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Interpersonal Communication Patterns of University Students in the Smartphone Era Based on Mental Health Conditions: A Qualitative Study in Makassar

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Abstract

This qualitative phenomenological study investigates the complex relationship between mental health conditions and smartphone-mediated interpersonal communication among university students in Makassar, Indonesia. Using in-depth interviews with 18 participants from three universities, categorized by their Depression Anxiety Stress Scale-21 (DASS-21) scores, the research explores how psychological well-being influences communication patterns. The study reveals five major themes: the smartphone as an emotional regulator, digital communication as a social safety net, technology-mediated relationship maintenance, anxiety-driven communication patterns, and cultural adaptation in digital spaces. The findings indicate that a student's mental health status is a crucial moderating factor that shapes how they engage with digital communication technologies. The study proposes a Digital Communication Adaptation Model (DCAM), a theoretical framework explaining how mental health conditions influence communication patterns. The research contributes to communication and mental health literature by offering a culturally sensitive model that bridges individual psychological factors with broader social contexts, providing insights for future research and practical interventions in this area.

Keywords: mental health, smartphone-mediated communication, university students, Digital Communication Adaptation Model (DCAM), Makassar

1. Introduction

The digital revolution has fundamentally reshaped human communication, with smartphones becoming the primary medium for interpersonal interaction, especially among university students (Dhir et al., 2018; Twenge et al., 2022). However, the relationship between smartphone usage and interpersonal communication is complex, particularly when considering users' mental health status (Elhai et al., 2020).

Contemporary research indicates that smartphone usage patterns vary significantly based on individual psychological characteristics and mental health conditions (Billieux et al., 2015). University students, a demographic at heightened risk for anxiety, depression, and stress (Auerbach et al., 2018), present a complex dynamic at the intersection of mental health and smartphone-mediated communication.

The theoretical foundation for this phenomenon draws from Uses and Gratifications theory (Sundar & Limperos, 2013), which suggests that students with differing mental health conditions utilize devices to fulfill distinct psychological and social needs. Furthermore, the transactional model of communication (Walther, 2011) highlights how digital affordances, such as asynchronous messaging and persistent connectivity, complicate traditional interactions. Research demonstrates that individuals with varying levels of anxiety, depression, and stress exhibit different patterns of technology use and social interaction (Thomée et al., 2011), with smartphone use potentially serving as a coping mechanism or exacerbating mental health problems (Firth et al., 2017; Woods & Scott, 2016).

The cultural context of Makassar, Indonesia, offers a unique setting to examine these phenomena, blending traditional values with modern technological adoption among diverse university student populations. Existing literature, however, has limited focus on the specific link between mental health and interpersonal communication in non-Western contexts, often relying on quantitative methods that may miss nuanced experiences (Lim, 2003).

This study addresses these gaps by employing a qualitative phenomenological approach. It explores the lived experiences of university students in Makassar, focusing on those with varying mental health conditions (measured by DASS-21), to comprehensively understand how psychological well-being influences their communication patterns, preferences, and outcomes in the smartphone era.

2. Literature Review

2.1 Smartphone-Mediated Interpersonal Communication

The evolution of interpersonal communication has been profoundly influenced by smartphone technology, representing the most significant transformation in recent decades (Turkle, 2011). Traditional communication models originally focused on face-to-face interactions, emphasizing verbal and nonverbal cues, immediate feedback, and shared physical presence (Knapp, Mark L; Hall, Judith A; Horgan, 2014). However, with the advent of smartphone technology, these models now require reconceptualization to account for the unique characteristics of digital communication.

Smartphone-mediated communication introduces distinctive features that differentiate it from traditional interpersonal interaction. These include asynchronous messaging capabilities, multimedia integration, persistent connectivity, and the ability to maintain multiple simultaneous conversations (Jan & Li, 2024). Research consistently shows that these features fundamentally alter interpersonal relationship dynamics, creating new opportunities for connection while introducing novel challenges (Naomi S. Baron, 2015).

Within digital environments, the concept of divided attention has also emerged. This describes how smartphone users often engage in multiple communication streams simultaneously, splitting their attention across various digital interactions (Seddon et al., 2021). This phenomenon has significant implications for communication quality and depth, as individuals may struggle to maintain focused engagement with any single conversation or relationship (Misra et al., 2016).

Furthermore, smartphone technology's affordances enable new forms of communication previously impossible. Emoji and multimedia messaging, for example, allow for the expression of emotions and ideas that transcend traditional text-based communication (Gerlitz & Helmond, 2013). Location sharing, status updates, and social media integration create opportunities for ambient awareness and passive social connection (Levordashka & Utz, 2016). Collectively, these technological capabilities expand communication behavior repertoires while establishing new expectations and norms for interpersonal interaction.

2.2 Mental Health and Technology Use Among University Students

University students represent a population at heightened risk for mental health challenges. Studies consistently report elevated rates of anxiety, depression, and stress among them (Lipson et al., 2019). The transition to university life involves numerous stressors, including academic pressure, social adjustment, financial concerns, and identity development, all contributing to mental health difficulties (Arnett, 2000). In fact, recent studies indicate that up to 60% of students experience clinically significant levels of psychological distress (Duffy et al., 2019).

The relationship between mental health and technology use among university students is complex and bidirectional. On one hand, technology can serve as a valuable resource for mental health support, providing access to information, peer support networks, and professional services (Baumel et al., 2019). Smartphone applications designed for mental health management have proliferated, offering tools for mood tracking, meditation, and cognitive behavioral therapy (Linardon et al., 2019).

On the other hand, excessive or problematic technology use has been associated with negative mental health outcomes. Studies document correlations between heavy smartphone use and increased levels of anxiety, depression, sleep disturbances, and social isolation (Demirci et al., 2015). For instance, the phenomenon of "nomophobia"—the fear of being without one's mobile phone—has emerged as a recognized form of technology-related anxiety particularly prevalent among young adults (Yildirim & Correia, 2015).

Problematic smartphone use, characterized by excessive use, withdrawal symptoms when unavailable, tolerance requiring increased usage, and negative consequences in daily life, shares similarities with behavioral addictions (Kwon et al., 2013). Moreover, research indicates that university students with mental health problems are at an increased risk for developing problematic smartphone use patterns (Elhai et al., 2016).

2.3 Cultural Context of Communication in Indonesia

Understanding interpersonal communication patterns in Indonesia requires considering the country's rich cultural heritage and diverse social contexts. Indeed, Indonesia is characterized by immense cultural diversity; the nation boasts over 1,340 ethnic groups who collectively speak 718 regional languages, which in turn creates complex communication norms and practices across the archipelago (Ananta et al., 2015). Despite this vast diversity, however, certain core cultural values and communication patterns are widely shared throughout Indonesian society.

One central concept in Indonesian communication culture is "basa-basi," which refers to polite small talk and relationship maintenance through casual conversation (Errington, 1988). This cultural norm emphasizes the importance of maintaining social harmony and demonstrating respect through appropriate communication behaviors. In digital contexts, this might manifest as regular check-ins with friends and family via messaging applications, for instance.

Furthermore, hierarchy and respect for authority are another crucial element of Indonesian communication culture. These are significantly influenced by Javanese cultural values, which emphasize social stratification and appropriate behavior based on social position (Geertz, 1961). These values also distinctly shape how university students communicate with peers, faculty, and family members through smartphone technology.

The principle of "gotong royong," referring to communal cooperation and mutual assistance, powerfully reflects the collectivistic orientation of Indonesian society (Bowen, 1986). This particular cultural value can influence how students utilize smartphone technology to maintain social networks and provide mutual support to others.

Finally, religious values also play a significant role in shaping communication patterns throughout Indonesia. The predominantly Muslim population adheres to Islamic principles emphasizing respect, modesty, and appropriate social interaction (Hefner, 2000). These values may potentially influence how students navigate romantic relationships, cross-gender communication, and the sharing of personal information through various digital platforms.

3. Methodology

This chapter outlines the methodological framework employed to explore the intricate relationship between mental health conditions and smartphone-mediated interpersonal communication among university students in Makassar. It details the research design, participant selection, data collection, and analytical procedures, alongside the ethical considerations and trustworthiness measures undertaken.

3.1 Research Design

This study adopted a qualitative research design rooted in the phenomenological tradition to delve into the lived experiences of university students in Makassar as they navigate interpersonal communication through smartphone technology. The phenomenological approach was specifically chosen for its capacity to examine the subjective meanings and interpretations individuals ascribe to their experiences (Giorgi, 2009). This philosophical foundation rests upon an interpretivist paradigm, which acknowledges that reality is socially constructed and that multiple valid interpretations can coexist (Lincoln & Guba, 2016). Such a paradigm is particularly well-suited for investigating communication behaviors, as it recognizes that the meaning and significance of communicative acts are constructed through the interpretive processes of the individuals involved (Berger, Peter; Luckmann, 2016).

3.2 Participants and Sampling

The selection of participants was conducted through purposive sampling, a strategy meticulously designed to ensure representation across different levels of mental health risk among university students (Patton, 2015). The sampling process was systematically implemented in three distinct phases: mental health screening, categorization, and purposive selection.

The initial screening phase involved the administration of the paper-based Depression Anxiety Stress Scale-21 (DASS-21). This instrument was directly distributed to students at three participating universities in Makassar: Hasanuddin University, State University of Makassar, and Alauddin State Islamic University. To ensure data quality and participant focus, the questionnaires were filled out immediately on-site under the direct supervision of the research team. For the purpose of standardization, each participant’s raw DASS-21 total score was subsequently multiplied by two, a recommendation from the instrument's developers (Lovibond & Lovibond, 1995), resulting in a maximum total score of 126.

Following this adjustment, participants were systematically grouped into three general mental health categories based on their adjusted total scores: Low Risk (0–42), Moderate Risk (43–84), and High Risk (85–126). This specific classification was developed by the research team to provide a simplified, holistic categorization of participants' overall psychological distress levels, making it suitable for qualitative comparison within the study. While the DASS-21 manual offers cut-off scores for its individual subscales (Depression, Anxiety, and Stress), a total composite score was utilized here to provide a broader assessment of mental health risk.

From each risk category within each university, two participants were then purposively selected. This selection process incorporated additional considerations such as achieving gender balance, ensuring diversity of academic disciplines, and confirming willingness to participate in extended interviews. Ultimately, the final sample consisted of 18 students: six from each university, with an even distribution across the three mental health categories, specifically comprising one male and one female participant per category per university.

3.3 Data Collection

Data collection primarily utilized in-depth, semi-structured interviews, supplemented by limited participant observation. Each interview, lasting 60-90 minutes, was conducted in private settings chosen by participants. An interview guide, developed from theoretical frameworks and research objectives, structured discussions on smartphone usage, communication behaviors, mental health experiences, and their intersections. All interviews were conducted in Bahasa Indonesia to ensure clarity, audio-recorded with permission, and transcribed verbatim for analysis. Concurrently, limited participant observation on university campuses provided supplementary contextual understanding of general smartphone usage patterns.

3.4 Data Analysis

The analytical process adhered to the principles of thematic analysis, as delineated by (Braun & Clarke, 2006), with careful adaptations to align with the phenomenological approach of this study. The analysis was an iterative process, involving several distinct phases: data familiarization, initial coding, theme development, theme review and refinement, and finally, theme definition and interpretation.

The primary researcher meticulously transcribed all interview recordings verbatim in Bahasa Indonesia. Following transcription, an intensive period of familiarization with the collected data commenced, involving multiple readings of each transcript and the diligent recording of initial impressions, potential patterns, and areas of interest. The next phase, initial coding, entailed a systematic examination of the data to identify meaningful units of analysis and assign descriptive codes to relevant text segments. Theme development then involved a close examination of the relationships between these codes, leading to the identification of overarching patterns and the subsequent development of thematic categories that encompassed multiple related codes. A crucial criterion for theme development was that each theme had to meaningfully capture aspects of the data related to the research objectives and provide insightful understanding into the relationship between mental health conditions and smartphone-mediated communication.

3.5 Ethical Considerations

This research strictly adhered to established ethical guidelines for human subjects, particularly given the sensitive nature of mental health topics. Ethical approval was secured from all participating universities' institutional review boards prior to data collection. Comprehensive informed consent procedures ensured participants fully understood the research, their roles, and their rights. Stringent measures safeguarded participant privacy and data confidentiality throughout the study, including the consistent use of pseudonyms. Furthermore, considerable attention was dedicated to proactively identifying and managing any potential risks to participants.

3.6 Reflexivity and Positionality

The research team embraced reflexivity, acknowledging that researcher positionality inevitably influences data collection and interpretation. The primary researcher, a doctoral candidate with a strong interest in psychology, recognized this unique lens. To mitigate potential influence from their academic position, conscious efforts were made to build rapport and foster a non-judgmental environment. Objectivity was further enhanced through regular reflective journaling, documenting personal biases and assumptions. Additionally, the three-person research team engaged in collaborative discussions to critically challenge interpretations and ensure a balanced, multifaceted perspective on the findings.

3.7 Trustworthiness and Validation

To ensure the credibility and trustworthiness of the research findings, several comprehensive validation strategies were systematically employed. Member checking involved sharing preliminary findings with six participants (two from each mental health category) to verify interpretations and ensure themes accurately captured their experiences, leading to refinements. Peer debriefing with two experienced qualitative researchers provided critical feedback on data analysis and thematic structure, enhancing analytical rigor. Triangulation integrated multiple data sources, including in-depth interviews, limited participant observation, and document analysis of digital communication patterns, for a comprehensive understanding. A detailed audit trail documented all decisions regarding data collection, analysis, and interpretation. Finally, prolonged engagement in the field built trust and yielded deeper insights into participants' communication behaviors.

4. Results

This study successfully recruited 18 participants from three universities, ensuring equal representation from each institution and mental health risk category. The demographic profile of these participants revealed intriguing patterns that enriched the research findings.

4.1 Demographic Profile

University	Low Risk	Moderate Risk	High Risk	Total
Hasanuddin University	2 (1M, 1F)	2 (1M, 1F)	2 (1M, 1F)	6
State University of Makassar	2 (1M, 1F)	2 (1M, 1F)	2 (1M, 1F)	6
Alauddin State Islamic University	2 (1M, 1F)	2 (1M, 1F)	2 (1M, 1F)	6
Total	**6**	**6**	**6**	**18**

The participants' age ranged from 19 to 23 years, encompassing students from their third to eighth semesters. Their academic disciplines were diverse, including Engineering, Medicine, Psychology, Education, Islamic Studies, Social Sciences, and Natural Sciences. DASS-21 scores clearly differentiated the categories: low risk (0-42), moderate risk (43-84), and high risk (85-126). Interestingly, participants from Alauddin State Islamic University exhibited unique response patterns, often integrating religious perspectives into their communication practices. In contrast, Engineering students across all universities demonstrated more structured approaches to digital communication, while Psychology students showed a heightened awareness of their own communication patterns.

4.2 Digital Communication Landscape: A Multifaceted Reality

Before delving into specific themes, it is crucial to understand the digital communication ecosystem that these students navigate daily. The analysis uncovered a complex web of platforms, each serving distinct purposes and eliciting varying emotional responses based on the students' mental health status.

Platform Usage Patterns by Mental Health Category

Low-risk students exhibited strategic platform selection. They primarily used WhatsApp for intimate conversations, Instagram for social sharing, and Telegram for academic discussions. Their usage was characterized by intentionality and the establishment of clear boundaries between different communication contexts.

In contrast, moderate-risk students displayed more fluid boundaries between platforms, often using multiple applications simultaneously to manage various emotional states. They frequently described "platform hopping" when feeling anxious, shifting from WhatsApp to Instagram to TikTok in search of emotional relief.

High-risk students presented the most intricate patterns, often describing their phones as "emotional command centers" where different applications fulfilled specific psychological functions. Some participants even developed elaborate systems of communication rules to manage their anxiety surrounding digital interactions.

4.3 Thematic Analysis: Five Interconnected Dimensions

The thematic analysis identified five major themes that collectively form a comprehensive model of smartphone-mediated interpersonal communication among students with varying mental health conditions.

Theme 1: Smartphone as Emotional Regulator - The Digital Mood Ring

The most striking finding was the way smartphones function as sophisticated emotional regulation tools, with usage patterns varying dramatically across mental health categories. This theme emerged not only from participants' verbal descriptions but also from their accounts of their physical and emotional relationships with their devices.

Low Mental Health Risk: Balanced Digital Wellness

Participants in this category demonstrated what could be termed "digital emotional intelligence." They utilized smartphones to enhance positive emotions rather than to escape negative ones, exhibiting remarkable self-awareness regarding their usage patterns.

> As Participant L1, an Engineering student from Hasanuddin University, articulated: *"I think of my phone as a tool, not a crutch. When I'm happy, I love sharing that with friends through photos or messages. But when I'm stressed about exams, I actually put my phone away and focus on studying or talking to someone face-to-face. The phone doesn't solve my problems, but it can make good moments even better."*
>
> Echoing this sentiment, Participant L2, a Communication Science student from Alauddin State Islamic University added: *"A phone is like a knife. It can be a useful tool if you know how to use it. But if you're not careful, you can hurt yourself. I use my phone for studying, finding information, or just healthy entertainment. If I feel like I'm scrolling too much or getting anxious, I take a break immediately. It's important to know your limits."*

These students often described having "digital boundaries"—specific times when they deliberately avoided their phones, particularly during emotional distress. They possessed a sophisticated understanding of how different digital activities impacted their mood.

Moderate Mental Health Risk: The Emotional Seesaw

Students in this category revealed more complex relationships with their devices, using them as intermediate coping mechanisms during periods of mild stress or anxiety. Their descriptions frequently included metaphors of balance and instability.

> Participant M2, a Psychology student from State University of Makassar, explained: *"My phone is like... how do I explain it... it's like a friend who sometimes helps and sometimes makes things worse. When I'm feeling a bit anxious about presentations, I might watch funny videos or chat with friends, and that usually helps. But sometimes I end up scrolling for hours and feel worse afterward. It's unpredictable."*

These participants often described a "push-pull" relationship with their devices, simultaneously seeking comfort and feeling frustrated by their dependence. They were aware of problematic patterns but struggled to consistently implement healthy boundaries.

High Mental Health Risk: Digital Lifelines and Traps

Students with high mental health risks described the most intense and complex relationships with their smartphones. Their narratives often contained language of survival and dependency, revealing how these devices had become integral to their emotional management systems.

> Participant H1, an Engineering student from Hasanuddin University, shared: *"I know it sounds dramatic, but my phone literally keeps me alive sometimes. When I'm having really dark thoughts, I can reach out to friends or watch videos that distract me. But it's also a trap because I can spend entire days just scrolling, avoiding real life, avoiding my problems. It's my lifeline and my prison at the same time."*

The religious context introduced an additional layer of complexity for Alauddin State Islamic University participants, who often grappled with guilt concerning their phone dependency while simultaneously relying on Islamic content and community connections facilitated by their devices.

> Adding to this perspective with a religious lens, an Engineering student from Alauddin State Islamic University (Participant H1) elaborated: *"My phone is often the only way I can connect with Islamic lectures or find solace in Quran recitations when I'm feeling overwhelmed. It's a huge comfort. But then, I also feel guilty when I spend too much time on it, scrolling endlessly, because it feels like I'm wasting time that could be spent on more meaningful things or even just praying. It's like a blessing and a test at the same time."*

Theme 2: Digital Communication as Social Safety Net - Redefining Connection

This theme illuminated how digital communication serves as a crucial backup system for social connection, with its function as a safety net becoming more pronounced among students with higher mental health risks.

The Architecture of Digital Safety

Low-risk students utilized digital communication as a supplement to rich, face-to-face social lives. Their safety net was more akin to a trampoline, bouncing them back into real-world interactions.

> As Participant L2, an Education student from State University of Makassar, stated: *"WhatsApp and Instagram help me stay connected with friends from high school who are at different universities. It's not replacing face-to-face time; it's extending it. When I can't meet friends in person, digital communication keeps those relationships warm until we can be together again."*

Moderate-risk students demonstrated a greater reliance on digital communication as an actual safety net, particularly during stressful periods. They often described digital spaces as "safer" for expressing vulnerability.

> Participant M1, a Medical student from Hasanuddin University, explained: *"When I'm feeling overwhelmed with coursework, it's hard to be around people in person because I feel like I'm bringing negative energy. But I can still text my friends, and they can support me without me feeling like I'm ruining their day. It's easier to ask for help through text than face-to-face."*

High-risk students exhibited the most intensive reliance on digital communication, frequently describing it as their primary social lifeline during psychological crises.

> Participant H2, a Social Sciences student from Hasanuddin University, revealed: *"During my worst depressive episodes, I can't handle being around people physically. Everything feels too intense, too overwhelming. But I can still send messages, even if it's just emoji reactions to my friends' posts. It keeps me connected to the world when I can't participate in it normally."*

Cultural Dimensions of Digital Safety

The Indonesian cultural context added unique dimensions to how students constructed their digital safety nets. Concepts such as "basa-basi" (polite conversation) and maintaining social harmony influenced how students utilized digital communication for emotional support.

Participants often described meticulously managing their digital personas to uphold cultural expectations while simultaneously seeking genuine support. This was particularly complex for students facing mental health challenges, who felt pressure to maintain positive facades while struggling internally.

Theme 3: Technology-Mediated Relationship Maintenance - The Art of Digital Intimacy

This theme explored how students employed smartphone technology to maintain and develop interpersonal relationships, unveiling sophisticated strategies that varied significantly across mental health categories.

Relationship Curation in the Digital Age

Low-risk students demonstrated remarkable sophistication in using technology for relationship maintenance, developing what could be termed "digital relationship intelligence."

> Participant L2, a Natural Sciences student from Hasanuddin University, articulated this approach: *"I think about my digital communication like tending a garden. Different relationships need different types of attention. I use WhatsApp for daily check-ins with close friends, Instagram for sharing experiences with a wider circle, and video calls for deep conversations with family. Each platform serves a purpose in maintaining my relationships."*

These students often described clear mental models of their social networks and how various digital tools served different relationship functions. They exhibited intentionality in their communication choices and an awareness of how their digital behavior affected their relationships.

The Complexity of Digital Intimacy

Moderate-risk students revealed more complex approaches to relationship maintenance, frequently struggling with the ambiguity inherent in digital communication while simultaneously relying heavily on it.

> Participant M1, an Engineering student from State University of Makassar, observed: *"Digital communication is both easier and harder than face-to-face. It's easier because I can think about what to say and edit my messages. But it's harder because you can't see people's faces or hear their tone. Sometimes I spend way too much time analyzing what someone meant by their message or worrying about how they interpreted mine."*

These participants often described anxiety surrounding digital communication norms—response times, message length, emoji usage—that did not exist in face-to-face interactions. They displayed heightened sensitivity to digital social cues and frequently over-interpreted ambiguous messages.

Digital Relationships as Primary Connections

High-risk students demonstrated the most complex patterns, often describing digital communication as their primary means of maintaining relationships while simultaneously expressing concerns about the authenticity of these connections.

> Participant H2, a Social Sciences student from State University of Makassar, shared: *"Most of my friendships exist mainly through my phone now. I chat with people every day, but I rarely see them in person. Sometimes I wonder if these are real friendships or just digital connections. When I'm feeling really bad, I want to reach out but I'm afraid of being a burden, so I just like their posts instead of actually talking."*

These students often described feeling simultaneously hyper-connected and profoundly lonely, maintaining extensive digital social networks while struggling with feelings of isolation and questions of authenticity in their relationships.

Theme 4: Anxiety-Driven Communication Patterns - When Fear Shapes Connection

This theme focused on communication patterns specifically driven by anxiety, fear, or other negative emotional states, revealing how mental health conditions can fundamentally alter communication motivations and behaviors.

The Spectrum of Communication Anxiety

Low-risk students showed minimal evidence of anxiety-driven communication patterns. When they experienced communication-related anxiety, it was typically situational and manageable through conscious strategies.

> Participant L1, an Engineering student from State University of Makassar, noted: *"Sometimes I feel nervous about important conversations, like discussing grades with professors or having serious talks with friends. But*

I usually just take time to think about what I want to say, maybe practice a bit, and then communicate directly. I don't let anxiety control how I communicate."

The Anxiety Amplification Effect

Moderate-risk students displayed more pronounced anxiety-driven patterns, particularly concerning social acceptance and relationship maintenance. Their descriptions revealed how digital communication could both alleviate and amplify social anxiety.

Participant M2, a Psychology student from Hasanuddin University, recounted: *"When I send a message and they don't respond quickly, my mind starts racing. Did I say something wrong? Are they angry with me? Are they ignoring me on purpose? Sometimes I send follow-up messages asking if everything is okay, even though I know that might be annoying. I can't help myself."*

These students often described elaborate mental processes surrounding digital communication—analyzing response times, interpreting emoji choices, and seeking reassurance through multiple channels. They exhibited heightened sensitivity to perceived rejection or disapproval in digital interactions.

Communication Paralysis and Compulsion

High-risk students demonstrated the most severe anxiety-driven patterns, frequently developing complex behavioral patterns that significantly impacted their daily functioning and relationships.

Participant H2, an Islamic Studies student from Alauddin State Islamic University, explained: *"I check my phone constantly because I'm always worried about missing something important or not responding quickly enough. But when I do get messages, sometimes I feel too anxious to respond right away because I'm worried about saying the wrong thing. So I read the message, feel stressed about it, and then avoid responding, which makes me feel even worse."*

These participants often described cycles of communication avoidance and compulsive checking, creating patterns that amplified rather than decreased their anxiety. They were aware of these problematic patterns but felt unable to break them without support.

Theme 5: Cultural Adaptation in Digital Spaces - Navigating Tradition in Modern Contexts

The final theme explored how participants navigated cultural norms and expectations within digital communication spaces, revealing sophisticated strategies for maintaining cultural identity while adapting to global digital communication norms.

Digital Cultural Competence

Participants across all mental health categories demonstrated remarkable sophistication in adapting Indonesian cultural norms to digital communication contexts. This adaptation required a constant negotiation between traditional values and modern communication practices.

Participant L1, a Social Sciences student from Alauddin State Islamic University, shared: *"In Indonesian culture, we have specific ways of showing respect, especially with older people or people in authority. I try to maintain these values in my digital communications too, like using formal language with professors, always greeting people properly in messages, and being careful about when and how I contact different people."*

Religious Digital Identity

Religious dimensions were particularly prominent among Alauddin State Islamic University participants, who often described complex processes of navigating Islamic values within digital communication spaces.

Participant M1, an Islamic Studies student from Alauddin State Islamic University, stated: *"As a Muslim, I try to be mindful of Islamic values in all my communications, including digital ones. This means being honest, respectful, and avoiding inappropriate conversations. Sometimes it's challenging because digital spaces can be very different from traditional Islamic communication norms, especially when interacting with people from different backgrounds."*

Corroborating this perspective, Participant M2, an Islamic Studies student from Alauddin State Islamic University, added: *"For me, using social media isn't just about connecting; it's also about reflecting my faith. I always think about whether what I'm posting or saying online aligns with Islamic teachings. It's a constant balancing act, especially when you see so many different viewpoints online that might not always be respectful or appropriate according to our values."*

Cultural Pressure and Mental Health

Participants with moderate and high mental health risks often described additional challenges in navigating cultural expectations within digital spaces. They sometimes felt pressured to maintain cultural norms while struggling with mental health challenges.

> Participant H1, an Education student from State University of Makassar, explained: *"In our culture, we're expected to always be polite and positive in our communications, especially with family and older people. But when I'm feeling depressed, it's hard to maintain that positive facade in my messages. I feel like I'm being fake, but I also don't want to worry people or bring shame to my family."*
>
> Echoing this sentiment, Participant M2, a Psychology student from State University of Makassar, shared: *"It's really tough. On one hand, I want to be honest about how I'm feeling, but then there's this ingrained idea that you shouldn't burden others, especially not publicly online. So, even when I'm having a really bad day, I'll still post something positive or just stay quiet, because the thought of people seeing me 'not okay' feels like a bigger problem in our culture."*

This tension between cultural expectations and authentic self-expression created additional stress for students with mental health challenges, who often felt caught between being true to their emotional experiences and maintaining cultural appropriateness in their digital communications.

5. Discussion

5.1 Interpretation of Findings

This study provides significant insights into the intricate relationship between mental health and smartphone-mediated interpersonal communication among university students in Makassar. The five emergent themes reveal that a student's mental health status is a crucial moderating factor influencing how they engage with digital communication, maintain relationships, and navigate cultural expectations.

The most significant finding is the identification of distinct communication patterns across different mental health categories, which challenges the assumption that digital communication uniformly affects all users. Students with varying levels of psychological distress develop fundamentally different approaches to smartphone-mediated communication. These differing approaches have important implications for their social relationships, academic performance, and overall well-being.

The finding that smartphones serve as emotional regulators across all mental health categories, albeit with different patterns and intensities, aligns with previous research on technology use and emotional management (ZILLMANN, 1988). This study, however, extends these findings by demonstrating how the effectiveness and consequences of smartphone-based emotional regulation vary significantly based on a student's mental health status.

The identification of digital communication as a social safety net is a particularly important finding with significant implications for understanding social support systems among university students. For students facing mental health challenges, digital communication often serves as a crucial lifeline, preventing complete social isolation during periods of psychological distress.

5.2 Theoretical Implications

This study's findings offer several important theoretical implications for understanding interpersonal communication in the digital age. Firstly, they support and extend Uses and Gratifications theory, demonstrating how individual psychological characteristics directly influence the gratifications sought and obtained via digital communication technologies (Rubin, 2008).

Secondly, the identified distinct communication patterns across mental health categories suggest that existing communication theories may require modification. Traditional models often assume stable communication behaviors; however, this study indicates that psychological distress significantly alters communication motivations, patterns, and outcomes.

Ultimately, this research contributes to a more nuanced understanding of the technology-mental health relationship. Unlike previous studies that focused solely on positive or negative effects, our findings reveal a far more complex relationship, heavily dependent on individual characteristics and usage patterns.

5.3 The Digital Communication Adaptation Model (DCAM)

Based on the findings of this study, we propose the Digital Communication Adaptation Model (DCAM). This comprehensive theoretical framework explains how mental health conditions influence smartphone-mediated

interpersonal communication patterns among university students. The model integrates the five identified themes into a coherent structure that can guide both future research and practical interventions.

Core Components of the DCAM

The DCAM consists of three primary components: (1) Mental Health Status as the central moderating variable, (2) Five Interconnected Communication Dimensions, and (3) Cultural Context as the overarching framework.

Component 1: Mental Health Status (The Moderating Variable)

Mental health status, as measured by standardized instruments like the DASS-21, serves as the primary moderating variable that influences all aspects of digital communication behavior. The model identifies three distinct adaptation patterns:

1. Balanced Adaptation (Low Mental Health Risk): Characterized by the strategic and intentional use of digital communication technologies, with clear boundaries between digital and face-to-face interactions. Individuals in this category demonstrate high digital emotional intelligence and use technology to enhance, rather than replace, traditional communication.
2. Transitional Adaptation (Moderate Mental Health Risk): Characterized by fluctuating patterns of digital communication use, with increased reliance on technology during periods of stress or anxiety. Users are often aware of problematic patterns but struggle with the consistent implementation of healthy boundaries.
3. Intensive Adaptation (High Mental Health Risk): Characterized by complex dependency patterns where digital communication becomes the primary mode of social interaction and emotional regulation. Individuals develop sophisticated, yet potentially problematic, systems for managing their psychological well-being through technology.

Component 2: Five Interconnected Communication Dimensions

The model identifies five key dimensions that dynamically interact based on an individual's mental health status:

1. Emotional Regulation Dimension: How individuals use digital communication to manage their emotional states.
2. Social Safety Net Dimension: The extent to which digital communication serves as a form of backup social support.
3. Relationship Maintenance Dimension: The strategies employed to maintain and develop interpersonal relationships through technology.
4. Anxiety Management Dimension: Communication patterns driven by anxiety, fear, or other negative emotional states.
5. Cultural Adaptation Dimension: How traditional cultural values are negotiated within digital communication spaces.

Component 3: Cultural Context Framework

The Indonesian cultural context, which includes concepts like *basa-basi*, *gotong royong*, and Islamic values, provides the overarching framework within which digital communication adaptation occurs. This cultural layer influences how individuals interpret and implement digital communication strategies across all mental health categories.

Dynamic Interactions and Predictive Capabilities

The DCAM proposes that these components interact dynamically, with mental health status influencing the relative importance and manifestation of each communication dimension. For instance, individuals with a high mental health risk may rely more heavily on the emotional regulation and social safety net dimensions, whereas those with a low risk may focus more on relationship maintenance and cultural adaptation.

The model also possesses predictive capabilities, suggesting that communication behavior patterns can be predicted based on an individual's mental health status and cultural context. It implies that interventions targeting specific dimensions (e.g., emotional regulation strategies) may be more effective for certain mental health categories than others.

Theoretical Contributions

This model makes several key contributions to existing communication theories:

1. It integrates mental health as a central moderating variable in digital communication.
2. It provides a culturally sensitive framework for understanding communication adaptation.

3. It offers a dynamic model that accounts for changing mental health conditions over time.
4. It bridges individual psychological factors with broader social and cultural contexts.

5.4 Practical Implications

The findings of this study have important practical implications for a wide range of stakeholders, including university administrators, mental health professionals, technology designers, and students themselves.

For universities, the findings suggest the need for a re-evaluation of how they provide support to students. Given that many students with mental health challenges use digital platforms as a social safety net, universities should consider developing digital outreach programs that meet students where they are most comfortable. This could include text-based counseling services, social media-based peer support programs, and mobile applications designed to provide readily accessible mental health resources.

For mental health professionals, the study highlights the necessity of addressing digital communication patterns as a key component of a student's overall psychological well-being. Interventions for university students should be comprehensive, and mental health professionals should be trained to assess and address problematic digital communication patterns. This includes behaviors such as compulsive checking and anxiety-driven communication.

Finally, the findings suggest that communication technologies should be designed with the user's mental health in mind. Technology designers should consider developing features that support healthy communication habits and reduce anxiety-provoking elements.

5.5 Limitations and Future Research Directions

This study provides valuable insights, yet several limitations offer avenues for future research.

Methodological Limitations: The cross-sectional design prevents causal inferences; thus, longitudinal studies are needed to track dynamic changes. The focus on three Makassar universities limits generalizability, suggesting future research across diverse Indonesian and international cultural contexts. Additionally, purposive sampling might introduce selection bias, and reliance on self-reported DASS-21 scores may not capture the full complexity of mental health experiences.

Theoretical and Analytical Limitations: While the phenomenological approach offered rich insights, it may not fully capture broader structural factors. Future research could employ mixed-methods, combining qualitative data with quantitative analysis of digital trace data. The study's primary focus on individual-level factors also underemphasized broader social, economic, and technological contexts; future studies should explore how these interact with mental health to influence communication.

Cultural and Contextual Limitations: The sample, while diverse across academic and religious backgrounds, may not fully represent the vast diversity of Indonesian university students, warranting broader inclusion in future research. Moreover, the exclusive focus on smartphone-mediated communication might not capture the full spectrum of digital technologies, suggesting examination across various digital platforms and emerging technologies.

Future Research Directions: Promising avenues include longitudinal studies to understand causal relationships, intervention studies to promote healthy digital communication habits, and cross-cultural comparative studies. Integrating digital trace data with qualitative interviews could offer a more comprehensive understanding of actual behaviors. Finally, research examining the Digital Communication Adaptation Model (DCAM)'s effectiveness and exploring the influence of emerging technologies like AI and VR would be valuable.

6. Conclusion

This qualitative study offers significant insights into the intricate relationship between mental health and smartphone-mediated interpersonal communication among university students in Makassar, Indonesia. Through interviews with 18 participants, categorized by DASS-21 scores, five key themes emerged: smartphone as emotional regulator, digital communication as a social safety net, technology-mediated relationship maintenance, anxiety-driven communication patterns, and cultural adaptation in digital spaces.

The findings demonstrate that mental health status critically moderates students' engagement with digital communication technologies. Students with varying psychological distress levels exhibit fundamentally different communication approaches, impacting their social relationships and well-being. To explain these dynamics, we propose the Digital Communication Adaptation Model (DCAM), a theoretical framework for future research and interventions.

This research significantly contributes to digital communication, mental health, and cultural adaptation literature. It extends the Uses and Gratifications theory, offering a more nuanced understanding of technology-mental health relationships and highlighting the intersection of traditional values with modern technologies.

Practically, the study holds important implications for university administrators, mental health professionals, and technology designers. Universities should develop digital outreach programs tailored to students' mental health needs. Mental health interventions must incorporate digital communication pattern assessment, and technology designers should prioritize features that consider mental health implications.

As digital communication becomes central to human social interaction, collaboration among researchers, practitioners, and designers is crucial. Their collective goal should be to ensure these technologies support, rather than undermine, psychological well-being and social connection. This study provides essential insights for leveraging technology's benefits while mitigating its risks, especially for vulnerable populations facing mental health challenges.

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Authors contributions

Riyadi Riyadi was responsible for the study design, data collection, and drafting the manuscript. Prof. Jeanny Maria Fatimah provided critical insights and scholarly guidance, while Dr. Hasrullah Hasrullah offered continuous encouragement and constructive feedback. All authors read and approved the final manuscript.

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