

01. **Title: Social Media induced Guilt Loop and FoMO; A cross-sectional study on the implicit cycle of Social Media Consumption in Medical Students.**

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Background: Social media now consumes over 3.5 hours of the average 16–24-year-old's day—the very cohort filling the world's medical schools. Even before clinical practice begins, 44.2% of medical students globally meet burnout criteria, rising to 88% in certain systems. Trapped between unrelenting academic demands and an attention-engineered digital ecosystem, students turn to social media for escape, only to resurface burdened by guilt — and scroll again. We conceptualized this self-perpetuating dynamic as the "Guilt Loop": a closed affective circuit in which guilt is not a passive byproduct but the active mechanism bridging problematic social media use (PSU) to Fear of Missing Out (FoMO). This architecture has remained unmapped, particularly in low- and middle-income medical-training contexts.

Methods: A STROBE-compliant, national cross-sectional survey was conducted among medical students from public and private institutions across Pakistan (July–August 2025) via an anonymous online questionnaire. The instrument captured sociodemographics, usage patterns, and three validated scales: the Bergen Social Media Addiction Scale (BSMAS), the Education- and Social-Related FoMO Scales, and a custom-developed Academic Guilt Scale operationalizing the Guilt Loop construct. Reverse-coded items minimized acquiescence bias. Data were analyzed in IBM SPSS v28 using descriptive statistics, multivariable linear regression, and a mediation–moderation model, with significance set at $p \leq 0.05$.

Results: Among 1,023 enrolled students, 53.5% were male and 77.9% attended public-sector institutions. Social media exposure was substantial: 75.9% reported ≥ 3 hours of daily use, and 34.6% exceeded five hours. Mean scores across all three psychological domains were elevated (BSMAS: 16.23 ± 5.37 ; total FoMO: 32.94 ± 9.50 ; Guilt: 19.24 ± 4.52), with strong positive intercorrelations ($r = 0.54$ – 0.58 ; all $p < 0.001$), consistent with a shared affective process. Mediation analysis supported the Guilt Loop: PSU exerted a significant direct effect on FoMO ($\beta = 0.986$, $p < 0.001$), which was attenuated by 37.3% upon guilt entry as mediator ($\beta = 0.618$, $p < 0.001$), confirming significant partial mediation. The mediating pathway was invariant across sex (moderation $p = 0.721$); however, the affective burden was not. Despite equivalent BSMAS scores, female students reported significantly higher FoMO (33.65 vs. 32.31; $p = 0.024$) and markedly higher guilt (20.03 vs. 18.55; $p < 0.001$), indicating a disproportionate affective cost at equivalent levels of use. Multivariable regression identified daily usage duration (β up to 1.95, $p < 0.001$), academic standing, and female gender ($\beta = 0.99$, $p < 0.001$) as independent predictors of guilt;

BSMAS ($\beta = 0.63$) and Guilt ($\beta = 0.83$), not demographics, emerged as the sole significant predictors of FoMO.

Conclusion: Guilt partially mediates the PSU–FoMO pathway, supporting the proposed Guilt Loop in medical students. These findings highlight the need for future longitudinal studies to establish directionality and inform targeted digital-wellbeing interventions in medical education.

Key Words: Social Media; Guilt; Students, Medical; Cell Phone; Cross-Sectional Studies.

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