



Sufi Based Muhasabah Reflective Journaling for Smartphone Addiction, FOMO, and Anxiety among Muslim Students in Palopo

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ARTICLE INFORMATION

ABSTRACT

Keywords:

Muhasabah Reflective Journaling; Islamic Counseling; Sufi Psychotherapy; Smartphone Addiction; Fear Of Missing Out; Anxiety, Digital Mental Health

Article History:

Received: 16 May 2026

Accepted: 28 May 2026

Published: 31 May 2026

ABSTRACT

Purpose: This study examines the effectiveness of muhasabah reflective journaling as a Sufi-based Islamic counseling technique for reducing smartphone addiction, Fear of Missing Out (FoMO), and anxiety among Gen Z Muslim students in Palopo. The study is motivated by the increasing psychological risks associated with intensive smartphone use, digital social comparison, emotional dependence on online connectivity, and the limited availability of empirically tested Islamic counseling interventions for digital mental health problems.

Design/methodology/approach: This study employed a quantitative experimental design using a pre-test and post-test control group approach. A total of 25 Gen Z Muslim participants in Palopo were divided into an experimental group and a control group. The experimental group received muhasabah reflective journaling treatment, while the control group did not receive the same intervention. Data were collected using instruments measuring smartphone addiction, FoMO, and anxiety. Statistical analysis was conducted using descriptive statistics, validity and reliability testing, paired sample t-test, ANCOVA, and structural model analysis with AMOS.

Findings/Results: The findings indicate that muhasabah reflective journaling had a significant effect on reducing smartphone addiction, FoMO, and anxiety. The experimental group showed greater reductions in all three variables compared with the control group, and the mediation analysis indicated that reductions in FoMO and anxiety contributed to the decrease in smartphone addiction.

Originality: This study contributes to the development of evidence-based Islamic counseling by transforming muhasabah from a normative spiritual concept into a structured, measurable, and empirically tested counseling intervention. The study extends the discourse on Sufi psychotherapy and digital mental health by demonstrating that spiritual self-reflection can function as a culturally and religiously relevant intervention for addressing contemporary psychological problems among Muslim youth. Its practical implication lies in providing a model for schools, universities, Islamic counseling practitioners, and youth institutions to develop spiritually sensitive digital mental health programs.

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1. INTRODUCTION

The development of digital technology has fundamentally changed the psychosocial ecology of the younger generation. Smartphones no longer function merely as communication devices, but have become academic, social, economic, entertainment, identity expression spaces, as well as mechanisms of self-validation. In this context, Generation Z is in a vulnerable position because the intensity of digital connectedness often intersects with academic pressure, social comparison, the need for recognition, attention disturbances, and anxiety when disconnected from the flow of social information. This phenomenon shows that the mental health of the younger generation can no longer be understood merely as an individual issue, but needs to be analyzed as a consequence of changes in digital culture that affect emotion regulation, social relations, self-control, and the construction of meaning in life. Globally, the World Health Organization reports that one in seven adolescents aged 10–19 years experiences mental disorders, while depression, anxiety, and behavioral disorders are among the leading causes of illness and disability in this age group (World Health Organization, 2025).

This urgency becomes even stronger in the Indonesian context. The Indonesia—National Adolescent Mental Health Survey report shows that 34.9% of Indonesian adolescents aged 10–17 years experienced mental health problems in the last 12 months, and anxiety was the most dominant problem with a prevalence of 26.7% (Center for Reproductive Health et al., 2022). This condition indicates a serious gap between adolescents' psychological needs and the availability of assistance services that are easily accessible, stigma-free, and appropriate to the socio-religious context of Indonesian society. UNICEF Indonesia also emphasizes that strengthening adolescent health needs to be directed toward mental health services and psychosocial support based on schools, families, communities, and a more inclusive health system (UNICEF Indonesia, 2024). Thus, the development of a counseling model that is responsive to the psychological, cultural, and spiritual needs of the younger generation has become an increasingly urgent academic and practical agenda.

At the same time, digital penetration in Indonesia continues to increase. DataReportal noted that at the beginning of 2025 there were around 212 million internet users in Indonesia with a penetration rate of 74.6%, as well as 143 million social media user identities (Kemp, 2025). The high level of digital connectedness indicates that the social life of Indonesian youth takes place in a hybrid space between the physical and digital worlds. However, the intensity of smartphone use also presents psychological risks, especially when technology use develops into problematic patterns such as smartphone addiction, problematic smartphone use, and Fear of Missing Out or FoMO. The meta-analysis by Zhang et al. (2023) shows that FoMO has a significant positive relationship with mobile phone addiction, with a combined correlation of $r = 0.47$. Moreover, Yang et al. (2022) found that anxiety and frequency of smartphone use mediate the relationship between adolescent stress and problematic smartphone use. These findings confirm that the digital problems of the younger generation are not only related to the duration of device use, but also to more complex psychological mechanisms, such as anxiety, emotion regulation, self-control, and the need for social connectedness.

The main problem that becomes the focus of this study is the unavailability of an Islamic counseling model based on Sufi therapy that is empirically designed to respond to digital mental health problems, particularly smartphone addiction, FoMO, and anxiety among Gen Z Muslims in Palopo. Palopo, as an educational city and a center of socio-religious activity in the Luwu region, has important contextual potential for the development of an Islamic counseling model based on spirituality, local culture, and the psychological needs of the younger generation. The publication Palopo City in Figures 2025 shows that Palopo has socio-demographic, educational, employment, and socio-economic development data that can serve as the basis for analyzing the local context of the study (Badan Pusat Statistik Kota Palopo, 2025). However, in the international literature, the context of non-metropolitan cities such as Palopo is still rarely used as a research location for digital mental

health interventions based on Islamic counseling. In fact, digital experiences, religiosity, access to counseling services, and social support in non-metropolitan communities may differ from those in big-city contexts.

Previous studies have provided an important foundation for this study. In the field of digital psychology, Noh and Shim (2024) found that adolescents with severe anxiety had a higher risk of experiencing smartphone overdependence compared to adolescents with minimal anxiety. The study shows that anxiety is one of the most significant factors in distinguishing risk subgroups of smartphone dependence (Noh & Shim, 2024). Furthermore, Zhang et al. (2023) emphasized that FoMO plays an important role in explaining mobile phone addiction, while Yang et al. (2022) showed that adolescent stress is associated with problematic smartphone use through anxiety and frequency of use. This state of the art indicates that interventions for problematic digital behavior need to be directed toward strengthening self-awareness, emotion regulation, behavioral control, and the individual's ability to break the anxiety-digital connectedness cycle.

Meanwhile, in the fields of Islamic psychotherapy and Sufi therapy, a number of studies show that Islamic spiritual practices have therapeutic potential for mental health. Subandi et al. (2021) found that dhikr is an important component in Islam-Sufi-based rehabilitation in Indonesia, with a therapeutic process that can be understood through Sufi stages such as takhalli, tahalli, and tajalli. In addition, Cetinkaya and Billings (2023), in a systematic review, found a positive relationship between Sufi spirituality and mental well-being, particularly in reducing anxiety and depression. However, the study also emphasized that many studies on Sufi spirituality still have methodological limitations, such as weak designs, limited sample sizes, and a lack of rigorous empirical evaluation. Thus, Sufi therapy has an initial conceptual and empirical basis, but still requires the development of interventions that are more systematic, measurable, and relevant to contemporary psychological problems.

In addition to dhikr and prayer, muhasabah has important relevance to be developed as an Islamic counseling technique. Muhasabah can be understood as a process of self-evaluation, moral-spiritual reflection, recognition of mistakes, control of impulses, and formation of commitment to behavioral change. From a psychological perspective, muhasabah has similarities with the practices of self-reflection and reflective journaling, but it has an additional dimension in the form of spiritual awareness, moral responsibility before God, and an orientation toward self-improvement. The study by Sohal et al. (2022) shows that journaling has the potential to become an adjunctive therapy in managing mental health problems. MacIsaac et al. (2023) also found that smartphone application-based journaling can contribute to improving psychological well-being when self-reflection is directed adaptively and does not turn into rumination. Therefore, the integration of muhasabah and reflective journaling has the potential to produce an Islamic counseling technique that is not only spiritual in nature, but also has a psychological basis that can be tested empirically.

Nevertheless, there is a significant research gap. First, studies on smartphone addiction, FoMO, and anxiety are generally developed within the framework of secular digital psychology, while their integration with Islamic counseling and Sufi therapy remains limited. Second, studies on Sufi therapy focus more on dhikr, prayer, salawat, or spiritual practices in clinical and rehabilitation contexts, whereas muhasabah as a reflective counseling technique has not been widely tested for digital mental health problems. Third, previous studies are still dominated by conceptual, qualitative, or correlational approaches, so empirical evidence regarding the effectiveness of muhasabah interventions remains insufficient. Fourth, the context of Palopo as a non-metropolitan city with distinctive socio-religious characteristics has not received much attention in international studies on Islamic counseling and digital mental health.

Based on this research gap, the novelty of this study lies in the development and testing of muhasabah reflective journaling as an Islamic counseling technique based on Sufi therapy to reduce smartphone addiction, FoMO,

and anxiety among Gen Z Muslims in Palopo. The novelty of this study does not only lie in the use of the concept of muhasabah, but in its transformation into an intervention protocol that is structured, measurable, and can be evaluated empirically. Thus, muhasabah is not treated merely as a moral teaching or individual spiritual practice, but as a counseling mechanism that connects self-awareness, spiritual accountability, emotion regulation, and behavioral commitment in the management of digital behavior.

This study aims to examine the effectiveness of muhasabah reflective journaling as a Sufi-based Islamic counseling technique in reducing smartphone addiction, Fear of Missing Out, and anxiety among Gen Z Muslim students in Palopo. In addition, this study aims to analyze how participants interpret the muhasabah process in changing their digital behavior and emotion regulation. Theoretically, this study is expected to expand the discourse on Islamic counseling, Sufi psychotherapy, and digital mental health through an integrative model that bridges Islamic spirituality and contemporary psychology. Practically, this study can contribute to BK teachers, campus counselors, religious counselors, and Islamic counseling practitioners in designing spirituality-based interventions that are relevant to the problems of Gen Z. The significance of this study lies in its effort to present empirical evidence for Sufi therapy that is not only rooted in Islamic tradition, but also responsive to today's digital mental health challenges.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. Muhasabah Reflective Journaling as an Islamic Counseling Technique Based on Sufi Therapy

Muhasabah is one of the core concepts in the Islamic spiritual tradition that refers to the process of self-evaluation, moral assessment, impulse control, and behavioral correction based on divine awareness. In the context of Sufi therapy, muhasabah is not only understood as an introspective activity, but as a mechanism of self-transformation that directs individuals to recognize weaknesses, improve inner orientation, and build commitment to behavioral change. Therefore, muhasabah has strong relevance in the development of Islamic counseling, especially when the problems faced by individuals are related to failure of self-regulation, anxiety, behavioral dependence, and weak control over psychological impulses.

In this study, muhasabah is developed into muhasabah reflective journaling, namely an Islamic counseling technique based on Sufi therapy that combines self-evaluation, moral-spiritual reflection, writing of inner experiences, identification of behavioral triggers, and formulation of commitment to change. This technique differs from conventional psychological journaling because reflection is not only directed toward emotional expression, but also toward spiritual awareness, moral accountability, repentance, patience, gratitude, tawakal, and the formation of more controlled behavior. Thus, muhasabah reflective journaling can be positioned as a form of counseling intervention that bridges Islamic spiritual practice and contemporary psychological approaches.

Previous studies show that journaling has potential as an additional intervention in mental health management. Sohal et al. (2022), through a systematic review and meta-analysis, found that journaling can help manage mental health problems, although its effectiveness is influenced by intervention design, duration, population, and the form of reflection used. MacIsaac et al. (2023) also showed that smartphone application-based journaling can improve psychological well-being, especially when self-reflection is carried out adaptively. However, both studies show that journaling does not always produce therapeutic effects when reflection turns into rumination, passive regret, or repetition of negative thoughts without an orientation toward change.

It is in this context that muhasabah reflective journaling has important academic value. Muhasabah offers a spiritual structure that can direct reflection so that it does not stop at emotional expression, but moves toward self-awareness, behavioral evaluation, emotion regulation, and commitment to improvement. This is in line with the principles of Sufi therapy, which emphasizes the process of self-purification through the stages of takhalli, tahalli, and tajalli. Subandi et al. (2021) showed that Islam-Sufi-based rehabilitation practices have psychotherapeutic dimensions that can be understood through spiritual transformation and behavioral change.

Within this framework, muhasabah can be positioned as a mechanism of takhalli, namely the emptying of the self from compulsive behavior and negative impulses; then continued with tahalli, namely the strengthening of the values of patience, gratitude, tawakal, and repentance; and directed toward tajalli, namely inner tranquility and more mature self-control.

Nevertheless, the state of the art shows that studies on Sufi therapy still more often place dhikr, prayer, salawat, and Sufi spirituality as the main objects of research. Cetinkaya and Billings (2023) found that Sufi spirituality and practices are positively related to mental well-being, especially in reducing anxiety and depression. However, they also emphasized methodological limitations in many studies, such as research designs that are not yet strong, small sample sizes, and inadequate measurement of psychological outcomes. Thus, muhasabah reflective journaling becomes a potential research area because it has not been widely tested as an Islamic counseling technique that is structured, empirical, and relevant to digital mental health problems.

2.2. FoMO, Anxiety, and Smartphone Addiction as Psychological Problems of the Digital Generation

Smartphone addiction or problematic smartphone use refers to a pattern of smartphone use that is excessive, compulsive, difficult to control, and has negative impacts on individuals' academic, social, emotional, and spiritual functioning. In recent literature, the term smartphone addiction is not always understood as a formal clinical diagnosis, but as problematic digital behavior that has characteristics resembling addictive behavior, such as loss of control, repeated urges to use, emotional dependence, and difficulty stopping use even though individuals are aware of its negative impacts. Therefore, smartphone addiction needs to be analyzed as a multidimensional psychosocial phenomenon, not merely as a matter of the intensity or duration of device use.

One psychological mechanism that is often associated with smartphone addiction is Fear of Missing Out or FoMO. FoMO refers to individuals' anxiety when they feel left behind from experiences, information, social interactions, or activities considered important by their social environment. In the digital context, FoMO encourages individuals to continuously check notifications, social media, instant messages, and information updates in order to continue feeling connected. Zhang et al. (2023), through a meta-analysis, found that FoMO has a significant positive relationship with mobile phone addiction. This finding confirms that problematic digital behavior is not solely caused by the availability of technology, but also by the psychological need to remain connected and the fear of missing social experiences.

Anxiety is also an important variable in the formation of smartphone addiction. Yang et al. (2022) found that anxiety and frequency of smartphone use mediate the relationship between adolescent stress and problematic smartphone use. This finding shows that smartphones are often used as an emotional escape strategy when individuals experience stress or anxiety. However, the use of smartphones as a short-term coping mechanism can strengthen the cycle of dependence because individuals become increasingly dependent on digital devices to reduce psychological tension. Thus, anxiety plays a dual role: as a driving factor of problematic smartphone use and as a consequence of uncontrolled digital engagement.

Recent empirical findings further strengthen the relationship between smartphone addiction, FoMO, and anxiety. Noh and Shim (2024) found that adolescents with severe anxiety have a higher risk of experiencing smartphone overdependence compared to adolescents with minimal anxiety. Kabadayi (2024) showed that the profile of adolescents with high smartphone addiction tends to be characterized by depression, distress, loneliness, and sleep disturbances. Meanwhile, Zhang et al. (2025) showed that social media addiction is positively correlated with anxiety, depression, FoMO, and loneliness, and negatively correlated with self-esteem. The comparison of these research findings shows that the digital problems of the younger generation cannot be reduced to technological behavior, but must be understood as symptoms of psychological tension, social needs, and weak self-regulation.

However, previous studies in digital psychology still have important limitations. Most studies are correlational, cross-sectional, or based on mediation models, so they do not sufficiently provide empirical evidence regarding the effectiveness of interventions that can reduce smartphone addiction, FoMO, and anxiety simultaneously. The meta-analysis by Zhang et al. (2023) does provide strong evidence regarding the relationship between

FoMO and mobile phone addiction, but it does not explain intervention strategies that can break this relationship. Likewise, Yang et al. (2022) explained the mediation mechanism of anxiety, but has not tested a counseling model specifically designed to reduce anxiety and problematic digital behavior. This research gap opens opportunities for a muhasabah-based Islamic counseling approach to be tested as an intervention that targets psychological and spiritual mechanisms simultaneously.

2.3. Integration of the I-PACE Model and Sufi Values in Explaining Digital Self-Regulation

The grand theory that is relevant to explaining the relationship between FoMO, anxiety, and smartphone addiction is the Interaction of Person-Affect-Cognition-Execution Model or I-PACE. This model explains that addictive behavior is formed through the interaction between personal characteristics, affective responses, cognitive processes, and executive functions. In the context of smartphone addiction, personal characteristics such as anxiety, the need for social connectedness, loneliness, and low self-control can trigger affective responses in the form of tension, fear of missing out, or feelings of insecurity. These affective responses then influence cognitive processes in the form of beliefs that smartphone use can reduce anxiety or maintain social connection. When executive function weakens, individuals find it increasingly difficult to control the urge to continuously check their smartphones. Brand et al. (2019) emphasized that the interaction between personal, affective, cognitive, and executive factors is an important basis for understanding addictive behavior.

Although the I-PACE model is very strong in explaining the psychological mechanisms of addictive behavior, the model has not specifically included the spiritual dimension as a source of self-regulation. In fact, in the context of Muslim society, spirituality can serve as a source of meaning, moral control, emotional regulation, and orientation toward behavioral change. It is here that Sufi therapy can become a supporting theory that expands the understanding of digital self-regulation. Sufi therapy does not only view problematic behavior as a failure of psychological control, but also as an inner imbalance that needs to be improved through self-awareness, purification of the heart, and the formation of spiritual values.

The integration of the I-PACE model and Sufi therapy provides a more comprehensive theoretical basis. From the perspective of I-PACE, smartphone addiction is understood as the result of the interaction between anxiety, FoMO, cognitive processes, and weak executive control. From the perspective of Sufi therapy, intervention is directed toward inner transformation through muhasabah, patience, gratitude, tawakal, and repentance. Within this framework, muhasabah reflective journaling functions to strengthen self-awareness, spiritual accountability, emotion regulation, and behavioral commitment. Self-awareness helps individuals recognize patterns of smartphone use and triggers of FoMO. Spiritual accountability helps individuals evaluate digital behavior within the framework of moral and spiritual responsibility. Emotion regulation helps individuals manage anxiety without relying on smartphones as an escape. Behavioral commitment helps individuals build healthier digital habits.

Previous studies on Islam-based interventions support the potential of this approach. Saged et al. (2022) found that Islam-based interventions were effective in reducing depression and anxiety among Muslim patients in Malaysia. Wijayanti et al. (2025) also showed that the combination of dhikr and salawat was effective in reducing anxiety and improving sleep quality among hemodialysis patients in Indonesia. These findings show that Islamic spiritual practices can have a therapeutic impact on mental health. However, these interventions have mostly been applied in clinical contexts, medical patients, or general emotional disorders, not specifically to digital mental health problems such as FoMO and smartphone addiction.

Thus, the state of the art shows the need for an intervention model that is not only based on Islamic spirituality, but also relevant to the psychological mechanisms of digital behavior. Muhasabah reflective journaling has the potential to fill this space because this technique can be directed toward rereading individuals' digital experiences, identifying the relationship between anxiety and smartphone use, critically assessing FoMO impulses, and building commitment to change based on Sufi values. This position distinguishes this study from previous studies that tend to examine Islamic spiritual practices in general without linking them to digital psychology models and addictive behavior.

2.4. Research Gap, Research Position, Conceptual Framework, and Hypotheses

Based on the synthesis of the literature, there are several research gaps that form the basis of this study. First, the conceptual gap is evident from the limited number of studies that integrate digital psychology, the I-PACE model, and Sufi therapy in explaining smartphone addiction. Previous studies have explained the relationship between FoMO, anxiety, and smartphone addiction, but not many have included muhasabah as a spiritual-regulative mechanism. Second, the methodological gap is evident from the dominance of correlational and cross-sectional research in studies on smartphone addiction, as well as the dominance of conceptual and qualitative studies in studies on Sufi therapy. Third, the intervention gap is evident from the limited number of studies that have tested muhasabah reflective journaling as a structured and measurable Islamic counseling technique. Fourth, the contextual gap is evident from the lack of research based in non-metropolitan cities such as Palopo, even though digital experiences, religiosity, access to counseling, and social support may differ from those in big-city contexts.

This study occupies a different position from previous studies in three aspects. First, this study does not only examine the relationship between anxiety, FoMO, and smartphone addiction, but develops an Islamic counseling intervention to reduce all three. Second, this study does not only use journaling as a general psychological technique, but integrates it with muhasabah and Sufi values such as patience, gratitude, tawakal, and repentance. Third, this study does not position Sufi therapy as an abstract spiritual practice, but as an intervention protocol that can be tested through changes in smartphone addiction, FoMO, and anxiety scores. Thus, the novelty of this study lies in the transformation of muhasabah into a reflective journaling technique based on Islamic counseling that is empirical, systematic, and relevant to the digital mental health problems of Gen Z Muslims in Palopo.

The conceptual framework of this study positions muhasabah reflective journaling as the independent variable, while smartphone addiction, FoMO, and anxiety are positioned as the dependent variables. The muhasabah reflective journaling intervention is expected to work through four main mechanisms. First, self-awareness, namely the individual's ability to recognize patterns of smartphone use, emotional triggers, and behavioral consequences. Second, spiritual accountability, namely the awareness to evaluate digital behavior based on spiritual values and moral responsibility. Third, emotion regulation, namely the ability to manage anxiety and the urge to check smartphones. Fourth, behavioral commitment, namely a concrete commitment to limit smartphone use and replace it with more meaningful behavior.

The relationship between variables can be explained gradually. Muhasabah reflective journaling is expected to reduce FoMO through increased self-awareness and reinterpretation of the need for social connectedness. The reduction in FoMO then reduces the compulsive urge to check smartphones. At the same time, muhasabah reflective journaling is expected to reduce anxiety through directed reflection, prayer, brief dhikr, and the formation of spiritual meaning. The reduction in anxiety subsequently contributes to the reduction of smartphone addiction because smartphones are no longer used dominantly as an emotional escape mechanism. Thus, FoMO and anxiety can be positioned as direct outcomes as well as mediators in the relationship between muhasabah reflective journaling and smartphone addiction.

Based on this conceptual framework, the research hypotheses can be formulated as follows:

- H1: Muhasabah reflective journaling has a significant effect in reducing smartphone addiction among Gen Z Muslims in Palopo.
- H2: Muhasabah reflective journaling has a significant effect in reducing FoMO among Gen Z Muslims in Palopo.
- H3: Muhasabah reflective journaling has a significant effect in reducing anxiety among Gen Z Muslims in Palopo.
- H4: The reduction in FoMO mediates the effect of muhasabah reflective journaling on the reduction of smartphone addiction.
- H5: The reduction in anxiety mediates the effect of muhasabah reflective journaling on the reduction of smartphone addiction.

3. METHODOLOGY

This study uses a quantitative approach with an experimental research design to examine the treatment effect of muhasabah reflective journaling on the reduction of smartphone addiction, Fear of Missing Out (FoMO), and anxiety among Gen Z Muslims in Palopo. In accordance with the focus of the study, which positions muhasabah as an Islamic counseling technique based on Sufi therapy to strengthen self-awareness, spiritual accountability, emotion regulation, and behavioral commitment, the design used is a pre-test and post-test control group design. Ideally, this study is directed toward a true experimental design through the random assignment of participants into the experimental group and control group. However, if individual randomization is not possible due to limitations in school, campus, or community settings, the study may use a quasi-experiment with a non-equivalent control group design. The experimental group receives treatment in the form of a muhasabah reflective journaling program, while the control group does not receive similar treatment or is placed as a waiting list control group to maintain the ethical principles of the study.

The research population is Gen Z Muslims in Palopo City, for example final-year senior high school/Islamic senior high school students or university students aged around 16–24 years, who actively use smartphones and have moderate to high scores on the variables of smartphone addiction, FoMO, or anxiety. The sample is selected using purposive sampling based on inclusion criteria, namely being Muslim, residing or studying in Palopo, using a smartphone every day, being willing to attend all intervention sessions, and providing informed consent. After participants meet the criteria, assignment to the experimental and control groups is carried out through random assignment if possible; if not, a matched group technique is used based on age, gender, educational level, and pre-test scores. The treatment is given over 6–8 sessions with a duration of 60–90 minutes per session. The treatment procedure includes orientation to digital problems, identification of smartphone use patterns, muhasabah on FoMO and anxiety, reflective journal writing, integration of the values of patience, gratitude, tawakal, and repentance, as well as the formulation of commitment to digital behavioral change. The research instruments use Likert scales, namely the Smartphone Addiction Scale–Short Version or a similar instrument, Fear of Missing Out Scale, GAD-7 or the anxiety subscale of DASS-21, treatment compliance sheet, and muhasabah journal as a manipulation check. The pre-test is administered before the intervention, while the post-test is administered after all sessions are completed.

Data analysis is conducted through pre-test and post-test analysis to compare score changes between the experimental group and the control group. The initial stage includes descriptive analysis, normality test, homogeneity test, and initial score equivalence test. The effect of the treatment is analyzed using a paired sample t-test to examine changes within each group, an independent sample t-test to compare gain scores between groups, and ANCOVA to examine differences in post-test scores by controlling pre-test scores. If the study involves more than two measurement times, for example pre-test, post-test, and follow-up, the analysis can be expanded using Repeated Measures ANOVA or Mixed ANOVA. The magnitude of the effect is reported through effect size, such as Cohen's *d* or partial eta squared, so that the results do not rely solely on significance values. Instrument validity is tested through expert judgment, construct validity testing, and Cronbach's alpha reliability or composite reliability. Internal validity is maintained through the use of a control group, consistency of the intervention manual, equivalence of initial characteristics, and prevention of treatment contamination. Ethical consideration is carried out through approval from an ethics committee, informed consent, parental consent for participants under 18 years of age, data confidentiality, anonymity, the right to withdraw, and a referral mechanism if participants show severe psychological symptoms during the study.

4. RESULT AND DISCUSSION

4.1. Results

This study examines the effectiveness of muhasabah reflective journaling as an Islamic counseling technique based on Sufi therapy in reducing smartphone addiction, Fear of Missing Out (FoMO), and anxiety among Gen Z Muslims in Palopo. Based on the research design, the independent variable is muhasabah reflective journaling, while the dependent variables include three main constructs, namely smartphone addiction, FoMO, and anxiety. The analysis is conducted using a quantitative approach with a pre-test and post-test control group design. The main analysis techniques include descriptive statistics, validity and reliability testing, paired sample t-test, ANCOVA, and structural model analysis using AMOS. The focus of this analysis is in accordance with

the research objective, which is directed toward examining the effectiveness of muhasabah reflective journaling in reducing smartphone addiction, FoMo, and anxiety among Gen Z Muslims in Palopo.

4.1.1. Respondent Characteristics

A total of 25 Gen Z Muslim respondents in Palopo participated in this study. The respondents were divided into two groups, namely the experimental group consisting of 13 participants and the control group consisting of 12 participants. The characteristics of the respondents include gender, age, educational level, duration of smartphone use, and research group.

Tabel 1. Respondent Characteristics

Karakteristik	Kategori	Frekuensi	Persentase
Jenis kelamin	Laki-laki	10	40.0%
	Perempuan	15	60.0%
Usia	16–18 tahun	8	32.0%
	19–21 tahun	12	48.0%
	22–24 tahun	5	20.0%
Jenjang pendidikan	SMA/MA	9	36.0%
	Mahasiswa	16	64.0%
Durasi penggunaan smartphone	3–5 jam/hari	6	24.0%
	6–8 jam/hari	11	44.0%
	>8 jam/hari	8	32.0%
Kelompok penelitian	Eksperimen	13	52.0%
	Kontrol	12	48.0%

Table 1 shows that the majority of respondents were female, namely 60.0%. Based on age, the largest group was in the 19–21 year age range, at 48.0%. In terms of the intensity of smartphone use, most respondents used smartphones for 6–8 hours per day, at 44.0%, followed by respondents who used smartphones for more than 8 hours per day, at 32.0%. These data indicate that the respondents had digital engagement relevant to the focus of the study.

4.1.2. Descriptive Statistics

Descriptive statistics were used to describe changes in smartphone addiction, FoMo, and anxiety scores before and after the treatment. The results of the descriptive statistics are presented in Table 2.

Tabel 2. Descriptive Statistics Pre-test dan Post-test

Karakteristik	Kategori	Frekuensi	Persentase
Jenis kelamin	Laki-laki	10	40.0%
	Perempuan	15	60.0%
Usia	16–18 tahun	8	32.0%
	19–21 tahun	12	48.0%
	22–24 tahun	5	20.0%
Jenjang pendidikan	SMA/MA	9	36.0%
	Mahasiswa	16	64.0%
Durasi penggunaan smartphone	3–5 jam/hari	6	24.0%
	6–8 jam/hari	11	44.0%
	>8 jam/hari	8	32.0%
Kelompok penelitian	Eksperimen	13	52.0%
	Kontrol	12	48.0%

Table 2 shows that the experimental group experienced a decrease in mean scores on all variables after receiving the treatment. The smartphone addiction score decreased from 78.46 to 61.23, FoMo decreased from 34.38

to 25.92, and anxiety decreased from 14.69 to 8.85. The control group also showed a decrease in scores, but with a smaller mean difference compared to the experimental group.

4.1.3. Validity and Reliability Results

Validity and reliability tests were conducted on three main instruments, namely the smartphone addiction scale, the FoMO scale, and the anxiety scale. Because the sample size was relatively small, validity testing was conducted through corrected item-total correlation and simple construct estimation. An item was declared valid if it had a loading value or corrected item-total correlation greater than 0.30. Reliability was tested using Cronbach's alpha and composite reliability.

Tabel 3. Hasil Uji Validitas dan Reliabilitas

Variabel	Jumlah Item	Rentang r-item	Loading / Cronbach's Alpha	Composite Reliability	Keterangan
Smartphone addiction	10	0.51–0.82	0.88	0.89	Valid dan reliabel
FoMO	8	0.48–0.79	0.84	0.86	Valid dan reliabel
Kecemasan	7	0.46–0.81	0.82	0.84	Valid dan reliabel

Based on Table 3, all constructs had loading values or corrected item-total correlations above 0.30. Cronbach's alpha values were in the range of 0.82–0.88, while composite reliability values were in the range of 0.84–0.89. Thus, all instruments met the validity and reliability criteria for use in further statistical analysis.

4.1.4. Assumption Testing

Before hypothesis testing was conducted, the data were tested using the Shapiro–Wilk test for normality and Levene's test for homogeneity of variance. The results of the assumption tests are presented in Table 4.

Tabel 4. Hasil Uji Normalitas dan Homogenitas

Variabel	Kelompok	Shapiro–Wilk value	p- Levene's value	Test	p- Keterangan
Smartphone addiction	Eksperimen–Kontrol	0.118	0.421		Memenuhi asumsi
FoMO	Eksperimen–Kontrol	0.096	0.386		Memenuhi asumsi
Kecemasan	Eksperimen–Kontrol	0.134	0.447		Memenuhi asumsi

The results of the assumption tests showed that all variables had Shapiro–Wilk p-values > 0.05 and Levene's test p-values > 0.05. Thus, the data met the assumptions of normality and homogeneity, so parametric analysis could be used.

4.1.5. Pre-test and Post-test Analysis

Pre-test and post-test analysis was conducted using a paired sample t-test to examine changes in scores within each group. The results of the analysis are presented in Table 5.

Tabel 5. Paired Sample t-test

Variabel	Kelompok	Mean Pre-test	Mean Post-test	t-value	p-value	Cohen's d	Keterangan
Smartphone addiction	Eksperimen	78.46	61.23	6.84	<0.001	1.90	Signifikan
	Kontrol	76.92	73.58	1.41	0.186	0.41	Tidak signifikan
FoMO	Eksperimen	34.38	25.92	5.97	<0.001	1.66	Signifikan

Variabel	Kelompok	Mean Pre-test	Mean Post-test	t-value	p-value	Cohen's d	Keterangan
Kecemasan	Kontrol	33.75	32.17	0.94	0.367	0.27	Tidak signifikan
	Eksperimen	14.69	8.85	5.42	<0.001	1.50	Signifikan
Smartphone addiction	Kontrol	14.25	13.08	0.88	0.398	0.25	Tidak signifikan
	Eksperimen	78.46	61.23	6.84	<0.001	1.90	Signifikan
FoMO	Kontrol	76.92	73.58	1.41	0.186	0.41	Tidak signifikan
	Eksperimen	34.38	25.92	5.97	<0.001	1.66	Signifikan
Kecemasan	Kontrol	33.75	32.17	0.94	0.367	0.27	Tidak signifikan
	Eksperimen	14.69	8.85	5.42	<0.001	1.50	Signifikan
	Kontrol	14.25	13.08	0.88	0.398	0.25	Tidak signifikan

Table 5 shows that the experimental group experienced a significant decrease in scores on all variables. The smartphone addiction score decreased significantly, $t = 6.84$, $p < 0.001$, with a large effect size, $d = 1.90$. FoMo also decreased significantly, $t = 5.97$, $p < 0.001$, $d = 1.66$. Anxiety decreased significantly, $t = 5.42$, $p < 0.001$, $d = 1.50$. In contrast, the control group did not show significant changes in the three variables because all p-values were > 0.05 .

4.1.6. ANCOVA Results

ANCOVA was used to examine differences in post-test scores between the experimental group and the control group after controlling for pre-test scores. This analysis was used to estimate the treatment effect more accurately.

Tabel 6. ANCOVA Pengaruh Treatment terhadap Variabel Dependen

Variabel Dependen	Source	F-value	p-value	Partial Squared	Eta 95% Difference	CI	Mean	Keterangan
Smartphone addiction	Group	18.72	<0.001	0.46	-17.91 to -6.82			Signifikan
FoMO	Group	14.38	0.001	0.40	-10.72 to -3.14			Signifikan
Kecemasan	Group	12.95	0.002	0.37	-7.23 to -2.11			Signifikan

The ANCOVA results showed that there were significant differences between the experimental group and the control group in post-test scores after pre-test scores were controlled. The treatment had a significant effect on smartphone addiction, $F = 18.72$, $p < 0.001$, partial $\eta^2 = 0.46$. The treatment also had a significant effect on FoMo, $F = 14.38$, $p = 0.001$, partial $\eta^2 = 0.40$, and anxiety, $F = 12.95$, $p = 0.002$, partial $\eta^2 = 0.37$. The partial eta squared values indicate large effect sizes on all three dependent variables.

4.1.7. Hypothesis Testing

Tabel 7. Hypothesis Testing

Hipotesis	Pernyataan Hipotesis	Statistik Utama	p-value	Keputusan
H1	Muhasabah reflective journaling berpengaruh signifikan dalam menurunkan smartphone addiction	$F = 18.72$; $\beta = -0.62$	<0.001	Diterima

Hipotesis	Pernyataan Hipotesis	Statistik Utama	p-value	Keputusan
H2	Muhasabah reflective journaling berpengaruh signifikan dalam menurunkan FoMO	$F = 14.38; \beta = -0.55$	0.001	Diterima
H3	Muhasabah reflective journaling berpengaruh signifikan dalam menurunkan kecemasan	$F = 12.95; \beta = -0.51$	0.002	Diterima
H4	Penurunan FoMO memediasi pengaruh treatment terhadap penurunan smartphone addiction	$\beta \text{ indirect} = 0.21$	0.018	Diterima
H5	Penurunan kecemasan memediasi pengaruh treatment terhadap penurunan smartphone addiction	$\beta \text{ indirect} = 0.17$	0.031	Diterima

Table 7 shows that all statistically tested hypotheses were accepted. H1, H2, and H3 were supported by the ANCOVA results and structural model results, which showed a significant effect of the treatment on reducing smartphone addiction, FoMO, and anxiety. H4 and H5 were supported by the mediation analysis results, which showed that FoMO and anxiety served as mediators in the relationship between the treatment and the reduction of smartphone addiction.

4.2. Discussion

The main findings of this study show that muhasabah reflective journaling has a significant effect on reducing smartphone addiction, FoMO, and anxiety among Gen Z Muslims in Palopo. These findings indicate that an Islamic counseling intervention based on Sufi therapy can work not only as an individual spiritual practice, but also as a structured psychological strategy to interrupt patterns of compulsive digital behavior. In this research manuscript, muhasabah is positioned as a reflective technique that connects self-awareness, spiritual accountability, emotion regulation, and behavioral commitment in the management of digital behavior; therefore, the results of this study strengthen the conceptual assumption that digital behavior change requires not only external restrictions, but also a process of self-evaluation that touches cognitive, affective, moral, and spiritual aspects.

The decrease in smartphone addiction after the treatment shows that muhasabah reflective journaling is able to reduce patterns of excessive and difficult-to-control smartphone use. From the perspective of the I-PACE model, addictive behavior is formed through the interaction between personal factors, affective responses, cognitive processes, and weak executive functions (Brand et al., 2019). This result supports previous studies that emphasize that problematic smartphone use is not merely caused by the duration of device use, but by a combination of emotional impulses, automatic habits, the need for psychological compensation, and weak self-control (Busch & McCarthy, 2021; Sohn et al., 2019). Thus, muhasabah reflective journaling can be understood as an intervention mechanism that helps participants identify triggers of smartphone use, evaluate the consequences of behavior, and build a commitment to change based on spiritual awareness. Systematic research on problematic smartphone use also shows that this phenomenon is related to impaired daily functioning and psychological symptoms, so interventions that target users' internal mechanisms become more relevant than technological restrictions alone.

The finding regarding the decrease in FoMO has important theoretical significance. FoMO is a psychological mechanism that drives individuals to continuously check social media, instant messages, and digital updates because they fear missing out on other people's social experiences. The meta-analysis by Zhang et al. (2023) shows that FoMO has a strong positive relationship with mobile phone addiction, while Fioravanti et al. (2021) and Tandon et al. (2021) show that FoMO is an important construct in explaining problematic social media use. In this study, the decrease in FoMO after the treatment indicates that muhasabah reflective journaling not only reduces smartphone use behavior, but also changes the way participants interpret digital connectedness. Participants are directed to review the need for social validation, self-comparison, and anxiety about missing information through more focused spiritual reflection. This result supports previous studies that position FoMO as an important mediator in the relationship between social identity, social media use, and problematic smartphone behavior (Servidio et al., 2022; Li et al., 2022).

More deeply, the relationship between FoMO and smartphone addiction can be explained through basic psychological needs. Liu et al. (2024) emphasize that FoMO can emerge when individuals' psychological needs are not fulfilled, so smartphones become a quick channel for obtaining social connection, information, and recognition. In this study, muhasabah reflective journaling appears to shift participants' orientation from dependence on external validation toward internal self-evaluation based on spiritual values. In other words, this intervention not only suppresses the intensity of smartphone use, but also challenges the assumption that continuous digital connectedness is a need that must be immediately fulfilled. Empirical evidence suggests that this kind of change is important because FoMO does not stand alone, but is often connected to depression, loneliness, social comparison, low self-esteem, and problematic social media use (Tandon et al., 2022; Zhang et al., 2025).

The decrease in anxiety in the experimental group shows that muhasabah reflective journaling also works at the affective level. This result can be explained through two mechanisms. First, the journaling process provides space for participants to externalize worries and organize emotional experiences more consciously. Second, the dimension of muhasabah provides a spiritual framework that encourages participants to assess anxiety not merely as psychological pressure, but as an inner experience that can be managed through patience, tawakal, prayer, and commitment to self-improvement. This result supports previous studies showing that anxiety and frequency of smartphone use mediate the relationship between adolescent stress and problematic smartphone use (Yang et al., 2022). Noh and Shim (2024) also found that anxiety is an important predictor of smartphone overdependence among adolescents, while Kabadayi (2024) showed that the profile of smartphone addiction among adolescents is related to depression, distress, loneliness, and sleep disturbances.

This finding shows that smartphone addiction, FoMO, and anxiety cannot be treated as psychologically separate variables. The three form a mutually reinforcing cycle: anxiety drives individuals to seek comfort through smartphones; FoMO strengthens the need to remain connected; and compulsive smartphone use then maintains or even increases anxiety. Within the I-PACE framework, this cycle shows the interaction between affect, cognition, and execution. Muhasabah reflective journaling functions as a mechanism to break this cycle because participants are trained to recognize affective impulses, evaluate automatic thoughts, and build more conscious behavioral responses. Thus, digital self-regulation remains relevant as a theoretical mechanism that explains how the intervention works, but it is not treated as the main outcome variable statistically tested in this study.

From an intervention perspective, the results of this study are also consistent with the literature on journaling as a mental health strategy. Sohal et al. (2022) show that journaling has potential as an additional intervention in the management of mental health problems, although its effectiveness depends on structure, duration, and quality of reflection. MacIsaac et al. (2023) also found that application-based journaling can be associated with improved psychological well-being when self-reflection is directed adaptively and does not turn into rumination. In this study, muhasabah gives spiritual direction to the practice of journaling, so that reflection does not stop at emotional expression, but moves toward self-evaluation, acknowledgment of mistakes, repentance, patience, gratitude, tawakal, and commitment to behavioral change. Therefore, muhasabah reflective journaling can be positioned as a form of structured spiritual self-reflection that integrates modern reflective techniques and Sufi therapy.

The results of this study also support the development of studies on Islam-based interventions in mental health. Saged et al. (2022) found that Islam-based interventions can reduce depression and anxiety among Muslim patients, while Wijayanti et al. (2025) showed that the combination of dhikr and salawat was effective in reducing anxiety and improving sleep quality among hemodialysis patients. This result supports those previous studies, but expands the context of application from clinical and medical populations to digital psychological problems among Gen Z Muslims. Thus, the contribution of this study lies in the expansion of Sufi therapy to contemporary issues that have not been widely addressed, namely smartphone addiction and FoMO. This is important because previous studies on Sufi therapy have more often focused on dhikr, prayer, salawat, or spiritual rehabilitation, while muhasabah as a reflective counseling technique remains relatively underexplored empirically.

5. CONCLUSION

Based on the research objectives above, it can be concluded that muhasabah reflective journaling as an Islamic counseling technique based on Sufi therapy has proven effective in reducing smartphone addiction, Fear of Missing Out (FoMO), and anxiety among Gen Z Muslims in Palopo. This finding answers the main focus of the article, which is directed toward examining the effectiveness of muhasabah as an Islamic counseling intervention that is not only spiritual in nature, but also structured, measurable, and relevant to the digital mental health problems of the younger generation.

First, regarding the research problem concerning the effect of muhasabah reflective journaling on smartphone addiction, the results of the study show that participants in the experimental group experienced a decrease in the level of problematic smartphone use after participating in the treatment. This indicates that muhasabah can help individuals recognize compulsive patterns of smartphone use, evaluate the consequences of digital behavior, and build a commitment to use smartphones more consciously and in a more controlled manner.

Second, regarding the research problem concerning the effect of muhasabah reflective journaling on FoMO, this study concludes that the intervention is able to reduce participants' anxiety about the possibility of missing information, social experiences, or digital activities. The reflection process through muhasabah enables participants to review the need for social validation, limit self-comparison on social media, and develop a more stable self-orientation based on spiritual awareness.

Third, regarding the research problem concerning the effect of muhasabah reflective journaling on anxiety, the results of the study show that this intervention is effective in helping participants manage emotional tension. Muhasabah combined with reflective journaling provides space for participants to identify sources of anxiety, write down inner experiences in a directed manner, and relate emotion management to Sufi values such as patience, gratitude, tawakal, and repentance.

Fourth, regarding the relationship between variables, this study concludes that FoMO and anxiety serve as important mechanisms in explaining smartphone addiction. The reduction in FoMO and anxiety contributes to the reduction of problematic smartphone use. Thus, smartphone addiction among Gen Z Muslims cannot be understood merely as a matter of device use duration, but also as a psychological phenomenon influenced by the need for social connectedness, fear of missing out, anxiety, and weak self-control.

6. RECOMMENDATIONS AND POLICY IMPLICATIONS

Based on the research findings, muhasabah reflective journaling is recommended as an Islamic counseling intervention model based on Sufi therapy that can be used by BK teachers, campus counselors, religious counselors, youth mentors, schools, madrasahs, higher education institutions, pesantren, and Islamic youth communities to help reduce smartphone addiction, FoMO, and anxiety among Gen Z Muslims. This intervention should be implemented systematically through the identification of problematic digital behavior, reflection on the triggers of FoMO and anxiety, writing muhasabah journals, integrating the values of patience, gratitude, tawakal, and repentance, as well as formulating commitments to digital behavioral change. However, its implementation needs to be carried out supportively and professionally so that muhasabah does not turn into a practice of self-blame, but becomes constructive reflection that strengthens self-awareness, emotion regulation, spiritual responsibility, and control over digital behavior.

At the policy level, local governments, education offices, the Ministry of Religious Affairs, higher education institutions, and Islamic educational institutions need to develop evidence-based digital mental health programs that are culturally sensitive and spiritually relevant. Such policies can be realized through training for BK teachers and campus counselors, the preparation of a muhasabah reflective journaling intervention manual, initial screening of the risks of smartphone addiction, FoMO, and anxiety, as well as collaboration among schools, campuses, community health centers, religious institutions, and youth communities. For future research, the use of larger samples, randomized controlled trial designs, follow-up measurements, and objective data on smartphone use such as screen time logs is recommended so that the effectiveness of the intervention can be tested more strongly and sustainably.

7. LIMITATIONS AND FUTURE RESEARCH

This study has several limitations that should be acknowledged. First, the sample size was relatively small, involving only 25 Gen Z Muslim participants in Palopo, which limits the generalizability of the findings to broader populations. Second, although the study used an experimental approach with an experimental group and a control group, the research context may not fully meet the requirements of a strict randomized controlled trial; therefore, causal claims should be interpreted cautiously. Third, the measurement relied primarily on self-report instruments, which may be influenced by social desirability bias, especially because the intervention involved Islamic values and spiritual reflection. Fourth, the study only measured short-term changes through pre-test and post-test analysis, so it cannot confirm whether the effects of muhasabah reflective journaling are sustained over time. Fifth, digital self-regulation was discussed only as a theoretical mechanism and was not tested statistically as a mediating or outcome variable.

Future research should address these limitations by involving larger and more diverse samples from different educational, regional, and socio-cultural contexts. Subsequent studies are recommended to use a more rigorous randomized controlled trial design, include follow-up measurements, and incorporate objective digital behavior data such as screen time logs, frequency of app checking, or duration of social media use. Future studies may also test digital self-regulation, religious coping, spiritual well-being, self-control, or emotion regulation as mediating variables to explain how muhasabah reflective journaling reduces smartphone addiction, FoMo, and anxiety. In addition, mixed-method research is recommended to explore participants' subjective experiences in practicing muhasabah, particularly how values such as sabar, syukur, tawakal, and taubat shape behavioral change in digital life.

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