.134.3.460

23. Sola CA, Fabi SG. Perception Drift. *Dermatologic Surgery*. 2019;45(12):1747-1748. doi:10.1097/dss.0000000000001823

24. Huang Y, Rao RPN. Predictive coding. *Wiley Interdisciplinary Reviews: Cognitive Science*. 2011;2(5):580-593. doi:10.1002/wcs.142

25. Huss-Ashmore R. The real me? Therapeutic narrative in cosmetic surgery. *Expedition: The Magazine of the University of Pennsylvania. 2000;42:*26–38.

26. Bowyer L, Krebs G, Mataix-Cols D, Veale D, Monzani B. A critical review of cosmetic treatment outcomes in body dysmorphic disorder. *Body Image*. 2016;19:1-8. doi:10.1016/j.bodyim.2016.07.001

27. Nowlis V, Peele S, Brodsky A. Love and Addiction. *The Family Coordinator*. 1976;25(3):320. doi:10.2307/582374

28. Suissa AJ. Addiction to Cosmetic Surgery: Representations and Medicalization of the Body. *International Journal of Mental Health and Addiction*. 2008;6(4):619-630. doi:10.1007/s11469-008-9164-2

29. Millidge B, Seth A, Buckley CL. Predictive coding: a theoretical and experimental review. *arXiv preprint arXiv:2107.12979*. 2021

Table: Clinical and Demographic Characteristics of Class 4 Filler Spread Participants (N = 24)

Pseudonym	Age	Ethnicity	Nationality	Reported mental disorder	Number of times lips filled	Most recent volume injected	Maximum volume ever injected
Rachel	18–20	White	British	BPAD	1–2	NR	1ml
Claire	25–29	Asian British	British	Nil	3–5	0.5ml	0.7ml
Sandra	18–20	White	British	ADHD, depression	3–5	1.1ml	1.1ml
Alice	18–20	White	British	Nil	1–2	0.5ml	0.5ml
Grace	35–39	White	British	EUPD, anxiety, depression	1–2	1ml	1ml
Gaby	18–20	White	South African	Depression, anxiety	1–2	1ml	1ml
Emily	21–24	Other-Arabic	British	Depression, anxiety, BPAD	3–5	1ml	1.1ml
Rosie	21–24	White	British	Nil	3–5	1ml	1ml
Eloise	25–29	White	Austrian	Nil	>10	NR	2ml
Amanda	35–39	White	British	Nil	6–8	1ml	1ml
Becky	35–30	White	British	Nil	1–2	NR	1.5ml
Sarah	21–24	White	British	Nil	1–2	1ml	1ml
Sharon	21–24	White	British	BDD	1–2	1ml	1ml

Amy	21–24	White	British	Nil	3–5	NR	1.1ml
Nel	21–24	White	British	Anxiety, depression	3–5	1ml	1ml
Olivia	35–39	White	Canadian	Nil	>10	1ml	2ml
Poppy	21–24	Asian British	British	Depression, anxiety	3–5	NR	1ml
Helena	18–20	White	British	EUPD, depression, Anxiety	>10	1ml	1.5ml
Nicky	21–24	White	British	PTSD, depression, Anxiety	1–2	NR	2ml
Lottie	21–24	Asian British	British	Nil	3–5	1ml	1ml
Julia	21–24	Black British	British	Nil	3–5	1.5ml	2ml
Bryony	21–24	White	British	Nil	1–2	0.5ml	0.5ml
Felicity	21–24	White	British	Nil	3–5	1ml	1ml
Kate	21–24	Other-Fijian	British	PTSD	1–2	1ml	1ml

1

2 ADHD, attention deficit hyperactivity disorder; BDD, body dysmorphic disorder; BPAD, bipolar

3 affective disorder; EUPD, emotionally unstable personality disorder; PTSD, post-traumatic stress

4 disorder.

5

6 **Figure legends**

7

8 **Figure 1.** Lip filler classification system. Originally published in Harris (2020).[14]

9

10 **Figure 2.** (A) Frontal and (B) lateral view of lips classified as Harris Class 4 in a 21-year-old
11 female participant.

12

Class 1: No Spread. The filler is placed in the superficial vermillion side of the border as in the nonsurgical lip lift (NLL).

Class 2: Ledge. The filler forms an abnormal bulge.

Class 3: Shelf. The filler spreads beyond the ledge and may be readily apparent or progress over time.

Class 4: Plateau. Here the filler spreads beyond the shelf.

1

2 **Figure 1**
3 **141x55 mm (.21 x DPI)**

4

5

6 **Figure 2A**
7 **79x56 mm (.21 x DPI)**

1

2 **Figure 2B**

3 **79x71 mm (.21 x DPI)**