

# PHOTO EDITING BEHAVIOUR, COGNITIVE DISTORTIONS, AND DIGITAL APPEARANCE DISSATISFACTION AMONG GENERATION Z UNIVERSITY STUDENTS

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## Abstract

This study aims to explore the connection between photo editing behavior, cognitive distortions, and digital appearance dissatisfaction of university students of Generation Z in Pakistan. A descriptive, correlational, cross-sectional design was used and the total population of 300 students (150 male and 150 female) was selected from Sialkot from public and private universities. Participants filled out a Photo Editing, Cognitive Distortions, and the Appearance-Related Social Media Consciousness Scale. Pearson correlations revealed significant positive correlations between all three variables ( $r = .268$  to  $.452$ ,  $p < .01$ ) and the highest correlation was between photo editing behaviour and digital appearance dissatisfaction. Similarly, when included in a hierarchical regression model, photo editing behaviour entered as a significant positive predictor of appearance related social media consciousness  $\Delta R^2 = .132$ ,  $p < .001$ . However, digital appearance dissatisfaction, but not photo editing behaviour or cognitive distortions, significantly varied between the types of university and systematically between the levels of daily social media use and frequency of photo editing. Results are considered in light of Self-Discrepancy Theory and Beck's cognitive model, and implications for cognitive-behavioural intervention focusing on appearance-related distorted thoughts instead of just restricting screen-time.

## INTRODUCTION

Adolescents and emerging adults go through the identity formation process at a very quick pace and for Generation Z this occurs largely online (Arnett, 2015). Social media allows users to manipulate their appearance in photos as if these photos were never taken in the first place, which alters the psychological risk involved in presenting oneself in far greater ways than previous generations experienced before the advent of these platforms (Fardouly & Vartanian, 2016). The aim of this paper is to look at how photo editing behaviour is related to appearance-based distress in university students and how this relationship is affected by distorted appearance-based thinking.

Photofixing has progressed to being a typical a part of sharing on-line. Inbuilt filters, retouching apps and AI-powered 'beautification' help users

to tweak skin texture, facial features and even body contours in a few clicks. Both cross sectional and experimental studies have shown that exposure to edited and filtered images is related to a decrease in body and appearance satisfaction for viewers (Kleemans et al., 2018; Holland & Tiggemann, 2016), and that more recently, it's not just about what viewers see, but also about the person who edits the image: editing often may lead to higher levels of unrealistic body standards that the individual then cannot meet with their own body (Lee & Lee, 2021). Sex-specific relationships between appearance-editing behaviour and general life satisfaction were identified in a study involving digital selfie-editing tasks in 2025, which demonstrated that appearance-editing is not necessarily just a visual/secondary phenomenon, thus highlighting the

psychological impact of selfie-editing tasks (Hung et al., 2025).

There may be a viable interpretive layer between the editing behaviour and distress about appearance in the form of cognitive distortions: mental filtering, catastrophizing, personalization, and all-or-nothing thinking. Cash and Smolak (2011) argue that it is not objective appearance that plays a role in body & appearance dissatisfaction, but rather the way in which it is interpreted and evaluated, which has been supported by more recent appearance-comparison research (Betz et al., 2019; Fardouly & Rapee, 2023). In Higgins's (1987) self-discrepancy theory, the divergence in the actual and idealized versions of self is proposed to provoke selfdiscrepancy, which is expected to generate negative feelings and dissatisfaction (from the person's real self to her idealized self). The experienced discrepancy and the distress are exactly what is addressed by Fredrickson and Roberts' (1997) objectification theory, which suggests that the reduction of the self to an object to be evaluated—that is, to be viewed rather than felt—leads to a greater sensitivity toward such discrepancies. Appearance-related schemas are the mechanism as to why this discrepancy leads to distress for some individuals more than others; appearance-related schemas once activated influence the interpretation of ambiguous evidence (a lukewarm comment on a picture becomes evidence of unattractiveness instead of just no opinion).

For this study, it is important to contrast to other two aspects: First, the evidence is western, and Pakistan's collectivistic social structure in which family and community approval have direct social consequences has been found to exacerbate and not blunt out the appearance-related social comparison (Khan et al., 2021). Second, very little research has simultaneously investigated the contribution of editing behaviour and cognitive distortion on dissatisfaction, the majority of studies having examined one psychological factor or another. To address both these gaps, this study had three hypotheses, testing the two constructs and the relationship between them in a South Asian university sample, with respect to digital appearance dissatisfaction: (1) photo editing behaviour, cognitive distortions, and digital

appearance dissatisfaction would be significantly positively interrelated; (2) photo editing behaviour would significantly predict digital appearance dissatisfaction; and (3) digital appearance dissatisfaction would vary across the raprotic of picture-taking and photo editing behaviour, age, level of interest in photos, and frequency of social media use.

## METHODOLOGY

**Research Design.** A quantitative, cross-sectional correlational design was used to examine associations among photo editing behaviour, cognitive distortions, and digital appearance dissatisfaction.

**Participants and Sampling.** The sample consisted of 300 university students (150 male, 150 female), aged 17–25+, drawn from public (n = 72) and private (n = 228) universities in Sialkot, Pakistan, using convenience sampling. Inclusion criteria required current undergraduate enrollment, active social media use, and English proficiency. Individuals below 17 or above 25+, non-students, non-social-media users, and those reporting a severe self-reported psychological disorder were excluded.

## Measures

**Photo Editing Questionnaire (PHED)** — O'Neill (2021), 12 items, two subscales (editing frequency and editing impact), 0 (never) to 4 (always).

**Cognitive Distortions Questionnaire (CD-Quest)** — de Oliveira et al. (2015), measuring frequency and intensity of maladaptive thinking patterns (catastrophizing, overgeneralization, mental filtering, personalization, all-or-nothing thinking).

**Appearance-Related Social Media Consciousness Scale (ASMC)** — Choukas-Bradley et al. (2020), 13 items on a 7-point Likert scale, used here as the index of digital appearance dissatisfaction.

Cronbach's alpha across the three scales ranged from .60 to .87 in this sample, indicating acceptable to good internal consistency.

**Procedure.** Institutional permission was obtained prior to data collection. Participants

received an informed consent form outlining voluntary participation, confidentiality, and the right to withdraw. Questionnaires (demographic sheet plus the three standardized scales) were administered in person over approximately two weeks. All 300 distributed questionnaires were completed and retained for analysis.

**Data Analysis.** Data were analyzed using descriptive statistics, Pearson product-moment

correlations, an independent-samples t-test (university type), and one-way ANOVA (daily social media use; photo editing frequency).

**Ethical Considerations.** The study followed standard ethical protocol: informed consent, voluntary participation with the right to withdraw, anonymity, and no physical, psychological, or emotional risk beyond completing self-report questionnaires.

## RESULTS

**Table 1: Frequency and Percentage of Demographic Variables (N = 300)**

| Demographic Variables  | M    | SD   | f   | %    |
|------------------------|------|------|-----|------|
| <b>Age</b>             | 2.65 | 0.76 |     |      |
| 17-18                  |      |      | 14  | 4.7  |
| 19-20                  |      |      | 116 | 38.7 |
| 21-22                  |      |      | 133 | 44.3 |
| 23-24                  |      |      | 36  | 12.0 |
| 25+                    |      |      | 1   | 0.3  |
| <b>Gender</b>          | 1.50 | 0.50 |     |      |
| Male                   |      |      | 150 | 50.0 |
| Female                 |      |      | 150 | 50.0 |
| <b>University Type</b> | 1.83 | 0.58 |     |      |
| Public                 |      |      | 72  | 22.0 |
| Private                |      |      | 228 | 76.0 |
| <b>Academic Level</b>  | 4.43 | 2.19 |     |      |
| BS 1                   |      |      | 28  | 9.3  |
| BS 2                   |      |      | 44  | 14.7 |
| BS 3                   |      |      | 20  | 6.7  |
| BS 4                   |      |      | 93  | 31.0 |
| BS 5                   |      |      | 13  | 4.3  |
| BS 6                   |      |      | 47  | 15.7 |
| BS 7                   |      |      | 6   | 2.0  |

|                                           |      |      |      |
|-------------------------------------------|------|------|------|
| BS 8                                      |      | 49   | 16.3 |
| <b>Current Living Arrangement</b>         | 1.20 | 0.78 |      |
| With parents                              |      | 274  | 91.3 |
| Hostel                                    |      | 14   | 4.7  |
| With friends                              |      | 0    | 0.0  |
| Alone                                     |      | 3    | 1.0  |
| Other                                     |      | 8    | 2.7  |
| <b>Family System</b>                      | 1.41 | 0.60 |      |
| Nuclear                                   |      | 192  | 64.0 |
| Joint                                     |      | 95   | 31.7 |
| Extended                                  |      | 12   | 4.0  |
| <b>Socioeconomic Status</b>               | 2.17 | 0.57 |      |
| Lower                                     |      | 18   | 6.0  |
| Middle                                    |      | 221  | 73.7 |
| Upper                                     |      | 54   | 18.0 |
| <b>Daily Social Media Use</b>             | 2.97 | 1.20 |      |
| 1-2 hours                                 |      | 39   | 13.0 |
| 3-4 hours                                 |      | 76   | 25.3 |
| 5-6 hours                                 |      | 66   | 22.0 |
| 6+ hours                                  |      | 92   | 30.7 |
| <b>Most Used Platform</b>                 | 1.86 | 1.34 |      |
| Instagram                                 |      | 194  | 64.7 |
| Snapchat                                  |      | 23   | 7.7  |
| TikTok                                    |      | 44   | 14.7 |
| Faebook                                   |      | 9    | 3.0  |
| Other                                     |      | 30   | 10.0 |
| <b>Do You Edit Photos Before Posting?</b> | 2.96 | 1.39 |      |
| Always                                    |      | 66   | 22.0 |

|                 |      |      |
|-----------------|------|------|
| Often           | 44   | 14.7 |
| Sometimes       | 80   | 26.7 |
| Rarely          | 57   | 19.0 |
| Never           | 53   | 17.7 |
| Type of Editing | 2.52 | 1.74 |
| Filters         | 149  | 49.7 |
| Skin smoothing  | 30   | 10.0 |
| Reshaping       | 18   | 6.0  |
| Full apps       | 22   | 7.3  |
| None            | 81   | 27.0 |

Note. PE = Photo Editing; CD = Cognitive Distortion; ASMC = Appearance-Related Social Media Consciousness.

**Table 2 Descriptive Statistics and Alpha Reliability Coefficient of Scales (N = 300)**

| Scales | M     | SD    | Range | Sk   | Ku    | $\alpha$ |
|--------|-------|-------|-------|------|-------|----------|
| PE     | 28.07 | 6.33  | 35.00 | .273 | -.273 | .602     |
| CDS    | 48.28 | 12.78 | 67.00 | .310 | -.166 | .865     |
| ASMC   | 43.47 | 14.94 | 73.00 | .309 | -.255 | .868     |

Note. Standard Error of Skewness = .141, Standard Error of Kurtosis = .281. PE = Photo Editing Scale; CDS = Cognitive Distortion Scale; ASMC = Appearance-Related Social Media Consciousness Scale. Sk = Skewness; Ku = Kurtosis;  $\alpha$  = Cronbach's Alpha

**Table 3 Correlation Analysis Among Photo Editing Behaviour, Cognitive Distortion, and Digital Appearance Dissatisfaction (N = 300)**

| Variables                                 | 1 | 2    | 3    |
|-------------------------------------------|---|------|------|
| Photo Editing (PE)                        | - | .268 | .452 |
| Cognitive Distortion (CDS)                | - | -    | .402 |
| Digital Appearance Dissatisfaction (ASMC) | - | -    | -    |

Correlation is significant at the 0.01 level (2-tailed).

**Table 4 Independent Samples t-Test Comparing Public and Private University Students on Study Variables (N = 300)**

| Variable | Public<br>(n =72) | Private<br>(n =228) | t | p  | 95% CI<br>LL - UL | Cohen's d |
|----------|-------------------|---------------------|---|----|-------------------|-----------|
|          | M                 | SD                  | M | SD |                   |           |

|                                           |       |       |       |       |       |      |               |      |
|-------------------------------------------|-------|-------|-------|-------|-------|------|---------------|------|
| Photo Editing (PE)                        | 27.59 | 5.94  | 28.15 | 6.47  | -0.63 | .530 | -2.31 - 1.19  | 0.09 |
| Cognitive Distortion (CDS)                | 45.62 | 12.99 | 48.98 | 12.70 | -1.88 | .061 | -6.87 - .16   | 0.26 |
| Digital Appearance Dissatisfaction (ASMC) | 38.61 | 15.84 | 44.79 | 14.56 | -2.98 | .003 | -10.27 - 2.09 | 0.41 |

Note. PE = Photo Editing Scale; POSS = Presentation of Online Self Scale; CDS = Cognitive Distortion Scale; ASMC = Appearance-Related Social Media Consciousness Scale. CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit. Cohen's *d*: small = 0.20, medium = 0.50, large = 0.80.  $p < .05$ .

**Table 5 One-Way Analysis of Variance for Digital Appearance Dissatisfaction (ASMC) Across Daily Social Media Use Groups (N = 300)**

| Daily social media | M     | SD    | F(4, 295) | p    | $\eta^2$ |
|--------------------|-------|-------|-----------|------|----------|
| 1-2 hours          | 34.08 | 10.46 | 6.687     | .000 | .00008   |
| 3-4 hours          | 44.79 | 15.06 |           |      |          |
| 5-6 hours          | 42.88 | 13.58 |           |      |          |
| 6+ hours           | 47.73 | 16.48 |           |      |          |
| Total              | 43.47 | 14.94 |           |      |          |

Note. ASMC = Appearance-Related Social Media Consciousness Scale.  $\eta^2$  = eta squared (effect size).  $p < .001$ .

**Table 6 One-Way Analysis of Variance for Digital Appearance Dissatisfaction (ASMC) Across Photo Editing Frequency Groups (N = 300)**

| Photo editing frequency | M     | SD    | F (4, 295) | p    | $\eta^2$ |
|-------------------------|-------|-------|------------|------|----------|
| Always                  | 51.91 | 15.43 | 10.066     | .000 | .12      |
| Often                   | 46.52 | 15.92 |            |      |          |
| Sometimes               | 41.49 | 11.66 |            |      |          |
| Rarely                  | 38.49 | 14.86 |            |      |          |
| Never                   | 38.75 | 13.34 |            |      |          |

|       |       |       |
|-------|-------|-------|
| Total | 43.47 | 14.94 |
|-------|-------|-------|

Note. ASMC = Appearance-Related Social Media Consciousness Scale.  $\eta^2$  = eta squared (effect size).  $p < .001$ .

**Table 7 Hierarchical Regression for Demographics and Scales as Predictors of Appearance-Related Social Media Consciousness (ASMC) (N = 300)**

| Predictors                 | B     | SE   | B    | 95% CI for B |       | $\Delta R^2$ |
|----------------------------|-------|------|------|--------------|-------|--------------|
|                            |       |      |      | LL           | UL    |              |
| Step I                     |       |      |      |              |       | .16          |
| Age                        | 1.37  | 1.32 | .07  | -1.22        | 3.96  |              |
| Gender                     | -.45  | 1.71 | -.02 | -3.81        | 2.91  |              |
| University Type            | 3.80  | 1.50 | .15  | .84          | 6.75  |              |
| Academic Level (Education) | -.09  | .45  | -.01 | -.97         | .80   |              |
| Current Living Arrangement | -.11  | 1.05 | -.01 | -2.19        | 1.96  |              |
| Family System              | -2.28 | 1.40 | -.09 | -5.04        | .48   |              |
| Socioeconomic Status       | -.54  | 1.53 | -.02 | -3.55        | 2.47  |              |
| Daily Social Media Use     | 1.56  | .68  | .13  | .21          | 2.90  |              |
| Most Used Platform         | .05   | .61  | .01  | -1.15        | 1.25  |              |
| Photo Editing Frequency    | -3.24 | .62  | -.30 | -4.46        | -2.02 |              |
| Type of Editing            | -.31  | .50  | -.04 | -1.30        | .68   |              |
| Step II                    |       |      |      |              |       | .13          |
| Age                        | .94   | 1.21 | .05  | -1.45        | 3.32  |              |
| Gender                     | -.95  | 1.57 | -.03 | -4.05        | 2.15  |              |
| University Type            | 3.01  | 1.38 | .12  | .28          | 5.73  |              |
| Academic Level (Education) | .12   | .42  | .02  | -.70         | .94   |              |
| Current Living Arrangement | -.21  | .97  | -.01 | -2.12        | 1.69  |              |
| Family System              | -2.55 | 1.29 | -.10 | -5.09        | -.02  |              |
| Socioeconomic Status       | .60   | 1.42 | .02  | -2.18        | 3.39  |              |

|                                 |       |      |      |       |       |
|---------------------------------|-------|------|------|-------|-------|
| Daily Social Media Use          | 1.21  | .63  | .10  | -.03  | 2.45  |
| Most Used Platform              | -.11  | .56  | -.01 | -1.22 | 1.00  |
| Photo Editing Frequency         | -2.28 | .59  | -.21 | -3.43 | -1.12 |
| Type of Editing                 | .05   | .46  | .01  | -.86  | .97   |
| Photo Editing Scale (PE)        | .91   | .12  | .38  | .66   | 1.15  |
| Step III                        |       |      |      |       | .04   |
| Age                             | .56   | 1.13 | .03  | -1.67 | 2.80  |
| Gender                          | -1.07 | 1.47 | -.04 | -3.96 | 1.83  |
| University Type                 | 2.48  | 1.30 | .10  | -.07  | 5.04  |
| Academic Level (Education)      | .21   | .39  | .03  | -.56  | .97   |
| Current Living Arrangement      | -.25  | .91  | -.01 | -2.03 | 1.54  |
| Family System                   | -1.96 | 1.21 | -.08 | -4.34 | .42   |
| Socioeconomic Status            | .60   | 1.33 | .02  | -2.00 | 3.21  |
| Daily Social Media Use          | .74   | .60  | .06  | -.43  | 1.91  |
| Most Used Platform              | .05   | .53  | .00  | -.99  | 1.09  |
| Photo Editing Frequency         | -2.31 | .55  | -.21 | -3.39 | -1.23 |
| Type of Editing                 | .30   | .44  | .04  | -.56  | 1.16  |
| Photo Editing Scale (PE)        | .69   | .12  | .29  | .45   | .93   |
| Cognitive Distortion Scale (CD) | .26   | .06  | .22  | .14   | .38   |

## DISCUSSION

The three constructs were significantly and positively interrelated across all pairwise comparisons: photo editing behaviour with cognitive distortions ( $r = .268$ ,  $p < .01$ ), photo editing behaviour with digital appearance dissatisfaction ( $r = .452$ ,  $p < .01$ ), and cognitive distortions with digital appearance dissatisfaction ( $r = .402$ ,  $p < .01$ ). This supports the first hypothesis and is consistent with prior evidence that appearance-related online behaviours and appearance-related cognition move together rather than operating as isolated habits (Fardouly & Vartanian, 2016). Photo editing behaviour showed the strongest bivariate

association with digital appearance dissatisfaction of the three relationships, and this held up in the first regression step where it was entered: photo editing behaviour significantly predicted appearance-related social media consciousness and accounted for a substantial increase in explained variance,  $\Delta R^2 = .132$ ,  $p < .001$ .

This pattern points toward a specific mechanism rather than a general "social media is bad" story: it is not merely exposure to others' edited images that predicts dissatisfaction (the standard social-comparison account) but the student's *own* editing behaviour. This aligns with self-discrepancy theory (Higgins, 1987) – editing

manufactures an idealized image of the self that the unedited self then fails to match – and with recent work showing that habitual self-editing, not just passive viewing, degrades appearance satisfaction over time (Lee & Lee, 2021; Hung et al., 2025). The positive correlation between photo editing behaviour and cognitive distortions ( $r = .268$ ) is consistent with the idea that repeated editing does not just reflect existing dissatisfaction but may gradually shift how students interpret their own appearance – mental filtering on perceived flaws, catastrophizing minor imperfections – echoing Beck's (1976) cognitive model and its extension into body-image research (Cash & Smolak, 2011).

Demographic and usage variables told a narrower story than the psychological ones. Digital appearance dissatisfaction, but not photo editing behaviour or cognitive distortions, differed significantly by university type (private  $M = 44.79$  vs. public  $M = 38.61$ ,  $t(292) = -2.98$ ,  $p = .003$ ,  $d = .41$ ) and showed a clear dose-response pattern across both daily social media use,  $F(4, 295) = 6.69$ ,  $p < .001$ , and photo editing frequency,  $F(4, 295) = 10.07$ ,  $p < .001$  – students who edited "always" scored highest on dissatisfaction ( $M = 51.91$ ) and those who "never" edited scored lowest ( $M = 38.75$ ). This pattern is consistent with prior findings that contextual and environmental factors shape the degree of appearance dissatisfaction more than they shape the underlying cognitive and behavioural processes themselves (Saiphoo & Vahedi, 2019).

Cultural context is worth foregrounding rather than treating as an afterthought. Pakistan's collectivistic social structure, where family and peer approval carry direct social consequences, has been argued to intensify rather than dilute appearance-related social comparison (Khan et al., 2021), which may partly explain why photo editing behaviour showed such a strong association with dissatisfaction in this specific sample. This is a plausible interpretation, not a tested one – the design cannot distinguish cultural amplification from sample-specific noise.

Several limitations bear directly on how far these findings generalize. The cross-sectional design cannot establish causal direction – it is equally

consistent with editing behaviour driving dissatisfaction and with existing dissatisfaction driving heavier editing. All measures were self-report, introducing social desirability bias risk around a behaviour (photo editing) that carries some social stigma. The sample was drawn from a single city via convenience sampling, and neither instrument used here has undergone formal cross-cultural validation for a Pakistani population, meaning some items may not carry the same psychological meaning they were validated for originally. Future work should prioritize longitudinal or experimental designs to establish direction of effect, incorporate behavioural measures (app-level screen time, editing-app usage logs) alongside self-report, and formally validate these instruments for South Asian samples.

Practically, the findings suggest that reducing editing frequency alone is unlikely to be sufficient. Because photo editing behaviour and cognitive distortion were independently correlated with dissatisfaction rather than fully overlapping, interventions combining media literacy with CBT modules targeting specific distortions (mental filtering, catastrophizing, personalization) are more consistent with what these findings suggest than screen-time restriction alone.

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