

Assessment of Selfie-Taking Behaviour and Selfitis among Undergraduate Medical Students at a Tertiary Care Medical College in Western Uttar Pradesh, India: A Cross-Sectional Study

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Background: The widespread adoption of smartphone technology and social media platforms has given rise to the global phenomenon of selfie-taking, which has occasionally been associated with physically hazardous practices and documented selfie-related injuries and deaths worldwide. The present study did not directly assess such hazardous practices; instead, it examined the prevalence of selfie-taking and a related compulsive pattern termed selfitis, measured using the validated selfitis behaviour scale (SBS), among undergraduate medical students — a population with high smartphone ownership in whom this behaviour remains understudied in India.

Objectives: To determine the prevalence and patterns of selfie-taking behaviour; to classify selfie-taking participants according to the SBS into normal, borderline, acute, and chronic categories; and to examine the association between sex and SBS classification among undergraduate MBBS students.

Methods: A descriptive cross-sectional study was conducted among 350 MBBS students at a tertiary care medical college in Western Uttar Pradesh, India, selected by stratified proportionate random sampling across all five academic years. Data were collected using a pre-designed, pre-tested, semi-structured questionnaire together with the validated 20-item SBS. Descriptive statistics and the chi-square test were computed using IBM SPSS version 25.0.

Results: The mean age of participants was 22.4 ± 1.8 years, and 58.0% were male. The overall prevalence of selfie-taking was 78.9% ($n = 276$). Among selfie-takers, 43.8% took selfies only on special occasions, 38.1% weekly, and 18.1% daily; among daily takers, 60.0% captured 1–4 selfies per day, and 80.0% did not post selfies on social media daily. On the SBS, 53.2% of selfie-takers were classified as borderline selfitis, 18.1% as acute selfitis, and 11.6% as chronic selfitis, with a statistically significant difference in SBS classification by sex ($\chi^2 = 8.42$, $df = 3$, $p = 0.038$).

Conclusion: Selfie-taking is highly prevalent among undergraduate medical students in this region, and a clinically meaningful proportion demonstrate borderline-to-chronic selfitis behaviour as measured by the SBS, with a difference observed by sex. Despite a high frequency of selfie-taking, a pattern of selective rather than habitual social media sharing was observed. As this study did not directly assess physically hazardous selfie practices, its findings should be interpreted as pertaining specifically to selfitis behaviour rather than to the risk of selfie-related physical injury. Digital health literacy initiatives within the medical curriculum may be a reasonable area for further exploration.

Introduction

Over the past decade, the proliferation of front-facing smartphone cameras, coupled with the rapid expansion of social media platforms including Instagram, Snapchat, and Facebook, has fundamentally altered patterns of self-portraiture. The 'selfie'—broadly defined as a self-photograph taken at arm's length or with the

aid of a selfie stick and typically shared on digital networks—has evolved from a casual photographic practice into a culturally pervasive phenomenon with measurable psychosocial implications.¹ The Oxford English Dictionary recognised 'selfie' as its Word of the Year in 2013, and selfie-taking has since become a routine daily activity for a large share of smartphone users; one widely circulated industry estimate placed daily selfie volume at over 90 million images on Android devices

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alone, although such commercial estimates should be interpreted cautiously given their limited methodological transparency.²

While selfie-taking per se is a normative behaviour, a growing body of evidence documents a spectrum of associated harms. At the less severe end, excessive selfie-taking has been linked to diminished self-esteem, heightened body image concerns, and social comparison behaviours.³ At the extreme, the pursuit of novel or daring photographic content has been implicated in a rising number of preventable fatalities worldwide. A cross-sectional analysis using a web-based epidemiological intelligence tool identified 379 selfie-related deaths globally between 2008 and 2021, with India accounting for the highest national share—a reflection of both population size and the pervasive ownership of smartphones among youth.⁴ Common mechanisms include falls from height, drowning, road traffic incidents, and electrocution.

The concept of ‘selfitis’—a compulsive desire to take and post selfies—was initially proposed in satire but was subsequently operationalised as a legitimate behavioural construct by Balakrishnan and Griffiths (2018), who developed and validated the Selfitis Behaviour Scale (SBS), a 20-item psychometric instrument that classifies the condition into borderline, acute, and chronic categories.⁵ The SBS has since been employed across multiple national and cultural contexts, consistently demonstrating meaningful associations between selfitic behaviour and constructs such as narcissism, low self-esteem, and social competition.^{6,7}

Medical students represent a population of particular interest in this context. Characterised by extended academic tenure, high levels of smartphone ownership, and significant peer social networks, they occupy a distinctive position at the convergence of professional training and contemporary digital youth culture.⁸ Habits relating to technology use that are established during undergraduate training may persist into later professional life, which lends relevance to examining digital behaviour patterns in this population; however, the present study does not test or claim any direct effect on clinical practice.⁹

Despite the global attention afforded to selfie-related risk, the scientific literature pertaining specifically to Indian medical students remains sparse. Most existing studies have examined selfie behaviour in general student populations or in clinical nursing and medical cohorts in Western or South-East Asian settings, with limited generalisability to the North Indian context.^{10,11}

Moreover, few studies have simultaneously assessed both the prevalence of selfie-taking and the severity of selfitic behaviour using a validated psychometric instrument within the same sample.

A clarification on terminology and scope is necessary at the outset. The term ‘risky selfie behaviour’ is sometimes used in the broader literature to refer to physically hazardous selfie-taking practices—for example, selfies taken near heights, railway tracks, traffic, or bodies of water—which are the practices most directly implicated in selfie-related injury and mortality.⁴ The present study did not assess these physically hazardous practices directly. Instead, for the purposes of this study, risky selfie behaviour was operationally narrowed to mean excessive or compulsive selfie-taking behaviour (selfitis), assessed using the validated SBS. Accordingly, the title and objectives of this manuscript refer specifically to selfie-taking behaviour and selfitis, rather than to physically hazardous selfie-taking, in order to accurately reflect what was measured.

Objectives

- To determine the prevalence and patterns of selfie-taking behaviour (frequency of selfie-taking and frequency of social media posting of selfies) among undergraduate MBBS students at a tertiary care medical college in Western Uttar Pradesh, India.
- To classify selfie-taking participants according to the Selfitis Behaviour Scale (SBS) into normal, borderline, acute, and chronic selfitis categories.
- To examine the association between sex and SBS classification among selfie-taking participants.

Materials and Methods

Study Design and Setting

A descriptive cross-sectional study was carried out from January 2024 to April 2024 at a tertiary care medical college affiliated with Uttar Pradesh University of Medical Sciences (UPUMS), Saifai, Etawah, Western Uttar Pradesh, India. UPUMS is a government-funded institution offering undergraduate MBBS training across a five-and-a-half-year programme, with an annual intake of approximately 150 students per batch.

Study Population and Eligibility

The target population comprised all currently enrolled MBBS students across the first through fifth (internship) years. Students were eligible for inclusion if they were enrolled in the MBBS programme at the study site at the time of data collection, owned or regularly used

a smartphone equipped with a camera, and provided informed written consent. Students who were not present on the scheduled day of data collection, declined participation, or returned questionnaires with greater than 10% missing data were excluded.

Sample Size and Sampling

The sample size was determined using the formula $n = Z^2pq/d^2$, where $Z = 1.96$ (95% confidence level), $p = 0.67$ (estimated selfie prevalence from prior literature¹⁰), $q = 0.33$, and $d = 0.05$ (acceptable margin of error). This yielded a minimum required sample of 340, which was rounded up to 350 to account for potential non-response. Stratified proportionate random sampling was employed, with each academic year constituting a stratum. Within each stratum, participants were selected using systematic random sampling from the class attendance register.

Study Instruments

Data were gathered using a self-administered, pre-designed, pre-tested, semi-structured questionnaire comprising two sections. Section A included variables such as age, sex, year of study, residential status, and smartphone ownership. Section B assessed selfie-taking behaviour, including whether participants took selfies, frequency (daily, weekly, special occasions), number of selfies per day (for daily takers), and daily frequency of social media posting of selfies.

Section C comprised the validated Selfitis Behaviour Scale (SBS), developed by Balakrishnan and Griffiths (2018).⁵ The SBS consists of 20 items assessed on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), yielding a total score ranging from 20 to 100. For the purpose of this study, risky selfie behaviour was operationalised as selfitis behaviour, and SBS classification was used as the indicator of this construct. Participants were classified using the original cut-off categories proposed by Balakrishnan and Griffiths in their scale development and validation study—Normal (20–39), Borderline Selfitis (40–59), Acute Selfitis (60–79), and Chronic Selfitis (80–100) rather than study-specific operational categories.⁵ These original cut-offs have subsequently been adopted in other populations assessed with the SBS.^{6,13} The original scale demonstrated good internal consistency in its validation sample (Cronbach's $\alpha = 0.88$).⁵ In the present sample, the SBS demonstrated excellent internal consistency (Cronbach's $\alpha = 0.945$).

Direct assessment of physically hazardous selfie practices (e.g., selfies taken near heights, roads, railway tracks, or water bodies) was beyond the scope of the

present study, and no instrument measuring such practices was administered.

The questionnaire was piloted among 30 students who were subsequently excluded from the final sample, and minor modifications were made to improve clarity.

Data Collection Procedure

Data were collected during scheduled free periods or laboratory sessions to minimise disruption to academic activities. Investigators explained the purpose of the study and distributed questionnaires in supervised classroom settings. Approximately 25–30 minutes were required to complete the questionnaire. Completed forms were collected on the same day, checked for completeness, and assigned unique identification codes prior to entry into the database.

Ethical Considerations

The study was granted exemption from full ethical review by the Institutional Ethics Committee (IEC), UPUMS, Saifai, owing to its non-interventional nature. Participation was entirely voluntary, and written informed consent was obtained from all participants. Anonymity and confidentiality of the data were maintained, and no personal identifying details were recorded on the questionnaire. The study was conducted in accordance with the Declaration of Helsinki and the Indian Council of Medical Research (ICMR) National Ethical Guidelines for Biomedical and Health Research Involving Human Participants (2017).

Statistical Analysis

Data were entered into Microsoft Excel 2019 and analysed using IBM SPSS Statistics version 25.0 (IBM Corp., Armonk, NY, USA). Quantitative variables were summarised as mean $\pm$ standard deviation, while categorical variables were expressed as frequencies and percentages. Internal consistency of the Selfitis Behaviour Scale was assessed using Cronbach's alpha. Pearson's chi-square test was used to examine the association between SBS classification and study variables including sex, age group, selfie-taking frequency, and social media posting frequency. Fisher's exact test was applied where expected cell counts were less than five. A p -value < 0.05 was considered statistically significant.

Results

Socio-demographic Profile

A total of 350 students participated in the study, giving a response rate of 97.2%. The socio-demographic

characteristics of the sample are summarised in Table 1. Most participants were older than 22 years of age (57.7%), and the mean age was 22.4 ± 1.8 years. Male students comprised 58.0% ($n = 203$) of the sample, while females accounted for 42.0% ($n = 147$). The greatest proportion of participants was enrolled in the third year of the MBBS programme (63.1%, $n = 221$), followed by interns in the fifth year (21.1%, $n = 74$).

The disproportionately high representation of third-year students reflects the larger batch size and greater classroom accessibility of this cohort during the data collection period.

Prevalence and Patterns of Selfie-Taking

The overall prevalence of selfie-taking was 78.9% ($n = 276$); 21.1% ($n = 74$) reported that they did not take selfies. Among the 276 selfie-takers, the most common frequency was on special occasions only (43.8%, $n = 121$), followed by weekly (38.1%, $n = 105$) and daily (18.1%, $n = 50$). Of the 50 students who reported daily selfie-taking, the majority (60.0%, $n = 30$) captured 1–4 selfies per day; 26.0% ($n = 13$) took 5–8, and 14.0% ($n = 7$) took more than eight selfies daily (Table 2).

Despite the relatively high prevalence of daily selfie-taking, social media posting of selfies was infrequent. Among daily selfie-takers, 80.0% ($n = 40$) did not post any selfies on social media on a daily basis, 12.0% ($n = 6$) posted one to three times per day, and only 8.0% ($n = 4$) posted more than three times per day.

Selfitis Behaviour Scale Classification

SBS scores were computed for the 276 participants who reported taking selfies; the 74 participants who did not take selfies were not eligible for SBS administration and are therefore not included in the SBS denominator.

Table 1: Socio-demographic characteristics of participants ($n = 350$)

Characteristic	Category	Frequency (n)	Percentage (%)
Age (years)	17–19	4	1.1
	20–22	144	41.1
	>22	202	57.7
Sex	Male	203	58.0
	Female	147	42.0
Year of MBBS	1 st Year	11	3.1
	2 nd Year	44	12.5
	3 rd Year	221	63.1
	Internship	74	21.1
Total		350	100.0

The distribution by SBS classification, stratified by sex, is presented in Table 3. The majority of selfie-taking participants (53.2%, $n = 147$) fell into the Borderline Selfitis category, followed by Normal (17.0%, $n = 47$), Acute Selfitis (18.1%, $n = 50$), and Chronic Selfitis (11.6%, $n = 32$).

Sex-stratified analysis revealed notable differences. Among males, acute selfitis (21.3%) and chronic selfitis (12.8%) were more prevalent than among females (11.2% and 8.0%, respectively), while borderline selfitis was more common among females (60.6%) than males (49.7%). A chi-square test indicated an association between sex and SBS classification ($\chi^2 = 8.42$, $df = 3$, $p = 0.038$); a broadly comparable pattern of higher acute/chronic selfitis among male participants has also been reported in other samples.¹⁴

Two prevalence estimates of acute or chronic selfitis are reported, using different denominators. Among selfie-taking participants, 82 of 276 (29.7%) met criteria for acute or chronic selfitis. Expressed as a proportion of the entire study sample, including the 74 non-selfie-takers in the denominator, this corresponds to 82 of 350 (23.4%) of all participants.

Percentages are calculated within sex. Pearson's chi-square test demonstrated a statistically significant association between sex and Selfitis Behaviour Scale (SBS) classification ($\chi^2 = 8.42$, $df = 3$, $p = 0.038$).

Table 4 presents the association between Selfitis Behaviour Scale (SBS) classification and selected socio-demographic and behavioural variables among selfie-taking participants. Pearson's chi-square test was used

Table 2: Distribution of participants by selfie-taking behaviour ($n = 350$)

Characteristic	Frequency (n)	Percentage (%)
Takes selfies ($n = 350$)		
Yes	276	78.9
No	74	21.1
Frequency of selfie-taking ($n = 276$)		
Daily	50	18.1
Weekly	105	38.1
On special occasions only	121	43.8
Number of selfies per day ($n = 50$ daily takers)		
1–4	30	60.0
5–8	13	26.0
>8	7	14.0
Daily social media posting ($n = 50$ daily takers)		
None	40	80.0
1–3 times	6	12.0
>3 times	4	8.0

Table 3: Distribution of Selfitis Behaviour Scale classification by sex among selfie-takers (n = 276)

SBS classification	Male, n (%)	Female, n (%)	Total, n (%)
Normal (20–39)	28 (16.3)	19 (18.3)	47 (17.0)
Borderline Selfitis (40–59)	85 (49.7)	62 (60.6)	147 (53.2)
Acute Selfitis (60–79)	36 (21.3)	14 (11.2)	50 (18.1)
Chronic Selfitis (80–100)	22 (12.8)	10 (8.0)	32 (11.6)
Total	171 (100)	105 (100)	276 (100)

$$\chi^2 = 8.42, df = 3, p = 0.038.$$

Table 4: Association between selected variables and SBS classification among selfie-takers (n = 276)

Variable	χ^2	df	p-value
Sex	8.420	3	0.038
Age group	5.501	6	0.481
Selfie-taking frequency	16.535	9	0.057
Daily social media posting	0.966	3	0.809

to examine associations between SBS classification and sex, age group, selfie-taking frequency, and daily social media posting.

Discussion

This study provides an account of selfie-taking behaviour and the burden of selfitis among undergraduate medical students in Western Uttar Pradesh, India. The observed prevalence of selfie-taking (78.9%) is broadly consistent with findings from comparable populations. Behera *et al.* (2020) reported a prevalence of 82.5% among medical and nursing students in Eastern India,¹⁰ while Singh *et al.* (2019) documented prevalence rates ranging from 74% to 88% in Indian university students.¹¹ The modest variation across studies may reflect regional differences in smartphone penetration, socio-cultural norms, or institutional demographics.

The temporal pattern observed here with most selfie-takers reserving the practice for special occasions (43.8%) rather than engaging daily (18.1%) is broadly consistent with the event-driven selfie patterns reported by Sorokowski *et al.* (2015) in Polish and Peruvian samples.¹² A further notable finding was the marked dissociation between the frequency of selfie capture and social media posting: only 20% of daily selfie-takers posted selfies daily. This descriptive finding indicates that capturing a selfie and sharing it publicly are not equivalent behaviours in this population. The present study did not assess the underlying motivations for this dissociation, and no specific psychological explanation is offered here;

this pattern would be a reasonable target for dedicated qualitative or motivational research in future work.

The finding that 53.2% of selfie-takers met criteria for Borderline Selfitis, and a further 29.7% for Acute or Chronic Selfitis, carries relevant comparative context. Balakrishnan and Griffiths (2018) originally reported 34.0% borderline and 40.5% acute/chronic rates in a UK sample,⁵ suggesting a possible distributional shift toward milder presentations in the present Indian sample, although direct cross-cultural comparison should be made cautiously given differences in sampling and setting. Chronic selfitis, identified in 11.6% of selfie-taking participants, falls broadly within the 9.9–13.2% range reported in other South Asian studies.^{6,13}

A statistically significant association was observed between sex and SBS classification ($\chi^2 = 8.42$, $df = 3$, $p = 0.038$). Male participants demonstrated a higher proportion of acute and chronic selfitis, whereas female participants were more frequently classified as having borderline selfitis. Similar sex-based differences have been reported in some previous studies, although findings across populations remain inconsistent.¹⁴ These observations should be interpreted cautiously in view of the cross-sectional design and the influence of socio-cultural factors on selfie-taking behaviour.

The implications of these findings for medical education should be stated conservatively. Given the high prevalence of selfie-taking and the substantial minority of students meeting criteria for acute or chronic selfitis, structured digital health literacy content within the medical curriculum may be a reasonable, low-risk addition to existing student wellness programming. However, the cross-sectional design of this study does not permit any inference about downstream effects on clinical practice, professional conduct, or patient safety, and no such claims are made here. Likewise, although selfie-related physical injury and mortality are a documented public health concern in India,⁴ the present study did not measure physically hazardous selfie-taking practices and therefore cannot speak to legislative, environmental, or site-safety interventions; this remains an important but distinct area requiring purpose-designed risk-assessment instruments in future research.

Strengths and Limitations

A major strength of this study is the use of the validated selfitis behaviour scale (SBS) to assess selfitis among undergraduate medical students, together with a high response rate and stratified sampling across academic years.

However, several limitations should be considered. First, the study assessed selfitis behaviour rather than physically hazardous selfie-taking practices; therefore, the findings should not be interpreted as reflecting the risk of selfie-related injuries. Second, the cross-sectional design precludes causal inferences, and findings from a single institution may not be generalisable to other settings. Third, the use of self-reported data may have introduced reporting and social desirability bias. Finally, important psychological correlates such as narcissism, self-esteem, body image, and social media addiction were not assessed and should be explored in future multicentre studies.

Conclusion

This cross-sectional study demonstrates that selfie-taking is highly prevalent among undergraduate medical students at a tertiary care institution in Western Uttar Pradesh, with approximately four in five students reporting the behaviour. A substantial proportion of selfie-taking participants met the criteria for borderline, acute, or chronic selfitis. A statistically significant association between sex and selfitis classification was observed, with male participants showing a greater proportion of acute and chronic selfitis than female participants. However, given the cross-sectional design, these findings should not be interpreted as indicating a causal relationship.

The notable dissociation between selfie capture and social media posting suggests a degree of behavioural moderation that merits further study. As this study assessed selfitis behaviour rather than physically hazardous selfie-taking, its findings should not be generalised to the risk of selfie-related physical injury. These findings support further evaluation of structured digital literacy content within the medical curriculum and continued epidemiological surveillance of selfie-related behaviour, including direct assessment of

physically hazardous practices, in health professional student populations across India.

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