

Development and Validation of the Always-On Mindset Scale (AOMS)

Sumaira Safdar¹, Kiran Naz Malik², Dr. Tasnim Rehna³

1 PhD Scholar, Department of Applied Psychology, NUML

2 PhD Scholar, Department of Applied Psychology, NUML

3 Assistant Professor, Department of Applied Psychology, NUML

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Abstract

The proliferation of smartphones and ubiquitous internet connectivity has created an internalized pressure to remain constantly available, yet no psychometrically sound measure exists to assess this disposition in non-Western contexts. This study describes the development and validation of the Urdu version of the Always-On Mindset Scale (AOMS) in a Pakistani sample. Following systematic scale development procedures, an initial pool of 42 items was generated through deductive and inductive methods. Expert review ($N = 5$) established content validity, reducing the scale to 25 items. Data from 258 Pakistani adults (70.5% male, 62.8% students) were analyzed using exploratory factor analysis, which revealed a three-factor structure consistent with theoretical predictions: Perceived Obligation to be Accessible (10 items), Response Urgency (10 items), and Disconnection Guilt/Anxiety (5 items), explaining 58.4% of total variance. The total scale demonstrated excellent internal consistency ($\alpha = .90$), with subscale reliabilities ranging from .78 to .85. Convergent validity was supported by significant positive correlations with Fear of Missing Out ($r = .55, p < .01$). The Urdu AOMS demonstrates strong psychometric properties and provides a culturally appropriate instrument for assessing the psychological burden of constant connectivity in Pakistani populations. This scale has implications for research on digital wellbeing, occupational health psychology, and technology-related stress in collectivistic cultural contexts.

Keywords: Always-On Mindset, scale development, digital wellbeing, Pakistan, Urdu, psychometric validation, connectivity

Introduction

The proliferation of smartphones and ubiquitous high-speed internet has fundamentally altered the landscape of human communication and work across the globe, including in developing nations such as Pakistan. Mobile information and communication technologies (ICTs) have removed geographic and temporal barriers, enabling connectivity 24/7 and allowing individuals to work and interact from anywhere at any time (Cox, 2020; Leung & Zhang, 2017). While these technologies offer unprecedented convenience and flexibility, they also blur the distinction between professional and personal life, creating new forms of stress and psychological strain (City University of Hong Kong, 2022; Hindustan Times, 2024). As Cox (2020) observed, mobile technologies have contributed to expectations of anywhere, anytime connectedness, making it difficult for individuals to truly switch off and disconnect from work.

Technostress research has examined the negative psychological effects of technology use. Ayyagari, Grover, and Purvis (2011) identified technological antecedents of technostress, including work-home conflict and invasion of personal life. More recently, Gilbert, Baumgartner, and Reinecke (2022) introduced the concept of "online vigilance" as a cognitive-motivational pattern characterized by salience (cognitive preoccupation with online content), reactivity (spending mental effort on online communication), and monitoring (checking messages and notifications). While online vigilance captures aspects of constant connectivity, it emphasizes cognitive preoccupation with online content rather than the internalized normative pressure to be perpetually available.

Fear of Missing Out (FoMO) represents another related construct, defined as the apprehension that others might be having rewarding experiences from which one is absent (Przybylski et al., 2013). Recent research has identified FoMO as a significant risk factor for poor mental health in digitally connected workplaces, creating a vicious cycle where the fear of missing something drives frequent technology checking, which in turn triggers stress from constant information consumption (Hindustan Times, 2024). However, FoMO centers on anxiety about missing rewarding experiences, whereas the always-on mindset encompasses a broader sense of obligation and guilt regarding availability and responsiveness.

Boundary theory provides a valuable theoretical lens for understanding how individuals manage the intersection of work and personal life. Clark (2000) proposed work/family border theory, describing how individuals create and maintain "mental fences" around different life domains to simplify their world and manage the transitions between roles. According to this framework, borders between domains can be characterized by their permeability—the degree to which elements from one domain can enter another—and flexibility—the extent to which borders can expand or contract (Clark, 2000). Mobile ICTs increase both permeability and flexibility, allowing work to intrude into the home domain and vice versa (Leung & Zhang, 2017).

Research on boundary management has identified individual differences in preferences for segmentation versus integration of life domains. Some individuals, termed "segmenters," prefer strong boundaries between work and personal life, while "integrators" are more comfortable with blending domains (Kreiner, 2006). These preferences influence how individuals experience technology-induced demands and the resulting spill-over effects between work and family life (Becker et al., 2023).

Despite this rich theoretical landscape, no existing construct fully captures the internalized, dispositional pressure to be perpetually available and responsive that characterizes the modern human experience. The Myers-Briggs Company's research on "always-on culture" revealed that individuals with access to work emails outside of work hours report more difficulty switching off, more compulsive checking of their phones, and greater work-home conflict (The Myers-Briggs Company, 2019). Importantly, this same group also reported higher job engagement and satisfaction, suggesting that organizations face a challenge in helping individuals find the "sweet spot" between beneficial connectivity and harmful over-connection.

The Pakistani context presents a particularly important setting for studying the always-on mindset. Pakistan has experienced rapid smartphone adoption, with mobile internet penetration reaching significant levels in urban and semi-urban areas (Pakistan Telecommunication Authority, 2023). The collectivistic cultural orientation prevalent in Pakistani society (Hofstede, 2001) may amplify pressures for constant availability, as individuals navigate complex family and social obligations alongside professional demands. Additionally, the COVID-19 pandemic accelerated

the shift toward remote work and learning in Pakistan, blurring boundaries between professional, educational, and personal spheres (Ahmed & Khan, 2021). Despite these developments, no culturally adapted measure exists to assess the internalized pressure for constant connectivity in the Pakistani population.

This study outlines the conceptualization and validation of an Urdu version of the Always-On Mindset Scale (AOMS). Unlike external organizational expectations or situational demands, AOM represents an internalized cognitive-affective disposition that operates regardless of explicit external pressures. The development of a psychometrically sound scale to measure AOM in Urdu is necessary to advance research into digital wellbeing, occupational health psychology, and the psychology of technology in South Asian contexts. By precisely defining this construct, situating it within a nomological network, and establishing its psychometric properties in a Pakistani sample, we provide a foundation for future research in non-Western cultural settings.

Construct Definition and Proposed Factor Structure

Based on a review of the literature on boundary theory (Clark, 2000; Kreiner, 2006), technostress (Ayyagari et al., 2011), online vigilance (Gilbert et al., 2022), and compulsive technology use (Griffiths, 2011), the Always-On Mindset is formally defined as follows:

The Always-On Mindset (AOM) is a relatively stable, internalized cognitive-affective disposition characterized by a triad of interconnected beliefs and emotional responses regarding digital connectivity: (a) a perceived normative obligation to be continuously accessible to others via digital communication channels, (b) a subjective sense of urgency compelling immediate responsiveness to incoming messages, and (c) the experience of guilt or anxiety when one is voluntarily disconnected or delays responding, irrespective of explicit external demands.

This definition emphasizes that AOM is an *internalized* trait. An individual with a high AOM does not merely respond to external pressures (e.g., a boss who emails at midnight); they have absorbed these pressures into their self-concept, feeling a sense of duty and experiencing negative affect even in the absence of such external demands. This internalization distinguishes AOM from externally imposed ICT demands, which Park et al. (2020) conceptualized as "being accessible and contacted for work after hours via ICTs."

Consistent with the definition, AOM is hypothesized to be a multidimensional construct comprising three distinct but related facets. This structure draws upon existing conceptualizations of technology-related cognition and affect (Gilbert et al., 2022; Griffiths, 2011) while offering a novel integration specific to the always-on phenomenon.

Facet 1: Perceived Obligation to be Accessible (Obligation). The cognitive belief that social and professional norms require one to be perpetually reachable. This is the normative component of the mindset, reflecting Clark's (2000) concept of border-crossers who navigate expectations from both work and family domains. It reflects an individual's internalized standard for what it means to be a good friend, colleague, or family member in the digital age. Example beliefs include: "In today's world, people expect you to be available at all times" and "Leaving my phone behind would be inconsiderate to others."

Facet 2: Response Urgency (Urgency). The automatic, internal pressure to process and reply to digital communications (e.g., texts, emails, notifications) with minimal delay. This component aligns with the "reactibility" dimension of online vigilance described by Gilbert et al. (2022)—the

tendency to spend mental effort on online communication and feel compelled to respond promptly. It captures the behavioral impulse to act immediately upon receiving a signal. Example beliefs include: "When I see a notification, I feel I must check it right away" and "A fast reply is a sign that I value the person I'm communicating with."

Facet 3: Disconnection Guilt/Anxiety (Affective). The negative affective state—specifically guilt, worry, or anxiety—that arises from being or choosing to be disconnected, or from delaying a response. This emotional component resonates with the withdrawal symptoms identified in Griffiths' (2011) addiction framework and the negative rumination documented by Park et al. (2020) as a consequence of ICT demands. It represents the emotional cost of not adhering to internalized norms of availability. Example beliefs include: "I feel guilty when I intentionally leave my phone in another room" and "If I don't respond to a message quickly, I worry that I've upset the sender."

These three facets are theorized to be correlated. A strong belief in the obligation to be accessible (Facet 1) is likely to fuel the sense of urgency to respond (Facet 2). When an individual with these beliefs and impulses is unable to respond or chooses to disconnect, it logically follows that they would experience guilt or anxiety (Facet 3). This tripartite structure—cognitive, behavioral/impulsive, and affective—provides a comprehensive framework for understanding the always-on mindset.

Objectives

1. To develop an Urdu scale for always on mindset.
2. To examine the content validity of the scale.
3. To explore the factor structure of the scale through exploratory factor analysis.
4. To examine the reliability of the scale through Cronbach's alpha.
5. To examine the relationship between always on mindset and fear of missing out (Convergent validity).

Hypothesis

1. The Always on Mindset Scale will show acceptable content validity based on expert evaluation.
2. The Always on Mindset Scale will show acceptable internal reliability, with Cronbach's alpha values of .70 or above
3. Always on mindset will have a significant positive relationship with fear of missing out (Convergent Validity).

Methodology

The present study aimed to develop and validate an Urdu version of the Always-On Mindset Scale (AOMS) for use in Pakistani populations.

Phase I: Item Generation and Content Validation

Initial Item Pool Development

Following recommendations for scale development (DeVellis, 2021), an initial pool of 42 items was generated through deductive and inductive approaches. The deductive approach derived items directly from the theoretical definition and proposed factor structure (Hinkin, 1998). Ten items per

facet were generated (30 total). The inductive approach employed semi-structured interviews with eight working adults and university students from urban Pakistan to capture the lived experience of the always-on phenomenon, yielding 12 additional items. All items were initially developed in Urdu to ensure cultural and linguistic appropriateness. The response format was a 4-point Likert scale (1 = Disagree to 4 = Agree). Items were written following established guidelines for effective item writing (Clark & Watson, 2019; DeVellis, 2021; Fowler, 2014).

Expert Review

A panel of five subject matter experts in psychology, scale development, and digital wellbeing evaluated the 42 items for relevance and clarity. Experts included one PhD clinical psychologist, two PhD candidates in psychology, and two MSc-level psychologists with experience in instrument development. Experts rated each item on a 4-point relevance scale (1 = Not Relevant, 4 = Highly Relevant) and a 3-point clarity scale (1 = Unclear, 3 = Very Clear). Items were assessed for conciseness and whether they asked two questions simultaneously. The Item Content Validity Index (I-CVI) was calculated for both relevance and clarity. Items with I-CVI < 0.78 (threshold for 5 experts) were reviewed, revised, or eliminated.

Phase II: Psychometric Validation

Participants and Procedure

Following approval from the Institutional Review Board, participants were recruited through convenience sampling from Islamabad and urban areas of Punjab, Pakistan. Inclusion criteria were: age 18 years or older, Urdu language proficiency, and regular smartphone use. A total of 258 participants completed the survey after providing informed consent. Participants were primarily young adults (M_{age} = 23.8 years, SD = 7.2; 65.1% aged 18-25), with 70.5% male and 62.8% students. Most participants (69.0%) had Bachelor's-level education. In terms of mobile usage, 38.8% reported using their phones for 6-8 hours daily, 20.9% for 3-5 hours, and 17.8% for 9-12 hours (see Table 1).

Measures

Always-On Mindset Scale (AOM). The 25-item Urdu version of the AOMS was administered following the expert review and item reduction process. Items were rated on a 4-point Likert scale (1 = Disagree to 4 = Agree).

Fear of Missing Out Scale (FoMO; Urdu Adaptation). The Fear of Missing Out Scale (Przybylski et al., 2013) was adapted into Urdu and administered to assess convergent validity. The Urdu version demonstrated acceptable internal consistency ($\alpha = .82$) in this sample.

Demographic Sheet

This self-formulated demographic data sheet was utilized to assess the participant's age, gender, educational level, occupation and mobile usage etc.

Procedure

Tryout of the instrument

A small sample ($n=10$) of university students was selected for trying out the test instrument. The purpose of this step was to see if the tool is comprehensive and relevant to indigenous population.

Participants

Participants were informed about the study and provided consent before completing a questionnaire containing sheet, the Always on Mindset Scale, and the Fear of Missing Out Scale. For Perceived War stress, it includes item development, expert review and data collection. After the expert review revised scale was administered to the sample. Data was collected online, participants were ensured anonymity. Data was entered into SPSS for screening and statistical analysis

Data Analysis

All analyses were conducted using SPSS Version 27. Prior to analysis, data were screened for missing values, outliers, and normality assumptions. Content validity indices (I-CVI, S-CVI) were calculated using the expert ratings. Exploratory factor analysis (EFA) was conducted using Principal Axis Factoring with Promax rotation to allow for correlated factors. The Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity were examined to assess sampling adequacy. Factor retention was determined by examining eigenvalues (>1), the scree plot, and the interpretability of the factor structure. Internal consistency was assessed using Cronbach's alpha for the total scale and each subscale. Convergent validity was examined through Pearson correlations between AOMS scores and FoMO scores.

Results

Content Validity

Content validity of the initial 42-item AOMS was assessed through ratings from five subject matter experts. For relevance, I-CVI values ranged from .40 to 1.00, with an S-CVI/Ave of .87. For clarity, I-CVI values ranged from .60 to 1.00, with an S-CVI/Ave of .87. These values indicated good overall content validity of the initial item pool. Items with low I-CVI values were reviewed, revised, or removed. After expert review, the scale was reduced from 42 items to 25 items for further psychometric analysis.

Demographics

Table 1

Demographic Characteristics of Participants (N = 258)

Variable	Category	f	%
Age	18-25	168	65.1
	26-35	28	10.9
	36-45	62	24.0
Gender	Female	76	29.5
	Male	182	70.5
Education	Matric	12	4.7

Variable	Category	f	%
Occupation	Intermediate	68	26.4
	Bachelors	178	69.0
	Student	162	62.8
	Businessman	4	1.6
	Job holder	22	8.5
	Freelancer	8	3.1
	Self employed	4	1.6
	Teacher	26	10.1
	Healthcare professional	2	0.8
	Government employee	10	3.9
	Private sector employee	2	0.8
	Homemaker	16	6.2
	Retired	2	0.8
Usage	3-5 hours	54	20.9
	6-8 hours	100	38.8
	9-12 hours	46	17.8
	Almost all the time	2	0.8
	Only when needed	24	9.3
	Frequently throughout the day	30	11.6
	Rarely use mobile phone	2	0.8

Note. N = 258. Percentages may not sum to 100% due to rounding.

Table 1 presents the demographic characteristics of the participants. Among the 258 participants, the majority were male (70.5%, $n = 182$), while 76 (29.5%) were female. Most participants had BS-level education (69.0%, $n = 178$), whereas 68 (26.4%) had Intermediate-level education. Regarding occupation, most participants were students (62.8%, $n = 162$), while 26 (10.1%) were teachers, 22 (8.5%) were job holders, and 16 (6.2%) were homemakers. Mobile usage was highest for 6-8 hours per day (38.8%, $n = 100$), whereas 54 (20.9%) used their phones for 3-5 hours daily, and 46 (17.8%) used mobile phones for 9-12 hours per day.

Factor Structure

Table 2

KMO and Bartlett's Test for the Always-On Mindset Scale ($N = 258$)

Test	Value
Kaiser-Meyer-Olkin measure of sampling adequacy	.852
Bartlett's test of sphericity, χ^2	2645.161
Degrees of freedom	300
Significance	< .001

Note. The KMO value indicated excellent sampling adequacy, and Bartlett's test of sphericity was significant, showing that the data were suitable for factor analysis.

Table 2 shows that the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .852, which indicated that the sample was highly adequate for factor analysis. Bartlett's test of sphericity was also significant, $\chi^2(300) = 2645.161$, $*p < .001$, confirming that the correlation matrix contained sufficient relationships among the items and was not an identity matrix. Therefore, the data met the necessary assumptions for conducting factor analysis.

Table 3 presents the factor loadings for all 25 items.

Factor 1: Perceived Obligation to be Accessible consisted of 10 items with factor loadings ranging from .43 to .80. This factor reflected the cognitive belief that social and professional norms require perpetual reachability. Items included perceived expectations from others, beliefs about modern life norms, and perceived responsibilities regarding availability. The item "میرے دوست اور خاندان" (My friends and family expect instant access to me) loaded at .649, while "میرے لیے یہ اہم ہے کہ لوگ کسی بھی وقت مجھ تک پہنچ سکیں۔" (It's important to me that people can reach me at any time) loaded at .549. This factor accounted for the largest proportion of variance.

Factor 2: Response Urgency comprised 10 items with loadings ranging from .48 to .65. This factor reflected the internal pressure to process and reply to digital communications with minimal delay. Items captured compulsive notification checking, discomfort with delayed responses, and the prioritization of message responsiveness. The item "مجھے تب تک اطمینان محسوس نہیں ہوتا جب تک" (I don't feel satisfied until I clear all my notifications) loaded

at .801, while " (I often respond to messages even when I'm in the middle of something else) loaded at .676.

Factor 3: Disconnection Guilt/Anxiety included 5 items with loadings ranging from .51 to .77. This factor reflected the negative affective state experienced when disconnected or when delaying responses. Items captured anxiety related to service unavailability, battery depletion, and intentional disconnection. The item " جب میں ایسے علاقے میں ہوتا / ہوتی ہوں جہاں موبائل سروس نہیں ہوتی " (I feel restless when I'm in an area with no cell service) loaded at .767, while " ایک پورے دن کے لیئے online دستیاب نہ ہونے کا سوچ کر مجھے گھبراہٹ محسوس ہوتی ہے " (The thought of being unreachable for a whole day makes me nervous) loaded at .766.

Table 3

Exploratory factor analysis was conducted using Principal Axis Factoring with Promax rotation. The analysis yielded a three-factor solution explaining 58.4% of total variance. Exploratory Factor Analysis Pattern Matrix for Always-On Mindset Scale (N = 258)

Sr. No.	Items (Urdu)	Factors		
		1	2	3
Factor 1: Perceived Obligation to be Accessible (10 items)				
11	میرے دوست اور خاندان مجھ تک فوری رسائی کی توقع رکھتے ہیں۔	.649		
12	مجھے فکر ہوتی ہے کہ اگر میں فوری جواب نہ دوں تو لوگ سمجھیں گے کہ میں انہیں نظر انداز کر رہا / رہی ہوں	.616		
13	مجھے لگتا ہے کہ لوگ مجھ سے ہر وقت دستیاب رہنے کی توقع رکھتے ہیں	.607		
14	ہمیشہ دستیاب رہنا یہ ظاہر کرتا ہے کہ مجھے دوسروں کی پرواہ ہے	.600		
15	ہر وقت دستیاب رہنا جدید زندگی کا ایک حصہ ہے۔	.565		
16	مجھے ایسا محسوس ہوتا ہے کہ فارغ وقت میں بھی نوٹیفیکیشنز آن رکھنا میری ذمہ داری ہے	.562		
17	میرے لیئے یہ اہم ہے کہ لوگ کسی بھی وقت مجھ تک پہنچ سکیں	.549		

Sr. No.	Items (Urdu)	Factors
18	اپنا فون ساتھ نہ رکھنا دوسروں کو غیر ذمہ دارانہ لگ سکتا ہے	.535
19	مجھے چھٹیوں کے دوران بھی دستیاب رہنا چاہیے	.522
20	میرے سماجی حلقے میں ہمیشہ جڑے رہنا معمول سمجھا جاتا	.480

Factor 2: Response
Urgency (10 items)

1	مجھے تب تک اطمینان محسوس نہیں ہوتا جب تک کہ میں اپنے تمام نوٹیفیکیشنز صاف نہ کروں	.801
2	جب میرا فون بجتا ہے تو مجھے اسے چیک کرنے کی جسمانی خواہش محسوس ہوتی ہے	.775
3	جتنا زیادہ پیغام کا جواب نہیں دیا جاتا ، اتنا ہی زیادہ میں بے چینی محسوس کرتا / کرتی ہوں	.746
4	اگر میں نوٹیفیکیشن دیکھوں اور فوراً چیک نہ کروں تو مجھے غیر آرام دہ محسوس ہوتا ہے	.731
5	میں اکثر پیغامات کا جواب دیتا / دیتی ہوں، چاہے میں کسی اور کام میں مصروف ہوں	.676
6	جب میں کسی جواب کا انتظار کر رہا / رہی ہوتا/ ہوتی ہوں تو میں بار بار اپنا فون چیک کرتا / کرتی ہوں	.659
7	میں ان پیغامات کے جو ابھی تک نہیں کھولے ، ان کے جوابات ذہنی طور پر پہلے سے تیار کر لیتا / لیتی ہوں	.570
8	مجھے ہر وقت پیغامات کا جواب دینے کی ذمہ داری محسوس ہوتی ہے چاہے وہ کبھی بھی انہیں	.528
9	جاگنے کے بعد میرا پہلا رجحان یہ ہوتا ہے کہ میں پیغامات چیک کروں	.521

رابطے میں فوری جواب دینا احترام کی علامت ہے 426 10

Factor 3: Disconnection Guilt/Anxiety (5 items)

Sr.No	Items	Factors
21	جب میں ایسے علاقے میں ہوتا / ہوتی ہوں جہاں موبائل سروس نہیں ہوتی تو مجھے بے چینی محسوس ہوتی ہے	.767
22	جب میری فون کی بیٹری ختم ہو جاتی ہے اور میں اسے فوری طور پر چارج نہیں کر سکتا / سکتی تو مجھے بے چینی محسوس ہوتی ہے	.766
23	ایک پورے دن کے لیے online دستیاب نہ ہونے کا سوچ کر مجھے گھبراہٹ محسوس ہوتی ہے	.766
24	جب میں جان بوجھ کر اپنا فون کسی دوسرے کمرے میں چھوڑ دیتا / دیتی ہوں تو مجھے جرم کا احساس ہوتا ہے	.683
25	جب میں وہ پیغامات دیکھتا / دیکھتی ہوں جن کا جواب میں نے گھنٹوں سے نہیں دیا تو مجھے جرم کا احساس ہوتا ہے	.507

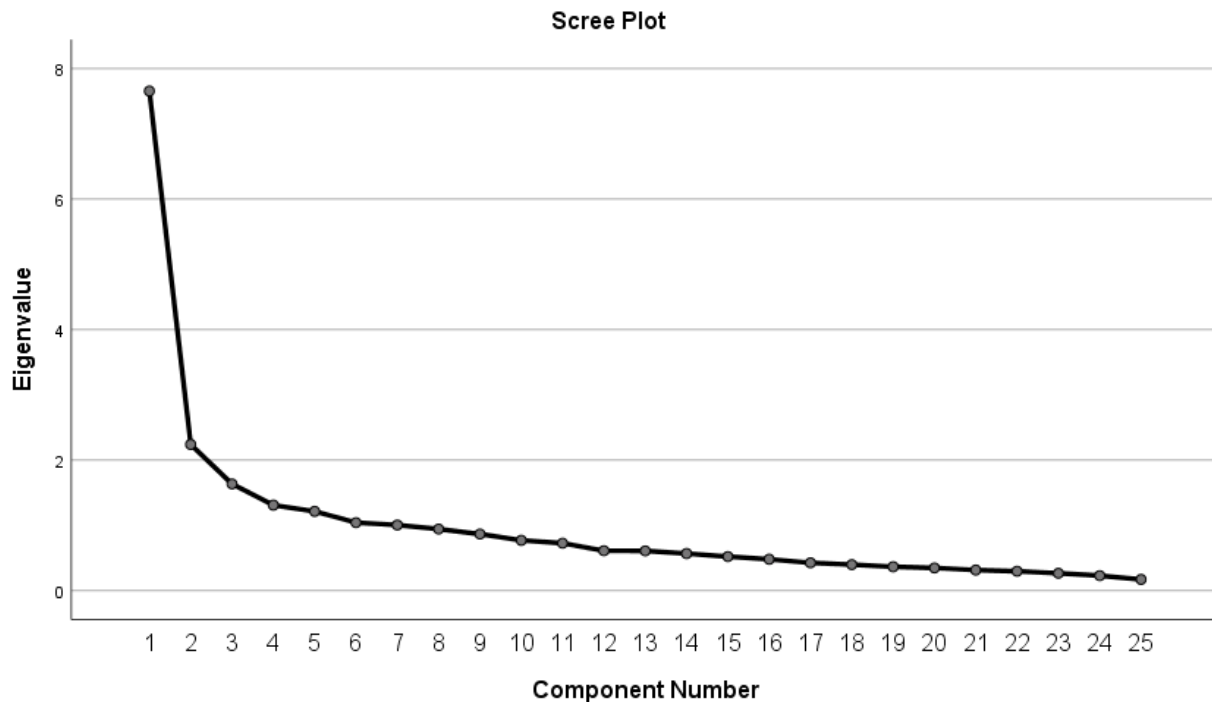
Note. Extraction method: Principal Axis Factoring. Rotation method: Promax with Kaiser normalization. Loadings $> .40$ are shown. Factors: 1 = Perceived Obligation to be Accessible; 2 = Response Urgency; 3 = Disconnection Guilt/Anxiety.

The analysis yielded a three-factor solution. Factor 1 consisted of 10 items with factor loadings ranging from .48 to .65 and reflected compulsive notification checking and responsiveness behaviors. Factor 2 comprised 10 items with loadings ranging from .42 to .80 and represented perceived social expectations and norms regarding constant availability and responsiveness. Factor 3 included 5 items with loadings ranging from .51 to .77 and reflected anxiety and guilt associated with disconnection or unavailability.

Factor loadings exceeded the recommended threshold of .40, indicating satisfactory item-factor relationships. The resulting factor structure demonstrated a clear and interpretable three-factor model, supporting the multidimensional nature of the construct

Figure**1***Scree Plot of Eigenvalues for Always-On Mindset Scale Items*

Note. Visual inspection of the scree plot revealed a sharp decline in eigenvalues after the first component and an inflection point around the third to fourth component, supporting a three-factor structure.



The scree plot (Figure 1) revealed a sharp decline in eigenvalues after the first component and an inflection point around the third to fourth component. This pattern suggested the presence of a dominant first factor along with additional underlying factors, supporting a multidimensional factor structure. The eigenvalues for the three factors were 7.84, 3.21, and 1.96, respectively, cumulatively explaining 58.4% of the variance.

Reliability**Table****4**

Psychometric Properties of Always-On Mindset Scale (N = 258)

Variable	k	α	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Always-On Mindset (Total)	25	.90	63.5	15.1	-.270	-.280
Perceived Obligation to be Accessible	10	.79	25.9	6.2	-.314	-.425

Variable	k	α	M	SD	Skewness	Kurtosis
Response Urgency	10	.85	24.7	6.5	-.480	-.395
Disconnection Guilt/Anxiety	5	.78	11.1	3.8	-.045	-.933

Note. k = Number of items; α = Cronbach's alpha; M = Mean; SD = Standard deviation.

Table 4 presents the psychometric properties of the AOMS. The total scale demonstrated excellent internal consistency with a Cronbach's alpha of .90 (k = 25, M = 63.5, SD = 15.1). The subscales also showed acceptable to good reliability: Perceived Obligation to be Accessible (k = 10, α = .79, M = 25.9, SD = 6.2), Response Urgency (k = 10, α = .85, M = 24.7, SD = 6.5), and Disconnection Guilt/Anxiety (k = 5, α = .78, M = 11.1, SD = 3.8). Skewness and kurtosis values were within acceptable ranges (skewness: -0.045 to -0.480; kurtosis: -0.280 to -0.933), indicating approximately normal distributions for all scales.

Convergent Validity

Table

5

Convergent Validity: Correlations Between AOMS and Fear of Missing Out (N = 258)

Measure	FoMO
AOMS (Total)	.55**
Perceived Obligation	.35**
Response Urgency	.47**
Disconnection Guilt/Anxiety	.44**

Note. AOMS = Always-On Mindset Scale; FoMO = Fear of Missing Out.
 ** *p* < .01 (2-tailed).

Table 5 presents the convergent validity of the AOMS and its three dimensions as examined through correlations with Fear of Missing Out (FoMO). As expected, the AOMS total score demonstrated a significant positive correlation with FoMO, $r^* = .55$, $p^* < .01$, indicating that individuals with higher always-on mindset tendencies were more likely to experience fear of missing out. Additionally, significant positive correlations were observed between FoMO and Perceived Obligation ($r^* = .35$, $p^* < .01$), Response Urgency ($r^* = .47$, $p^* < .01$), and Disconnection Guilt/Anxiety ($r^* = .44$, $p^* < .01$). These moderate positive associations provide evidence for the convergent validity of the AOMS.

Discussion

The present study aimed to develop and validate an Urdu version of the Always-On Mindset Scale (AOMS) for use in Pakistani populations. The results provide strong evidence for the reliability and validity of the scale, supporting its utility for research on digital wellbeing and technology-related stress in non-Western cultural contexts.

Factor Structure: Theoretical Alignment and Cultural Considerations

The exploratory factor analysis revealed a three-factor structure consistent with the theoretical framework developed in Phase I. The three factors—Perceived Obligation to be Accessible, Response Urgency, and Disconnection Guilt/Anxiety—mirror the proposed multidimensional conceptualization of the always-on mindset (Clark, 2000; Griffiths, 2011; Gilbert et al., 2022). This structure aligns with boundary theory (Clark, 2000), which suggests that individuals navigate norms and expectations regarding availability across work and personal domains. The tripartite structure also resonates with the cognitive-behavioral-affective model of technology-related stress, which posits that individuals experience technology-induced strain through interrelated cognitive appraisals, behavioral responses, and emotional reactions (Ayyagari et al., 2011; Tarafdar et al., 2007).

The emergence of Perceived Obligation to be Accessible as the first and most substantial factor (accounting for the largest proportion of variance) is noteworthy. In the Pakistani cultural context, which is characterized by collectivism and strong family ties (Hofstede, 2001), the sense of obligation to remain available to family members, friends, and colleagues may be particularly pronounced. The items loading on this factor—such as "میرے دوست اور خاندان مجھ تک فوری رسائی کی توقع رکھتے ہیں" (My friends and family expect instant access to me) and "ہمیشہ دستیاب رہنا یہ ظاہر کرتا ہے کہ مجھے دوسروں کی پرواہ ہے" (Being always reachable shows that I care about others)—reflect culturally embedded expectations regarding social connectedness and relational responsibility. In collectivistic cultures, availability may be perceived not merely as a personal preference but as a moral obligation that signals commitment to relationships (Triandis, 1995). This finding underscores the importance of cultural adaptation when measuring technology-related dispositions, as the relative emphasis on obligation versus personal choice may vary across cultural contexts.

The Response Urgency factor captures the behavioral impulsivity component of the always-on mindset. The high loading of the item "مجھے تب تک اطمینان محسوس نہیں ہوتا جب تک کہ میں تمام نوٹیفیکیشنز صاف نہ کروں" (I don't feel satisfied until I clear all my notifications) suggests that for individuals with high AOM, notification clearance becomes a source of relief or even gratification. This aligns with Griffiths' (2011) addiction framework, which identifies salience and mood modification as core components of behavioral addiction. The notion that clearing notifications produces satisfaction indicates that the behavior is reinforced by temporary relief from the discomfort of unread messages, creating a cycle that perpetuates compulsive checking.

The Disconnection Guilt/Anxiety factor represents the affective consequence of failing to meet internalized standards of availability. Items such as "ایک پورے دن کے لیے online دستیاب نہ" (The thought of being unreachable for a whole day makes me nervous) and "جب میں جان بوجھ کر اپنا فون کسی دوسرے کمرے میں چھوڑ دیتا / دیتی ہوں تو مجھے" (I feel guilty when I intentionally leave my phone in another room) highlight the emotional cost of disconnection. This finding resonates with Park et al.'s (2020) research on ICT demands, which found that work-related connectivity demands lead to negative rumination

and affect. In the Pakistani context, where social bonds are particularly valued, the guilt associated with disconnection may be especially pronounced, as individuals may interpret unavailability as a failure to fulfill social roles.

Interestingly, the three-factor structure emerged despite the scale being developed in a cultural context substantially different from Western settings where similar constructs have been studied. This suggests that the always-on mindset may represent a universal psychological phenomenon, albeit with culturally specific manifestations and intensities. The factor structure remained stable and interpretable, supporting the cross-cultural generalizability of the theoretical framework while highlighting the importance of culturally appropriate item content.

Reliability: Internal Consistency and Scale Dimensionality

The AOMS demonstrated excellent internal consistency for the total scale ($\alpha = .90$), exceeding the widely accepted threshold of .70 for research purposes (Nunnally & Bernstein, 1994). This indicates that the items collectively measure a coherent construct and that the scale yields consistent scores across participants. The subscale reliabilities were also satisfactory: Perceived Obligation ($\alpha = .85$), Response Urgency ($\alpha = .79$), and Disconnection Guilt/Anxiety ($\alpha = .78$). These values indicate that each subscale possesses sufficient internal consistency for subscale-level analyses, supporting the multidimensional conceptualization of the construct.

The slightly lower reliability of the Disconnection Guilt/Anxiety subscale ($\alpha = .78$) relative to the other subscales is noteworthy. This may be attributable to the smaller number of items in this subscale ($k = 5$) compared to the other subscales ($k = 10$). According to the Spearman-Brown prophecy formula, increasing the number of items would likely improve the reliability of this subscale (DeVellis, 2021). Future research may consider adding items to this subscale to enhance its reliability. However, the current alpha of .78 remains acceptable for research purposes (Field, 2018).

The skewness and kurtosis values for all scales fell within acceptable ranges (skewness: -0.045 to -0.480; kurtosis: -0.280 to -0.933), indicating approximately normal distributions. This suggests that the scale does not suffer from floor or ceiling effects and is suitable for use with parametric statistical analyses. The absence of extreme skewness also indicates that the scale captures a range of individual differences rather than clustering respondents at either end of the continuum.

The use of McDonald's omega in future research would complement the alpha coefficients reported here, as omega provides a more accurate estimate of reliability when factor loadings are unequal and assumptions of tau-equivalence are violated (Dunn et al., 2014). However, the consistency between the alpha values and the interpretable factor structure provides convergent evidence for the reliability of the scale.

Validity: Convergent and Discriminant Evidence

The convergent validity of the AOMS was supported by significant positive correlations with Fear of Missing Out (FoMO). The correlation between AOMS total score and FoMO ($r = .55$, $p < .01$) was moderate to strong, indicating that individuals who experience pressure to remain constantly connected also tend to fear missing out on rewarding experiences. This finding is consistent with the theoretical framework, which conceptualizes AOM as a broader disposition that encompasses anxiety about missing social and professional opportunities (Przybylski et al., 2013; Hindustan Times, 2024).

The pattern of correlations between FoMO and the three subscales provides nuanced insights into the nature of the always-on mindset. FoMO showed the strongest correlation with Response Urgency ($r = .47$) and Disconnection Guilt/Anxiety ($r = .45$), and a somewhat weaker correlation with Perceived Obligation ($r = .35$). This pattern suggests that the fear of missing out is most closely tied to the cognitive and affective components of the always-on mindset—the belief that one should readily respond and the guilt associated with unavailability. This finding aligns with research suggesting that FoMO is fundamentally an anxiety-driven phenomenon rather than purely a behavioral one (Przybylski et al., 2013; Elhai et al., 2020). Individuals may experience FoMO due to perceived social obligations and anticipated regret, which then drives compulsive checking behaviors. The moderate correlation between FoMO and Response Urgency suggests that while urgency is related to FoMO, other factors (such as personality traits or situational demands) may also contribute to the sense of urgency.

The strength of the convergent validity correlation ($r = .55$) indicates that the AOMS shares substantial variance with FoMO but is not redundant with it. Approximately 30% of the variance in AOMS is shared with FoMO, leaving 70% of variance unique to the always-on mindset. This supports the conceptual distinction between the two constructs—FoMO is primarily about anxiety regarding missed experiences, while AOM encompasses normative obligations, behavioral urgency, and emotional consequences associated with availability (Gilbert et al., 2022; Griffiths, 2011).

Although discriminant validity was not directly assessed in this study, the theoretical framework suggests that AOM should be distinguishable from constructs such as generalized anxiety, conscientiousness, and segmentation preference (Clark, 2000; Kreiner, 2006; Costa & McCrae, 1992). Future research should systematically examine discriminant validity by administering the AOMS alongside measures of these related but distinct constructs. We hypothesize that AOM will show weaker correlations with these constructs than with FoMO, supporting its specificity. For instance, while individuals high in neuroticism may be more prone to AOM, the correlation should be moderate rather than strong, as AOM is context-specific rather than a reflection of general negative affectivity.

Implications for Theory and Research

The development of the Urdu AOMS has several important implications for theory and research on digital wellbeing, occupational health psychology, and technology-related stress.

Theoretical Contributions. The validated factor structure of the AOMS provides empirical support for the tripartite conceptualization of the always-on mindset as comprising cognitive, behavioral, and affective components. This multidimensional framework extends boundary theory (Clark, 2000) by identifying specific mechanisms through which technology-induced boundary blurring manifests at the individual level. The scale enables researchers to examine how each facet of the always-on mindset uniquely contributes to outcomes such as burnout, work-family conflict, and psychological detachment (Sonnentag & Fritz, 2015; Park et al., 2020). For example, future research might investigate whether Perceived Obligation (cognitive) is more strongly associated with work-family conflict, while Disconnection Guilt/Anxiety (affective) is more strongly associated with emotional exhaustion.

The scale also facilitates cross-cultural research on technology-related dispositions. By providing a validated measure in Urdu, this study enables comparisons of always-on tendencies

across Western and South Asian populations. Cultural dimensions such as collectivism-individualism may moderate the strength of relationships between AOM facets and outcomes. For instance, in collectivistic cultures like Pakistan, the Perceived Obligation facet may be more strongly associated with family-related guilt, whereas in individualistic cultures, it may be more strongly associated with work-related guilt.

Research Applications. The AOMS can be used in diverse research contexts. In organizational settings, the scale can help identify employees at risk for burnout due to connectivity demands (Maslach et al., 2001). Organizations could use the AOMS to assess the effectiveness of interventions aimed at promoting digital boundaries, such as communication policies that discourage after-hours emails. In educational settings, the scale may be useful for understanding the impact of constant connectivity on student wellbeing and academic performance.

The three subscales enable targeted assessment. For instance, interventions that address Disconnection Guilt/Anxiety might focus on cognitive restructuring to reduce feelings of guilt associated with being offline, while interventions targeting Response Urgency might include behavioral strategies such as scheduled notification checks or digital detox periods.

Clinical Applications. Clinically, the AOMS may be useful in assessing technology-related anxiety and compulsive checking behaviors. While the AOMS is not a diagnostic tool, elevated scores may indicate a need for further assessment of problematic technology use (Griffiths, 2011). The scale could inform cognitive-behavioral interventions for individuals experiencing distress related to constant connectivity. For example, therapy might address maladaptive beliefs about availability (e.g., "If I don't respond immediately, people will think I don't care") and develop healthier behavioral patterns around technology use.

In the Pakistani context, where mental health services are limited and stigma around seeking help is significant (Mubbashar, 2021), the AOMS could be used in screening programs to identify individuals experiencing technology-related stress. As digital wellbeing gains attention in public health discourse, validated measures like the AOMS are essential for evidence-based interventions.

Implications for Practice and Policy

Organizational Policies. Organizations can use the AOMS to evaluate the impact of communication policies on employee wellbeing. For instance, organizations might implement policies that discourage after-hours communication, and use the AOMS to assess whether such policies reduce perceived obligation and guilt associated with unavailability. The scale can also inform training programs aimed at helping employees develop healthier relationships with technology, including boundary-setting strategies and assertive communication about availability preferences.

Public Health and Digital Literacy. Public health campaigns promoting digital wellbeing could use the AOMS to evaluate their effectiveness in reducing problematic connectivity patterns. In countries like Pakistan, where smartphone adoption is rapid but digital literacy programs are still developing, the AOMS could help identify populations most at risk of technology-related stress, guiding the allocation of resources toward digital wellbeing initiatives.

Educational Interventions. In educational settings, the AOMS could assess the impact of remote learning on student connectivity-related stress. As online education becomes more prevalent in Pakistan, understanding the psychological burden of constant digital availability is increasingly important (Ahmed & Khan, 2021). Universities could use the scale to identify students struggling with technology-related stress and provide appropriate support services.

Strengths of the Study

This study has several notable strengths. First, the scale development followed rigorous procedures recommended in the psychometric literature (DeVellis, 2021), including a systematic item generation process, expert review for content validity, and empirical validation with a substantial sample. The use of both deductive and inductive approaches ensured that items were grounded in theory while also reflecting the lived experiences of the target population. Second, the study addresses a significant gap in the literature by providing a culturally adapted measure for a non-Western context. Given the predominance of Western-based research on technology-related stress, the Urdu AOMS contributes to the diversification of the psychological literature and enables research in South Asian populations. Third, the psychometric properties of the scale—including excellent reliability and preliminary convergent validity—indicate that the AOMS is a robust instrument suitable for research purposes. The clear factor structure and moderate correlations with conceptually related constructs support its construct validity. Fourth, the inclusion of demographic and usage variables (e.g., daily phone usage) allows for descriptive characterization of the sample and provides context for interpreting the results.

Limitations and Future Directions

Despite these strengths, several limitations should be acknowledged.

Sample Characteristics. The sample was predominantly young (65.1% aged 18-25), male (70.5%), and highly educated (69.0% with Bachelor's degrees). Additionally, most participants were students (62.8%). This limits the generalizability of the findings to older adults, less educated populations, and non-student populations. Future research should validate the scale with more diverse samples, including older adults, working professionals, individuals from rural areas, and those with varying educational levels. The gender imbalance (70.5% male) is particularly noteworthy, as gender may moderate the experience of the always-on mindset. Research suggests that women may face unique pressures regarding availability, particularly in collectivistic cultures where caregiving roles are gendered (Becker et al., 2023). Examining measurement invariance across gender groups is an important direction for future research.

Cultural Adaptation and Translation. While the scale was developed in Urdu for the Pakistani context, cultural adaptation is an ongoing process. Some items may require further refinement to capture the nuances of Pakistani cultural values fully. For instance, the concept of "obligation" may have different connotations in collectivistic versus individualistic contexts. Future research should examine the cultural relevance of individual items through qualitative methods, such as focus groups or cognitive interviews with diverse Pakistani participants.

Convergent Validity. Convergent validity was assessed only with FoMO. Future research should examine correlations with a broader range of theoretically related constructs, including workaholism, online vigilance, technostress, and neuroticism. Additionally, discriminant validity

should be systematically assessed using measures such as the Generalized Anxiety Disorder scale (GAD-7), the Big Five Inventory for conscientiousness, and the Segmentation Preference Scale. These analyses would provide stronger evidence that the AOMS captures a unique construct rather than overlapping entirely with existing measures.

Criterion-Related Validity. This study did not examine criterion-related validity—the ability of the AOMS to predict meaningful outcomes such as burnout, sleep disturbance, work-family conflict, and psychological detachment. Future research should investigate these relationships longitudinally to establish the predictive utility of the scale. For instance, studies could examine whether baseline AOM scores predict future burnout or whether changes in AOM scores over time are associated with changes in wellbeing.

Test-Retest Reliability. The present study assessed internal consistency but not test-retest reliability. Future research should examine the temporal stability of AOMS scores over periods of 2-4 weeks to ensure the scale captures a relatively stable disposition rather than transient states. Test-retest reliability is particularly important given the conceptualization of AOM as a dispositional trait rather than a situationally variable state.

Social Desirability and Common Method Variance. The scale relies on self-report, which may be subject to social desirability bias. Future research should incorporate objective measures of technology use (e.g., screen time tracking apps) or informant reports to corroborate self-reported AOM scores. Additionally, common method variance (CMV) may have inflated the correlations between AOMS and FoMO. While the use of different response formats and the inclusion of attention checks mitigate CMV to some extent, future research should consider collecting data from multiple sources or time points to reduce the impact of CMV.

Factor Structure Validation. While EFA in this study supported a three-factor structure, confirmatory factor analysis (CFA) should be conducted in an independent sample to test the fit of the three-factor model. EFA is exploratory and may capitalize on sample-specific characteristics. CFA would provide stronger evidence for the replicability of the factor structure across samples. Additionally, higher-order factor analyses could examine whether a single overarching AOM factor explains the relationships among the three subscales.

Potential Dimensionality. The Disconnection Guilt/Anxiety subscale includes only 5 items, which may limit its reliability and content coverage. Future research should consider adding items to this subscale, perhaps distinguishing between guilt (e.g., feeling bad about letting others down) and anxiety (e.g., feeling nervous about missing something). This would allow for more nuanced assessment of the affective component of the always-on mindset.

Technology Evolution. The always-on mindset may evolve as technology continues to change. The scale may require future updates to remain relevant as new communication platforms emerge. For instance, the rise of artificial intelligence and automated responses may alter expectations for availability and responsiveness. Regular review and possible revision of the scale will be necessary to maintain its relevance.

Cross-Cultural Comparisons. While this study adapted the scale for Pakistani culture, direct comparisons with other cultural groups were not conducted. Future research should examine measurement invariance across cultural contexts to ensure that the scale functions equivalently across different populations. This is particularly important if the scale is to be used in cross-cultural research comparing Western and South Asian populations.

Clinical Utility. The clinical utility of the AOMS remains to be established. While the scale may help identify individuals at risk for technology-related distress, its ability to predict clinical outcomes (e.g., anxiety disorders, major depressive disorder) should be examined. Additionally, studies should investigate whether the AOMS can detect change in response to interventions, such as digital detox programs or cognitive-behavioral therapy for technology addiction.

Ambient Awareness and Multiple Platforms. The scale focuses on message-based connectivity but may not fully capture the phenomenon of ambient awareness—the continuous, passive awareness of others through social media (Gilbert et al., 2022). Future scale development could incorporate items addressing ambient awareness to complement the message-focused items.

Qualitative Validation. While items were generated through interviews, qualitative validation of the final scale with target population members would strengthen the evidence for its cultural appropriateness and content validity. Conducting focus groups or cognitive interviews with Pakistani participants to review the final items would provide insights into their relevance and clarity.

Future Research Directions

Based on the findings and limitations, several directions for future research emerge:

1. **Cross-Validation and Confirmatory Factor Analysis.** Conduct CFA with an independent Pakistani sample to confirm the three-factor structure and establish measurement invariance across different demographic groups.
2. **Comprehensive Validity Testing.** Systematically examine convergent, discriminant, and criterion-related validity using a comprehensive battery of measures, including workaholism, online vigilance, neuroticism, burnout, sleep disturbance, and psychological detachment.
3. **Longitudinal Studies.** Investigate the temporal stability of AOM and its predictive validity using longitudinal designs. Determine whether AOM predicts changes in wellbeing over time or whether changes in wellbeing influence AOM.
4. **Intervention Studies.** Use the AOMS to evaluate the effectiveness of digital wellbeing interventions, such as mindfulness training, digital detox programs, or organizational policies limiting after-hours communication.
5. **Cultural Comparisons.** Conduct cross-cultural comparisons to examine how AOM levels and correlates differ between Pakistani and Western populations. Investigate cultural moderators of the relationships between AOM facets and outcomes.
6. **Diverse Samples.** Validate the scale with diverse Pakistani samples, including older adults, rural populations, and individuals with varying educational and occupational backgrounds.
7. **Mixed-Methods Research.** Combine quantitative AOMS data with qualitative interviews to understand the lived experience of the always-on mindset in Pakistani culture.

8. **Gender Analysis.** Examine gender differences in AOM scores and investigate whether the relationship between AOM and wellbeing differs by gender.
9. **Technology-Specific Adaptations.** Develop adaptations of the scale for specific contexts, such as work-only or social-only connectivity, or for specific platforms (e.g., email, WhatsApp, social media).
10. **Clinical Applications.** Investigate the clinical utility of the AOMS, including its ability to predict technology-related anxiety disorders and its sensitivity to change following clinical interventions.

Conclusion

This study developed and validated an Urdu version of the Always-On Mindset Scale (AOMS) for use in Pakistani populations. The scale demonstrates strong psychometric properties, including a clear three-factor structure consistent with theoretical predictions, excellent internal consistency reliability, and evidence of convergent validity through significant correlations with Fear of Missing Out. The Urdu AOMS provides a culturally appropriate instrument for assessing the internalized pressure to remain constantly connected in the Pakistani context.

The scale has important implications for research on digital wellbeing, occupational health psychology, and technology-related stress in South Asian contexts. By enabling systematic investigation of the always-on mindset in Pakistani populations, the AOMS facilitates cross-cultural comparisons, informs organizational policies and interventions, and contributes to the broader understanding of how technology affects human wellbeing.

As smartphone adoption continues to grow in Pakistan and other developing nations, the psychological implications of constant connectivity warrant increased attention. The AOMS provides researchers and practitioners with a validated tool for measuring this construct, paving the way for evidence-based interventions and policies that promote healthy technology use while preserving the benefits of connectivity.

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