

Shyness and Inferiority Feelings as Predictors of Phubbing Behavior among University Students

Saba Rehman¹, Najia Zulfiqar^{1*} & Kifayat Khan²

Abstract

Phubbing is an unethical social act performed in face-to-face interactions where an individual, i.e., phubber, ignores another person, i.e., phubbee, in favor of using his/her cell phone. This study examined shyness and inferiority feelings as predictors of phubbing behavior among university students. Gender and educational differences were also discussed. About 300 students (boys = 150; girls = 150) from three universities of Hazara Division KPK responded to the Phubbing Scale (Karadag et al., 2015), Inferiority Feelings Scale (Akdogan, 2012), Revised Cheek and Buss Shyness Scale (Cheek & Buss, 1981) and a personal information form. Results revealed that shyness positively predicted phubbing, while inferiority feelings did not predict phubbing among university students. Gender differences exist in favor of boys in communication disturbance. Graduate students scored higher on shyness, and undergrads scored higher on inferiority feelings than their counterparts. However, education did not predict significant group differences in phubbing. Study strengths and limitations are discussed.

Keywords: inferiority, personality, phubbing, shyness, university students.

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Introduction and Literature Review

Smartphones have gained much attention in socializing, communicating, and entertaining people. Despite the obvious advantages of bringing people together, smartphones sometimes pull people apart. Youth continuously use smartphones and often ignore others with whom they are physically interacting. This unethical behavior is called phubbing, when someone looks down at their cell phone while interacting with others. *Phubbing is "an individual looking at his or her mobile phone during a conversation with other individuals, dealing with the mobile phone, and escaping from interpersonal communication"* (Karadag et al., 2015, p. 60). The term "phubbing" was coined by Sydney University authors, poets, and lexicographers to market the 2012 edition of the Macquarie Dictionary (Karadag et al., 2016). In a social setting, the individual who snubs is known as a phubber. The person facing disrespect and disregard because of phubber behavior is known as a phubbee. Phubbing is snubbing somebody in a private company by concentrating on smartphones with or without the

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use of internet facilities (Chotpitayasunondh & Douglas, 2016).

Karadag et al. (2016) qualitatively analyzed the causes and effects of phubbing among Turkish university students. Smartphone use was prevalent among university students, who looked at their phones every minute or every five minutes. The causes of phone use included communicating with others, loneliness, boredom, etc., but it harmed their relationships and social environment connections. Phubbers reported poor communication skills and difficulty making eye contact. This nervousness in offline social settings also leads to maladjustment in different ways. Hispanic college students had up to moderate levels of phubbing, and they used phubbing to mitigate negative effects (Garcia et al., 2023). Tanhan et al. (2023) found a significant positive association between social media addiction and phubbing among 385 Turkish university students.

Shyness is “*feeling uneasy in social situations and being annoyed by the internal force preventing one from taking part in these situations*” (Henderson & Zimbardo, 2001, p. 432). Whenever shy people encounter public settings, they indulge in smartphones as an alternative way to avoid experiencing negative feelings (Laghi et al., 2013). Research shows that shy adolescents have internalized issues such as loneliness, sadness, and social anxiety, which can lead to problematic mobile phone use (Hong et al., 2019). Shyness can be conceptualized as both a state and a trait. State shyness is an emotional response that usually occurs in an environment that causes social stress, such as during a presentation or meeting new people (Lewis, 2001). Contrarily, trait shyness is an overall temperament or propensity towards social novelty that is stable over time and context (Coplan & Rubin, 2010). This study focuses on the trait of shyness that reveals a person’s uneasiness and reserved nature in public.

Inferiority feelings and negative thoughts trigger emotional distress that can lead to cell phone dependence and phubbing. The condition ultimately leads people to find social networking sites and gain satisfaction (Przybylski & Weinstein, 2013). *Inferiority feelings are “complex emotions that usually involve perceived weakness and helplessness”* (Basak & Aydin, 2019, p. 469). Life attitudes and ways of thinking bring negative self-evaluations and insights that lead to inferiority feelings and rejection. Some judge themselves negatively because of life or work setbacks (Liu et al., 2022). Depressed people often feel inferior, have low self-esteem, and avoid social interaction. They escape these negative experiences by connecting with smartphones (Ha et al., 2008). These findings give rise to the new exploration that inferiority feelings may contribute to phubbing behavior.

Shyness and Phubbing

Empirical literature can be traced to the association between shyness and excessive internet use or addiction in any form, such as smartphones, social media, and gaming. However, research is scarce on shyness and phubbing. Shyness is a powerful predictor of internet addiction, and shy people use their phones more to avoid face-to-face interaction, which can become an issue (Bian & Leung, 2014). Ang et al. (2018) reported a positive correlation between shyness and internet addiction among 286 young internet users. Nazir and Bulut (2019) supported a positive correlation between internet addiction and phubbing. They found that internet addiction leads to more phubbing in social settings.

Chen et al. (2021) found a strong link between cell phone dependency and shyness in 699 Chinese junior high schoolers. Meena et al. (2021), after surveying 240 students (boys = 56.67%, girls = 43.33%), concluded that people spent excessive time on their cell phones to escape shyness. Chi et al. (2022) found low phubbing behavior and communication disturbance among extroverts and those open to experience. More research is required to examine the association between shyness and phubbing behaviors, particularly in the Pakistani cultural context.

Inferiority Feelings and Phubbing

Limited literature was found on the relationship between inferiority feelings and phubbing. Nehra et al. (2012) conducted a study to find the awful consequences of mobile use among 212 young adults. Results reported that 70% of participants positively responded to the question that mobile phones helped them to escape inferiority feelings, guilt, depression, etc. Basak and Aydin (2019) found that self-worth and discouragement had the biggest influence on problematic internet use, explaining 25% of the variance. Likewise, Goncalves et al. (2020) found that smartphone use, inferiority feelings, and adequacy are the most significant predictors of nomophobia (i.e., fear of being away from one's smartphone) in 495 young adults. Chi et al. (2022) found that fear of missing out and social media addiction increased the likelihood of phubbing, whereas emotional stability, agreeableness, and conscientiousness decreased phubbing.

Gender and Educational Differences in Phubbing

Previous research discovered that females have more phubbing tendencies than males (Karadag et al., 2015). Cebollero-Salinas et al. (2022) revealed a 24.5% variability in phubbing for girls, reflecting a greater tendency to use cell phones in face-to-face conversation than boys, who scored 16.3% variability. Garcia et al. (2023) found that Hispanic female undergraduate students had higher levels of phubbing, and they more often avoided social interactions for phone use. Contrarily, Hao et al. (2021) found that boys scored higher than girls on peer phubbing and selfie liking among 427 university students. Chi et al. (2022) conducted cross-sectional research on 938 undergraduate students (48.4% boys & 51.6% girls). Results showed that boys, on average, scored significantly higher than girls on phubbing and its subscales. Lai et al. (2023) females are at higher risk of phubbing behavior because they use a smartphone to maintain their interpersonal relationships and social media use. The existing literature presents mixed gender differences in phubbing and needs further empirical investigation.

The educational level of students also affects their tendency to phub in social settings. Previous researchers investigated the virtual sum of addiction measures (e.g., social media, smartphone, internet, and gaming addiction) as common predictors of phubbing, and youth and emerging adults are the high-risk group concerning phubbing because of using new technologies (Karadag et al., 2015, 2016). The findings of Çizmeçi (2017) supported the notion that as the educational level increased from high school to undergraduate, the perception of partner phubbing increased, and relationship satisfaction decreased among 500 Turkish couples. Graduate students are phubbed more than undergraduates. Toker and Tuncay (2020) compared four groups of students (primary, secondary, undergraduate, & graduate) for differences in phubbing others or being phubbed. Findings show that 70% of 54 graduate

students reported being phubbed, and 45% reported being a phubber. While 24% of 56 undergraduate students were victims of phubbing, and 56% were involved in phubbing others. Phubbing was also prevalent among primary and secondary school students. Overall, the graduate and primary school students scored higher on phubbing than the undergraduate and secondary school students (Toker & Tuncay, 2020).

Rationale of Study

This study highlights the role of two significant personality factors: shyness and inferiority feelings are strong predictors of phubbing. Smartphone use disorder is on the rise among Pakistani university students, indicating phubbing may be present (Bajwa et al., 2021). Few researchers have tried to pinpoint what predicts phubbing in universities/colleges. Although it is a worldwide phenomenon not exclusive to Pakistan, it is under-examined among the indigenous population. Previous studies portray mixed literature on gender differences in the study variables. The Pakistani culture is characterized by generalized male dominance and female suppression. Therefore, the assumptions to test objectives hypothesize females being more phubbed, shy, and feel inferior than males. Not a single Indigenous study could be traced on Pakistani university students' educational differences in phubbing and personality traits. In alignment with the Turkish research of Toker and Tuncay (2020), a hypothesis is formulated about the educational differences that more undergraduate than graduate university students are involved in phubbing.

Objectives of Study

1. To examine shyness and inferiority feelings as predictors of phubbing behavior among university students.
2. To examine gender and educational differences in shyness, inferiority feelings, and phubbing among university students.

Hypotheses of Study

The present research addresses the following hypotheses:

1. Shyness and inferiority feelings will be positive predictors of phubbing behavior.
2. Girls will have higher levels of shyness, inferiority feelings, and phubbing as compared to boys.
3. Undergraduate students are likelier to experience shyness, inferiority feelings, and phubbing than graduate students.

Materials and Methods

Research Design

The study examined the connection between shyness, inferiority feelings, and phubbing through a quantitative online survey using three questionnaires. It is ensured that these measures are relevant and appropriate for the study's objectives. Phubbing was treated as a latent variable and measured in terms of communication disorder and phone obsession. A structural regression model was tested to examine the predictive effects of shyness and inferiority feelings on phubbing.

Participants

Participants were selected from three universities of KPK through convenience sampling. They provided demographic information and responded to questionnaires via Google Forms. The sample inclusion criteria referred to male and female adult university students aged 18 and above who have a cellphone and are currently enrolled in a university. The total sample size was 300 students (boys = 150 & girls = 150). The age range of participants was 18 to 33 years ($M = 25.50$, $SD = 4.7$). About 73.4% of students were undergraduates, 26.7% were graduates, 17% were Masters, and 9.7% were Ph.D. students. The exclusion criteria were adults who did not possess a phone and were pursuing non-traditional degree programs anywhere other than district Haripur.

Instrumentation

The Revised Cheek and Buss Shyness Scale (RCBS). Cheek and Buss (1981) developed a 13-item scale to assess participants' subjective perception of shyness. Respondents respond to items using a 5-point Likert scale, ranging from 1 to 5 (1 = strongly disagree & 5 = strongly agree). The total score was calculated by adding all the responses after reversed coding four items, which are 3, 6, 9, and 12. The scale has a score range of 13-65, with higher values denoting shyness to a greater extent. The Cronbach's alpha reliability of the scale was .71.

Inferiority Feelings Scale (IFS). Akdogan (2012) developed a 20-item scale to measure inferiority feelings among university students. The IFS is divided into three subscales: discouragement, negating self-worth, and useless superiority effort. A 5-point Likert scale ranged from 1 (never) to 5 (always). The scale has a score range of 20-100, with higher values indicating higher inferiority feelings. Cronbach's alpha reliability of the scale was .81.

Phubbing Scale (PS). Karadag et al. (2015) developed the phubbing scale to assess phubbing behavior. This scale consists of 10 items that are responded to on a 5-point Likert scale ranging from 1 (never) to 5 (always). The scale is divided into two subscales. First, communication disturbance (items 1 to 5) refers to how people's use of mobile devices during face-to-face conversations might interfere with their conversations. Second, phone obsession (items 6-10) reflects how much people depend on their mobile devices in settings when face-to-face contact is not possible. Examples of these subscales are "my eyes go to the phone when I'm together" and "when I wake up in the morning, I first check my messages on my phone," respectively. The scale has a score range of 10 to 50. A score of 40 or above expresses an individual's phubbing addiction. The alpha reliability coefficients of communication disturbance ($\alpha = .63$) and phone obsession ($\alpha = .70$) were acceptable.

Procedure and Ethical Considerations

The Ethics Review Committee of the University approved the study under UOH/DASR/2023/1484, granting permission to collect data from three universities in Hazara, KPK. They were informed about the purpose of the research and the necessary instructions to respond to the questionnaires. Those willing to participate were given a Google Form link to respond to the survey questionnaires. No identifying information was collected. Data were anonymized for confidentiality, and participants were given freedom to withdraw from the study. Researchers ensured participants that their provided information would be kept

confidential and used only for research. They ensured no harm to participants and informed consent for participation and publication. Participants took 20 minutes on average to respond to the questionnaires.

Statistical Analysis

The study examined the predictive effects of shyness and inferiority feelings and the role of gender and education on phubbing behavior. Shyness and inferiority feelings were predictors of phubbing. Communication disorders and phone obsession were two factors of phubbing. Data normality was measured via skewness and kurtosis tests in SPSS version 29. The structural regression model was tested in MPLUS software. Gender and educational differences were tested using *t*-tests with a 0.05 significance level.

Results

Table 1 reveals the descriptive statistics of the study variables. Participants' mean scores on shyness and inferiority feelings were above average. Between phubbing subscales, they scored higher on phone obsession than on communication disturbance.

Table 1

Descriptive Statistics and Correlation in Study Variables among University Students (N=300)

Scale	A	M	SD	Potential	Actual	Skew	Kurtosis	1	2	3
RCBS	.71	37.59	7.47	14	63	-.19	.14			
IFS	.81	58.9	11.8	20	97	-.19	.65	.31**		
COM	.63	12.04	3.75	5	25	.18	-.29	.19**	-.06	
PHO	.70	16.98	4.48	5	25	-.07	-.44	.13*	-.08	.42**

Note. RCBS = Revised Cheek and Buss Shyness; IFS = Inferiority Feelings Scale; COM = Communication Disorder; PHO =Phone Obsession; M = Mean; SD = Standard deviation. **p* <.05

Shyness, inferiority feelings, and phone obsession were negatively skewed, while communication disturbance was positively skewed. The values from kurtosis fulfilled the criteria for normality. In addition, the table shows a statistically significant positive correlation of shyness with inferiority feelings ($r = .31$), communication disorders ($r = .19$), and phone obsession ($r = .13$) at an alpha level of .05. However, the magnitude of correlation coefficients was small. Inferiority feelings had a non-significant negative correlation with communication disorders ($r = -0.6$) and phone obsession ($r = -.08$) at alpha level .05.

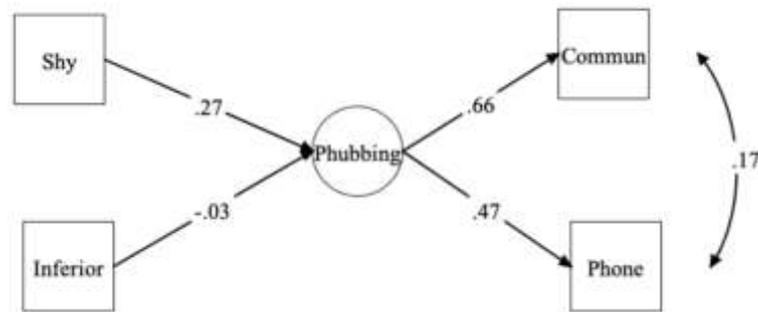


Figure 1. The structural regression model examined the association between shyness, inferiority feelings, and phubbing subscales.

Structural regression modeling (SEM) was constructed to reflect the systematic relationship between shyness, inferiority feelings, phubbing, communication disturbance, and phone obsession. The results revealed that the highest standardized regression coefficient was observed for the association between shyness and phubbing ($\beta = .27, p < .05$). Hence, shyness was the positive predictor of phubbing. However, the effect of inferiority feelings on phubbing was insignificant and negative ($\beta = -.03, p < .05$). It is concluded that people do not necessarily perform phubbing behavior with inferiority feelings. These findings partially support hypothesis 1.

Phubbing behavior was measured in terms of communication disturbance and phone obsession. The factor loading of communication disturbance was .66, and the factor loading of phone obsession was .47. These findings indicate that phubbing behavior among university students is largely explained by communication disturbance rather than phone obsession. The model fit was interpreted in terms of a) chi-square statistic (χ^2), (b) comparative fit index (CFI), (c) Tucker-Lewis fit index (TLI), (d) root-mean-square error of approximation (RMSEA), and (e) standardized root mean square residual (SRMR). These fit indices were $\chi^2(5) = 4214.04, p = .27, CFI = 0.97, TLI = 0.95, RMSEA = 0.06, SRMR = 0.02$. In light of Kline’s (2011) model fit criteria, the model achieved a good fit with the data ($RMSEA \leq .06, CFI \geq .95, \text{ and } SRMR \leq .08$).

Table 2

Mean, Standard Deviations, and Independent Samples t-test for Boys and Girls on Study Variables (N=300)

Variable	Boys (n=150)		Girls (n=150)		t(298)	p	95% CI		Cohen’s d
	M	SD	M	SD			LL	UL	
RCBS	37.40	7.38	37.77	7.57	-.32	.74	-2.02	1.38	0.05
IFS	59.28	9.82	58.51	13.55	.56	.55	-1.92	3.45	0.06

COM	12.52	3.74	11.56	3.71	2.22*	.03	.11	1.80	0.26
PHO	16.99	4.29	16.95	4.67	.077	.94	-.97	1.06	0.00

Note. RCBS = Revised Cheek and Buss Shyness; INF=Inferiority Feelings; COM= Communication Disorder; PHO=Phone Obsession; *M* = Mean; *SD* = Standard deviation; *LL*= Lower limits; *UL* = Upper limit; Boys = 1, Girls = 2; **p* <.05.

Table 2 shows significantly higher mean scores of boys on inferiority feelings ($t = .56$) and communication disturbance ($t = 2.22$) than girls at the alpha level .05. However, there are no significant gender differences in shyness, inferiority feelings, and phone obsession. These findings did not support hypothesis 2.

Table 3

Mean, Standard Deviation, and independent t-test for Educational Levels on Study Variables

Variable	Undergrad(<i>n</i> =150)		Graduate (<i>n</i> =150)		<i>t</i> (298)	<i>p</i>	95% CI		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>	
RCBS	38.71	7.10	34.51	7.64	-4.93*	.00	-5.87	2.52	0.57
IFS	57.85	11.26	62.96	12.47	3.72*	.00	2.41	7.81	0.43
COM	11.88	3.83	12.46	3.51	1.36	.17	-0.25	1.41	0.16
PHO	16.95	4.81	17.06	3.43	.22	.81	-0.84	1.06	0.02

(*N* = 300)

Note. RCBS = Revised Cheek and Buss Shyness, IFS = Inferiority feelings; PHB = Phubbing; *M* = Mean; *SD* = Standard deviation; *LL*= Lower limits; *UL* = Upper limit; Undergraduate = 1, Graduate = 2; **p* <.05.

Table 3 shows that the mean scores of shyness for undergrad students were significantly higher than their graduate counterparts, whereas graduate students, on average, reported higher scores on inferiority feelings. There are significant differences between shyness ($t = -4.93$) and inferiority feelings ($t = 3.72$) in students' educational levels. Each group reported non-significant differences in communication disturbance and phone obsession $p < .05$. Hence, these findings partially supported research hypothesis 3.

Discussion

This study aimed to identify shyness and inferiority feelings that cause phubbing behavior among university students. All the hypotheses were formulated sequentially. The researcher used correlational analysis and a structural model to gain insights into the results. The first research hypothesis states that shyness and inferiority feelings are positive predictors of phubbing among university students. Results showed a positive correlation between shyness and phubbing. This implies that the subjective experience of shyness increases the frequency of phubbing behavior.

Phubbing behavior increases as individuals' shyness increases. However, a significant negative relationship was found between inferiority feelings and phubbing (see Table 1) which provides a new understanding of the phenomenon. People may feel inferior in front of others for other reasons but may not necessarily be involved in phubbing conduct. It can be inferred that those who feel themselves inferior do not phub others. Given these findings, more studies should be conducted to unveil the association among these variables.

Mixed empirical evidence exists for gender differences in the study variables. It is the reason to examine them for the Pakistani population. Some studies reported a higher level of shyness among females than males (Want al., 2020; Xie & Zou, 2018). A recent study did not find a difference in scores of boys and girls on the level of shyness (Lawson et al., 2023). Our study found non-significant gender differences in shyness and supported Lawson et al. (2023). Likewise, gender differences in the inferiority feelings were non-significant and boys and girls had homogenous scores on the Cheek and Buss Shyness and Inferiority Feelings Scale. These findings are consistent with the results of Hashim (2022) who found no evidence of significant gender differences in inferiority feelings.

The present study examined the gender differences in phubbing among university students and found significant mean differences in communication disturbance, favoring boys over girls (see Table 2). This finding supports the results of Hao et al. (2021) and Chi et al. (2022), who found that university male students reported being more involved in phubbing than university female students. However, these findings contradict the studies of Chotpitayasunondh and Douglas (2016), and Karadag et al. (2016).

The present study showed significant differences in shyness and inferiority feelings between undergraduate and graduate students (see Table 3). However, there are no significant gender differences in communication disturbance and phone obsession scores based on an educational group of university students. Some previous studies, such as Cizmeci (2017) and Yildiz-Durak (2019), revealed meaningful educational differences in phubbing frequency, but the present findings contradict them and support Al-Saggaf et al. (2019) findings.

Shyness, inferiority feelings, and phubbing are sensitive issues to talk about in a face-to-face survey. Researchers opted for an online data collection method to make it easier for participants to self-report their personality traits. This minimized the chances of response bias and demand characteristics distorting the results. It is noted that phubbing behavior is spreading like a pandemic in the modern world. The present study augmented its prevalence by showing above-average participants' scores on phubbing. Erzen et al. (2019) previously studied neuroticism and conscientiousness as predictors of phubbing; the present study examined shyness as a characteristic of introverts. This finding may aid scholars in defining phubbing, its predictors, and its process more comprehensively. It also had practical implications for parents, teachers, and mental health workers.

Conclusion

This study contributes to the literature on phubbing. The act of snubbing others in a public setting increases as shyness increases. Shyness promotes social escapism and causes people to seek online anonymity. Spotting shy individuals and encouraging them to adopt

coping mechanisms can reduce the distress caused by shyness. Parents and educators should encourage shy students to be more socially active and foster opportunities for youth's interpersonal interactions.

Limitations and Suggestions

Despite extensive research, the problem remains open to exploration because of the challenges it offers. Some of the noticeable challenges are highlighted that pave the path for future research in this domain. First, the present study is held with personality traits such as shyness and inferiority feelings as predictors of phubbing. Future researchers should further investigate how loneliness, social anxiety, and subjective well-being mediate in this relationship. Secondly, Online data collection led to a slow response rate, inadequate communication, and non-randomization. The study's findings are limited because only three universities in Hazara district KPK are included. Variations in the study population can be examined to assess phubbing tendencies, such as among professionals and couples. The study was limited by the small number of demographics, which affects capturing the broader view of the participant's phubbing tendencies. Future researchers should include various demographics like age, family system, and socioeconomic status.

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