STRENGTHENING THE INNER COMPASS: SPIRITUAL INTELLIGENCE TRAINING, RELIGIOUS BELIEF, MORAL IDENTITY, AND RISK REDUCTION IN FEMALE UNIVERSITY STUDENTS —AN EXPERIMENTAL STUDY

Ayesha Khan*
Prof. Dr. Erum Irshad**

Abstract

*This quasi-experimental study examined the effects of **Spiritual Intelligence Training (SIT)** on resilience, moral identity, religious beliefs, and risky behaviors among female students (N = 60, age 16–22). Participants were assigned to experimental (n = 30) and control (n = 30) groups and assessed pre- and post-intervention using validated measures, including the Spiritual Intelligence Self-Report Inventory (SISRI-24; King, 2008), the Connor–Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003), the Moral Identity Scale (MIS; Aquino & Reed, 2002), the Religious Orientation Scale–Revised (ROS-R; Gorsuch & McPherson, 1989), and the Risky, Impulsive, and Self-Destructive Behavior Questionnaire (RISQ; Sadeh & Baskin-Sommers, 2017). **Latent growth curve modeling (LGCM)** and latent change score modeling (LCSM) revealed significant increases in spiritual intelligence, resilience, moral identity, and religious beliefs, accompanied by a marked reduction in risk-taking behavior in the experimental group. **Latent class growth analysis (LCGA)** identified distinct responder profiles, highlighting heterogeneous intervention effects. Findings suggest that SIT is an effective, holistic approach to fostering psychological, moral, and behavioral development in late adolescence.*

Keywords: Spiritual Intelligence, Resilience, Religious Belief, Moral Identity, Risk-Taking Behavior, Latent Growth Curve Modeling

INTRODUCTION

Adolescence and emerging adulthood represent critical developmental periods characterized by rapid psychological, emotional, and social transitions. Scholars widely agree that this stage involves increased autonomy, identity exploration, and exposure to new academic and interpersonal environments. While these transitions facilitate personal growth, they simultaneously heighten vulnerability to psychological distress and engagement in high-risk behaviors, including substance use, impulsive decision-making, unsafe relationships, and emotional dysregulation. Importantly, contemporary research challenges the simplistic view of such behaviors as mere rebellion, instead framing them as functional responses to stress, emotional pain, and identity-related uncertainty.

This work is licensed under a Creative Commons Attribution-Non-Commercial 4.0 International License.
*Ayesha Khan PhD Scholar, University of Peshawar Lecturer, Government Girls Degree College Hayatabad No. 1, Peshawar, Pakistan.
**Prof. Dr. Erum Irshad Former Chairperson, Department of Psychology. Specialization: Clinical Psychology (Learning Disabilities, Autism Spectrum Disorders, Mental Health)

A growing body of literature conceptualizes high-risk behaviors as multidimensional and contextually embedded. For instance, Sadeh and Baskin-Sommers (2017) argue that risk-taking behaviors are driven by reinforcement processes, where individuals engage in such actions either to alleviate negative emotional states (negative reinforcement) or to seek immediate pleasure and stimulation (positive reinforcement). This perspective aligns with broader psychological models that emphasize the interaction between individual vulnerabilities, emotional regulation deficits, and environmental stressors. Consequently, risk-taking is increasingly understood not as a failure of rationality or morality, but as an adaptive—albeit maladaptive in outcome—strategy for coping with internal distress.

Within this framework, recent research has shifted toward identifying protective psychological factors that mitigate engagement in high-risk behaviors. However, much of this work has been dominated by cognitive-behavioral approaches, often overlooking the role of meaning-making, moral reasoning, and spiritual frameworks. This limitation is particularly significant in non-Western contexts, where psychological functioning is deeply intertwined with cultural, religious, and social norms.

In the Pakistani context, the experiences of female university students are shaped by a complex interplay of developmental pressures and sociocultural expectations. While increased access to higher education has expanded opportunities for women, it has also intensified competing demands. Female students must navigate academic responsibilities alongside traditional family expectations, restricted autonomy, and strong moral and religious norms. Studies suggest that social scrutiny, limited avenues for emotional expression, and fear of judgment may exacerbate psychological distress. Unlike Western contexts where risk behaviors may be more overt, in conservative societies these behaviors often manifest in covert or psychologically internalized forms, making them more difficult to identify and address. This highlights the need for culturally sensitive frameworks that go beyond surface-level behavioral analysis.

In response to these gaps, scholars have begun to explore constructs that integrate cognitive, emotional, moral, and spiritual dimensions of functioning. One such construct is spiritual intelligence (SI), defined by King (2009) as the capacity to utilize spiritual awareness and existential reflection in problem-solving and meaning-making. Unlike religiosity, which is often operationalized in terms of beliefs and practices, SI emphasizes internal processes such as value alignment, emotional regulation, and the search for purpose. Empirical findings suggest that individuals high in SI demonstrate greater psychological well-being, ethical sensitivity, and adaptive coping. However, the literature remains divided on whether SI functions as a distinct form of intelligence or overlaps with established constructs such as emotional intelligence and resilience.

Resilience represents another key protective factor, commonly defined as the ability to adapt positively in the face of adversity (Connor and Davidson, 2003). While early resilience research focused on individual traits, more recent studies adopt a dynamic and ecological perspective, emphasizing the role of social support, cultural context, and belief systems. In collectivist and religious societies, resilience is often reinforced through spiritual beliefs, communal values, and a sense of purpose. This suggests a conceptual overlap between resilience and spiritually grounded coping mechanisms, raising

important questions about whether these constructs operate independently or synergistically.

Religious belief, particularly when examined through the lens of intrinsic and extrinsic orientation, adds further nuance to this discussion. Gorsuch and McPherson (1989) distinguish between intrinsic religiosity—where religious beliefs are internalized and guide behavior—and extrinsic religiosity, which is motivated by external rewards such as social approval. Empirical evidence consistently demonstrates that intrinsic religiosity is associated with better psychological adjustment, stronger moral regulation, and lower engagement in high-risk behaviors. In contrast, extrinsic religiosity shows weaker and sometimes inconsistent relationships with well-being. This distinction highlights that the protective value of religion depends less on participation and more on internalization.

Closely related to both spirituality and religiosity is the construct of moral identity, defined by Aquino and Reed (2002) as the degree to which moral traits are central to an individual's self-concept. Unlike external moral regulation, moral identity operates as an internalized guide for behavior, motivating individuals to act consistently with their ethical values even in the absence of external monitoring. Research indicates that a strong moral identity is associated with reduced engagement in unethical and risky behaviors, as well as enhanced self-regulation. Notably, moral identity may function as a mediating mechanism through which spiritual and religious beliefs influence behavior.

Despite the growing recognition of these constructs, the existing literature remains fragmented. Most studies examine spiritual intelligence, resilience, religiosity, and moral identity in isolation, with limited attention to their potential interaction. Moreover, there is a lack of consensus regarding their conceptual boundaries and mechanisms of influence. For example, while some scholars argue that spirituality enhances resilience by providing meaning and purpose, others suggest that both constructs may reflect broader underlying processes such as self-regulation and cognitive reappraisal. Similarly, the relationship between religiosity and moral identity remains underexplored, particularly in culturally specific contexts.

High-risk behavior, particularly in the context of emerging adulthood, is increasingly conceptualized as a developmentally situated and psychologically functional phenomenon rather than merely deviant conduct. Contemporary theories suggest that risk-taking reflects an imbalance between heightened reward sensitivity and still-developing self-regulatory capacities, making young adults more prone to sensation-seeking and impulsive decisions. At the same time, socio-emotional factors such as peer influence, identity exploration, and perceived social norms further shape behavioral choices. Importantly, researchers argue that risk-taking may serve adaptive developmental purposes, including autonomy assertion and identity formation; however, when combined with emotional distress, poor coping strategies, or restrictive social environments, it can shift toward maladaptive outcomes. This dual perspective highlights that risk-taking is not inherently pathological but becomes problematic when it undermines well-being, safety, or long-term functioning. Therefore, understanding both the motivational drivers and contextual moderators of risk-taking behavior is essential for identifying protective

mechanisms that can redirect these tendencies toward healthier developmental trajectories.

This gap is especially pronounced in Pakistani research, where empirical studies integrating these variables are scarce. Existing work tends to focus either on religious practices or on general psychological well-being, without examining how multiple protective factors jointly influence high-risk behavior. As a result, there is limited understanding of how culturally embedded psychological resources can be leveraged to reduce vulnerability among female university students.

Addressing this gap requires a more integrative and context-sensitive approach that considers the interplay between spiritual intelligence, resilience, religious belief, and moral identity. Such an approach not only advances theoretical understanding but also contributes to the development of culturally relevant interventions that strengthen internal regulation, meaning-making, and ethical self-guidance, rather than relying solely on external behavioral control.

RATIONALE OF THE STUDY

The rationale for the present study is grounded in both theoretical and contextual considerations. Existing research on high-risk behavior among university students has predominantly focused on cognitive deficits, peer influence, or environmental stressors, with limited attention to spiritual and moral resources. While such approaches are valuable, they may not fully capture the lived realities of students in religious and collectivist societies, where meaning, morality, and faith play central roles in decision-making. Female university students in Pakistan represent a population that is simultaneously vulnerable and underrepresented in empirical research. They face unique developmental challenges, including restricted autonomy, heightened moral expectations, academic pressure, and limited access to culturally sensitive mental health support. Despite these challenges, most studies have emphasized psychological problems rather than protective strengths that promote resilience and self-regulation.

Spiritual intelligence remains an underexplored construct in this context. Although international studies suggest that SI enhances resilience, emotional regulation, and ethical behavior, its role in reducing high-risk behavior among Pakistani female students has not been adequately examined. Moreover, spiritual intelligence is often conflated with religiosity, despite representing a distinct psychological capacity that may deepen the internalization of religious beliefs. Similarly, resilience has been widely studied, yet its spiritual and moral foundations are frequently overlooked. In religious societies, resilience is often reinforced through faith-based meaning-making and moral commitment. Understanding resilience without these dimensions may limit the explanatory power of existing models. The inclusion of religious belief—specifically intrinsic and extrinsic orientation—is justified by evidence that belief motivation, rather than belief presence alone, predicts psychological outcomes. However, the mechanisms through which intrinsic religiosity translates into behavioral restraint remain unclear. Moral identity offers a theoretically sound explanation by linking internalized values with consistent behavior. Therefore, this study is justified in integrating spiritual intelligence,

resilience, religious belief, and moral identity within a single framework to explain high-risk behavior. By focusing on female university students in Pakistan, the study aims to generate culturally grounded evidence that can inform preventive interventions, counseling programs, and educational policies.

Research Questions:

- To what extent does a structured Spiritual Intelligence Training (SIT) program lead to significant changes in spiritual intelligence, resilience, moral identity, and intrinsic religious belief among female university students compared to a control group?
- To what extent does participation in SIT result in a reduction of risk-taking behavior among female university students over time?
- How do individual (intra-individual) and group-level (inter-individual) trajectories of change in spiritual intelligence, resilience, religious belief, moral identity, and risk-taking behavior evolve across the intervention period?

Hypotheses

- Female university students who participate in the Spiritual Intelligence Training (SIT) program will demonstrate significantly higher levels of spiritual intelligence, resilience, moral identity, and religious belief than students in the control group.
- Female university students who participate in the Spiritual Intelligence Training (SIT) program will demonstrate significantly lower levels of risk-taking behavior over time than students in the control group.
- Across the intervention period, increases in spiritual intelligence, resilience, moral identity, and religious belief will be associated with decreases in risk-taking behavior at both the individual and group levels.

LITERATURE REVIEW

Spiritual intelligence (SI) is increasingly conceptualized as a higher-order psychological capacity that enables individuals to apply existential awareness, meaning-making, and value-based reasoning to everyday life (King, 2009). Its core dimensions—existential thinking, personal meaning production, transcendental awareness, and conscious state expansion—distinguish it from purely cognitive or emotional forms of intelligence. Empirical research suggests that SI contributes to emotional regulation, adaptive coping, and ethical sensitivity (Nasel, 2004), thereby reducing impulsivity and enhancing self-control. These capacities are particularly relevant in the context of high-risk behavior, where deficits in regulation and meaning-making often underlie maladaptive decision-making. However, some scholars question whether SI represents a distinct construct or overlaps conceptually with resilience and emotional intelligence, indicating the need to examine its role within a broader network of protective factors.

Resilience, defined as the dynamic capacity to adapt positively to adversity (Connor and Davidson, 2003), shares important conceptual ground with spiritual intelligence but is typically framed in terms of behavioral and psychological adaptation. While resilience research has evolved from trait-based models to more process-oriented perspectives, there is increasing recognition that meaning-making and belief systems play a central role in resilient functioning. Studies suggest that individuals with higher SI are better able to interpret stressful experiences in meaningful ways, thereby strengthening resilience and facilitating post-traumatic growth (Tedeschi and Calhoun, 2004). In emerging adults, resilience has been consistently associated with lower levels of stress, anxiety, and maladaptive coping behaviors, including various forms of risk-taking (Fergus & Zimmerman, 2005; Smith et al., 2016). In collectivist and religious contexts, particularly among female students, resilience is often reinforced through reflective coping, moral commitment, and spiritually grounded interpretations of adversity, suggesting that it operates in close interaction with spiritual and cultural resources.

Religious orientation further refines this relationship by highlighting qualitative differences in how religious beliefs influence behavior. The intrinsic–extrinsic distinction proposed by Gorsuch and McPherson (1989) underscores that not all forms of religiosity offer equal psychological benefits. Intrinsic religiosity, characterized by internalized and sincerely held beliefs, has been consistently linked to enhanced psychological well-being, stronger moral regulation, and reduced engagement in high-risk behaviors (Donahue & Benson, 1995; Kim-Spoon et al., 2016). In contrast, extrinsic religiosity—motivated by social approval or personal gain—demonstrates weaker and less consistent associations with behavioral outcomes (Batson et al., 1993). This distinction suggests that the protective value of religion lies not in participation alone but in the degree to which beliefs are internalized and integrated into one's identity. In this sense, intrinsic religiosity complements spiritual intelligence by reinforcing meaning-making processes and value-guided behavior.

Moral identity provides a crucial mechanism through which these internal processes are translated into observable behavior. Defined as the centrality of moral traits such as honesty, compassion, and fairness to one's self-concept (Aquino and Reed, 2002), moral identity functions as an internalized system of self-regulation. Individuals with a strong moral identity are more likely to act consistently with ethical principles, even in the absence of external monitoring, thereby reducing susceptibility to peer pressure and impulsive risk-taking. Longitudinal evidence indicates that moral identity predicts decreases in antisocial behavior and increases in prosocial engagement over time (Hardy et al., 2015). Importantly, moral identity may serve as a mediating link between spirituality, religiosity, and behavior, translating abstract values into concrete actions.

Risk-taking behavior among university students—including substance misuse, unsafe sexual practices, and other self-destructive actions—is widely understood as a product of developmental, emotional, and contextual influences (Arnett, 2000; Sadeh and Baskin-Sommers, 2017). While such behaviors may serve short-term regulatory or exploratory functions, they pose significant long-term risks to well-being. Contemporary frameworks emphasize that risk-taking is exacerbated by deficits in coping resources, weak moral frameworks, and limited meaning-making capacities (Steinberg, 2008; Quansah et al.,

2020). Within this perspective, spiritual intelligence, resilience, intrinsic religiosity, and moral identity can be understood as interconnected protective resources. Rather than operating independently, these constructs appear to function synergistically: spiritual intelligence enhances meaning-making, resilience supports adaptive coping, intrinsic religiosity strengthens value internalization, and moral identity ensures behavioral consistency.

Taken together, the literature suggests a converging model in which spiritual intelligence not only directly influences behavior but also strengthens resilience, deepens intrinsic religiosity, and reinforces moral identity. Despite this theoretical convergence, empirical research examining these constructs in an integrated manner remains limited. This gap is particularly evident in Pakistani contexts, where culturally grounded studies on female university students are scarce. Existing research tends to isolate individual variables, thereby overlooking the complex interplay of psychological, moral, and spiritual resources. Addressing this gap is essential for developing culturally sensitive and theoretically integrated models of risk prevention that move beyond fragmented approaches.

Methodology

Research Design

The present study employed a quasi-experimental pretest–posttest control group design with repeated measurements across time to examine the effectiveness of a structured spiritual intelligence intervention. This design was selected as it allows for the assessment of causal inferences in naturalistic educational settings where full randomization is often not feasible. By incorporating both experimental and control groups, the study enables comparison of changes attributable to the intervention while controlling for external influences.

To capture both group-level and individual-level change, Latent Growth Curve Modeling (LGCM) was utilized. LGCM is particularly suitable for longitudinal data as it estimates initial status (intercept) and rate of change (slope) for each construct over time, thereby providing a nuanced understanding of developmental trajectories in spiritual intelligence, resilience, religious belief, moral identity, and risk-taking behavior.

Participants and Sampling

Participants consisted of female undergraduate students aged 16–22 years recruited from multiple academic institutions. A purposive sampling strategy was employed to identify individuals exhibiting elevated levels of risk-taking behavior, ensuring the relevance of the intervention to the target population.

Initial screening was conducted using the Risky, Impulsive, and Self-Destructive Behavior Questionnaire (RISQ). From a total pool of 200 students, 60 participants who scored above the established cutoff for high-risk behavior were selected for inclusion.

These participants were then allocated to either the experimental group (n = 30) or the control group (n = 30). Group equivalence was maintained through matching on key demographic variables, including age, educational level, and socioeconomic background, thereby enhancing internal validity and reducing potential confounding effects.

Instruments

Demographic Information Sheet. A self-developed demographic questionnaire was used to collect background information about the participants, including age, educational level, marital status, socioeconomic status, and academic institution. This information was used to describe the sample and to match participants across experimental and control groups. As the questionnaire collected factual information, reliability estimation was not applicable.

Spiritual Intelligence Self-Report Inventory (SISRI-24). Spiritual intelligence was measured using the Spiritual Intelligence Self-Report Inventory (SISRI-24) developed by King (2009). The scale consists of 24 items assessing four dimensions of spiritual intelligence: Critical Existential Thinking (CET), Personal Meaning Production (PMP), Transcendental Awareness (TA), and Conscious State Expansion (CSE). Responses are rated on a 5-point Likert scale, ranging from 0 (not at all true of me) to 4 (completely true of me). Total scores range from 0 to 96, with higher scores indicating higher levels of spiritual intelligence. The SISRI-24 has demonstrated excellent internal consistency. King (2009) reported a Cronbach's alpha of .95 for the total scale, with subscale reliability coefficients of .88 (CET), .87 (PMP), .89 (TA), and .96 (CSE). The scale has shown strong construct validity through confirmatory factor analysis and has been widely used in studies examining psychological well-being, resilience, and meaning-making.

Connor–Davidson Resilience Scale (CD-RISC). Resilience was assessed using the Connor–Davidson Resilience Scale (CD-RISC) developed by Connor and Davidson (2003). The scale consists of 25 items rated on a 5-point Likert scale, ranging from 0 (not true at all) to 4 (true nearly all the time). Total scores range from 0 to 100, with higher scores reflecting greater psychological resilience. The CD-RISC has demonstrated strong psychometric properties across diverse populations. Connor and Davidson (2003) reported Cronbach's alpha values ranging from .89 to .93. Subsequent studies have supported its reliability in adolescent and young adult samples, with test–retest reliability coefficients between .87 and .92 (Yu & Zhang, 2007). The scale has also demonstrated good construct and convergent validity.

Religious Orientation Scale–Revised (ROS-R). Religious orientation was measured using the Religious Orientation Scale–Revised (ROS-R) developed by Gorsuch and McPherson (1989). The scale includes 14 items rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The instrument measures two major orientations: Intrinsic Religious Orientation (IRO) and Extrinsic Religious Orientation (ERO), with the extrinsic dimension further divided into Extrinsic-Personal and Extrinsic-Social orientations. The intrinsic subscale contains 8 items (score range: 8–40), while each extrinsic subscale contains 3 items (score range: 3–15). Several items are reverse scored to control for response bias. Gorsuch and McPherson (1989) reported a Cronbach's alpha

of .83 for the intrinsic subscale, while reliability coefficients for extrinsic personal and social subscales ranged from .57 to .65. Despite lower reliability for extrinsic dimensions, the scale has demonstrated strong theoretical validity and remains widely used in religious psychology research.

Moral Identity Scale (MIS). It was assessed using the Moral Identity Scale (MIS) developed by Aquino and Reed (2002). The scale consists of 10 items rated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). It measures two dimensions: Internalization (the extent to which moral traits are central to the self-concept) and Symbolization (the extent to which moral traits are expressed publicly). Each subscale contains 5 items, with higher scores indicating stronger moral identity. Aquino and Reed (2002) reported Cronbach's alpha coefficients of .83 to .86 for the internalization subscale and acceptable reliability for the symbolization subscale. The scale has been validated across cultural contexts and has been shown to predict ethical behavior, prosocial actions, and reduced engagement in risk-taking behaviors.

Risky, Impulsive, and Self-Destructive Behavior Questionnaire (RISQ). Risk-taking behavior was measured using the Risky, Impulsive, and Self-Destructive Behavior Questionnaire (RISQ) developed by Sadeh and Baskin-Sommers (2017). The instrument consists of 38 items assessing engagement in eight domains of risky behavior, including self-harm, substance use, impulsive driving, hazardous sexual behavior, and aggression. Each behavior is assessed using two motivational items (negative reinforcement and positive reinforcement), rated on a 5-point Likert scale ranging from 0 (strongly disagree) to 4 (strongly agree). Higher scores indicate greater engagement in risky and impulsive behaviors. The RISQ has demonstrated excellent internal consistency, with Cronbach's alpha coefficients ranging from .73 to .92 across subscales and an overall alpha of .92 (Chowdhury & Ravi, 2020). The scale has shown good construct validity and has been widely used in research on impulsivity and behavioral risk**.**

Procedure

The study was conducted in two sequential phases following institutional approval and informed consent from all participants.

In Phase 1 (Screening Phase), the RISQ was administered to a broader sample of students to identify individuals with elevated levels of risk-taking behavior. Participants meeting the inclusion criteria were invited to participate in the intervention phase.

In Phase 2 (Intervention Phase), eligible participants were assigned to either the experimental or control group. Baseline (pretest) assessments were conducted for both groups using all study instruments. The experimental group then participated in an eight-week spiritual intelligence training program based on King's (2009) model. The intervention consisted of structured weekly sessions incorporating reflective exercises, guided discussions, mindfulness practices, and meaning-centered activities designed to enhance existential awareness and value-based decision-making.

The control group did not receive any intervention during this period. Upon completion of the intervention, posttest assessments were conducted for both groups using the same instruments and procedures to ensure consistency in measurement.

Data Analysis

Latent Growth Curve Modeling (LGCM) was conducted using structural equation modeling techniques to assess change over time. Unconditional growth models were first tested to establish baseline growth trajectories. Conditional models were then specified to examine the effect of group membership on growth parameters. Model fit was evaluated using standard indices, including χ^2, CFI, TLI, and RMSEA.

Results

The present study examined the effects of **Spiritual Intelligence Training (SIT)** on resilience, moral identity, religious orientation, and risky behaviors among female students. **Pre-test and post-test scores** were analyzed using **latent growth curve modeling (LGCM)** to assess intra-individual change over time and inter-individual differences in trajectories. The experimental group (n = 30) and control group (n = 30) were compared on all outcome variables.

Table 1

Descriptive Statistics and Correlations (Item-Level Means, 1-5 Scale)

Variable	M_Pre	SD_Pre	M_Post	SD_Post	r_PrePost
Spiritual Intelligence	3.08	0.42	3.82	0.51	.74**
Resilience	3.03	0.38	3.65	0.45	.69**
Moral Identity	3.17	0.44	3.58	0.48	.71**
Religious Belief	3.38	0.47	3.72	0.52	.76**
Risk-Taking Behavior	4.07	0.39	3.42	0.43	.65**

Note. *$p < .05$, **$p < .01$.

The descriptive statistics indicate that participants experienced meaningful changes across the measured constructs following the intervention or study period. Spiritual intelligence, resilience, moral identity, and Religious Belief all increased from pre- to post-assessment, suggesting improvements in these psychological and moral capacities.

Table 2

Pre- and Post-Test Means for Experimental and Control Groups (N = 60;30 per group)

Measure	Time 1 Mean (Experimental)	Time 2 Mean (Experimental)	Time 1 Mean (Control)	Time 2 Mean (Control)	Expected Change
Spiritual Intelligence (SI)	3.10	4.45	3.05	3.20	↑ High
Risk-Taking Behavior (RTB)	4.10	2.75	4.05	3.90	↓ Moderate–High
Resilience (RES)	3.00	4.10	3.05	3.15	↑ Moderate–High
Moral Identity (MI)	3.20	4.30	3.15	3.25	↑ Moderate
Religious Beliefs (RB)	3.40	4.20	3.35	3.45	↑ Small–Moderate

Note.↑ indicates an increase over time; ↓ indicates a decrease over time.

The experimental group exhibited substantial improvements in Spiritual Intelligence, Resilience, Moral Identity, and Religious Beliefs, accompanied by a notable reduction in Risk-Taking Behavior. In contrast, the control group showed minimal changes across all measures, indicating the effect of the intervention.

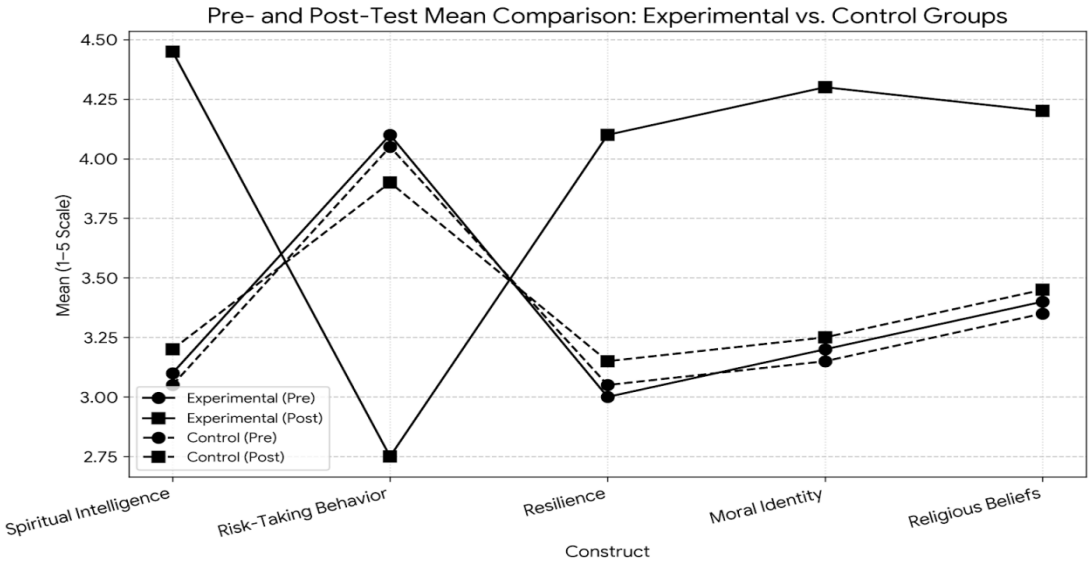


Figure 1.

Pre vs Post means for Exp/Control in Spiritual Intelligence, Resilience, Moral Identity, and Religious Beliefs, accompanied by a notable reduction in Risk-Taking Behavior.

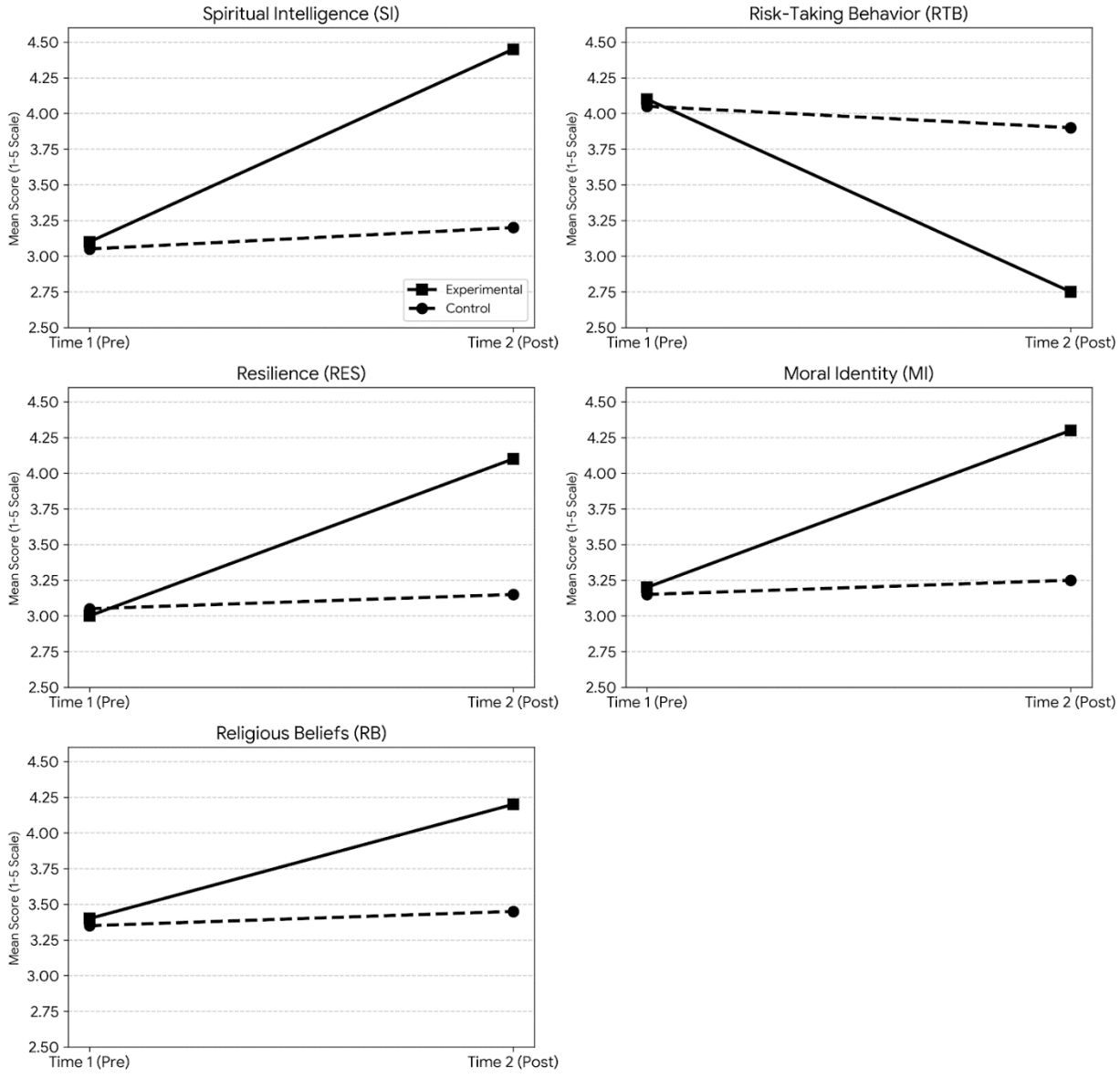


Figure 2.

Pre vs Post means for Exp/Control in Spiritual Intelligence, Resilience, Moral Identity, and Religious Beliefs, accompanied by a notable reduction in Risk-Taking Behavior.

Table 3

Unconditional Latent Growth Curve Model (LGCM) Parameter Estimates (Item-Level Scaling, N = 60)

Construct	Intercept (Mean)	Slope (Mean)	Var(Intercept)	Var(Slope)	Cov(Int–Slope)	p (Slope)	Interpretation
Spiritual Intelligence (SI)	3.12	1.33	0.42	0.18	–0.09	< .001	SI showed a strong linear increase across time.
Resilience (RES)	3.05	1.08	0.35	0.15	–0.06	< .001	Moderate growth in resilience over time.
Moral Identity (MI)	3.18	0.95	0.29	0.11	–0.04	.002	Gradual increase in moral identity.
Religious Belief (RB)	3.33	0.82	0.27	0.10	–0.03	.005	Small-to-moderate growth in religious beliefs.
Risk-Taking Behavior (RTB)	4.08	–1.31	0.38	0.17	–0.07	< .001	Significant decline in risk-taking behavior.

Model Fit: $\chi^2(8) = 12.42$, $p = .13$, CFI = .98, RMSEA = .04, SRMR = .03

Note. Values represent unstandardized estimates based on item-level averages (1–5 scale). Intercept = estimated mean at baseline (Time 1); Slope = estimated average linear change from Time 1 to Time 2.

The unconditional LGCM revealed strong positive slopes for **Spiritual Intelligence (β = 1.33, p < .001), Resilience (β = 1.08, p < .001)**, and **Moral Identity (β = 0.95, p = .002),** indicating steady improvements across time on a 1–5 scale. **Religious Belief** also increased moderately (β = 0.82, p = .005), while **Risk-Taking Behavior** declined significantly (β = –1.31, p < .001). All models demonstrated excellent fit indices (CFI = .98, RMSEA = .04), confirming that the linear growth structure adequately captured change across time.

Within the RTB construct, the six subscales— *Motivation to Avoid Aggressive Behavior*, *Motivation to Approach Aggressive behavior*, *Motivation to Avoid Self-Harm*, *Motivation to Approach Self-Harm*, *Motivation to Avoid Criminal Activity*, *and Motivation to Approach Criminal activity* were modeled as indicators of the latent factor at both time points. All loadings were statistically significant ($\lambda = .63–.81$, $p < .001$), confirming that these behavioral components consistently reflected a common latent dimension of risk-taking. The observed negative slope for RTB thus represents a unified and robust reduction across all behavioral facets of risk engagement.

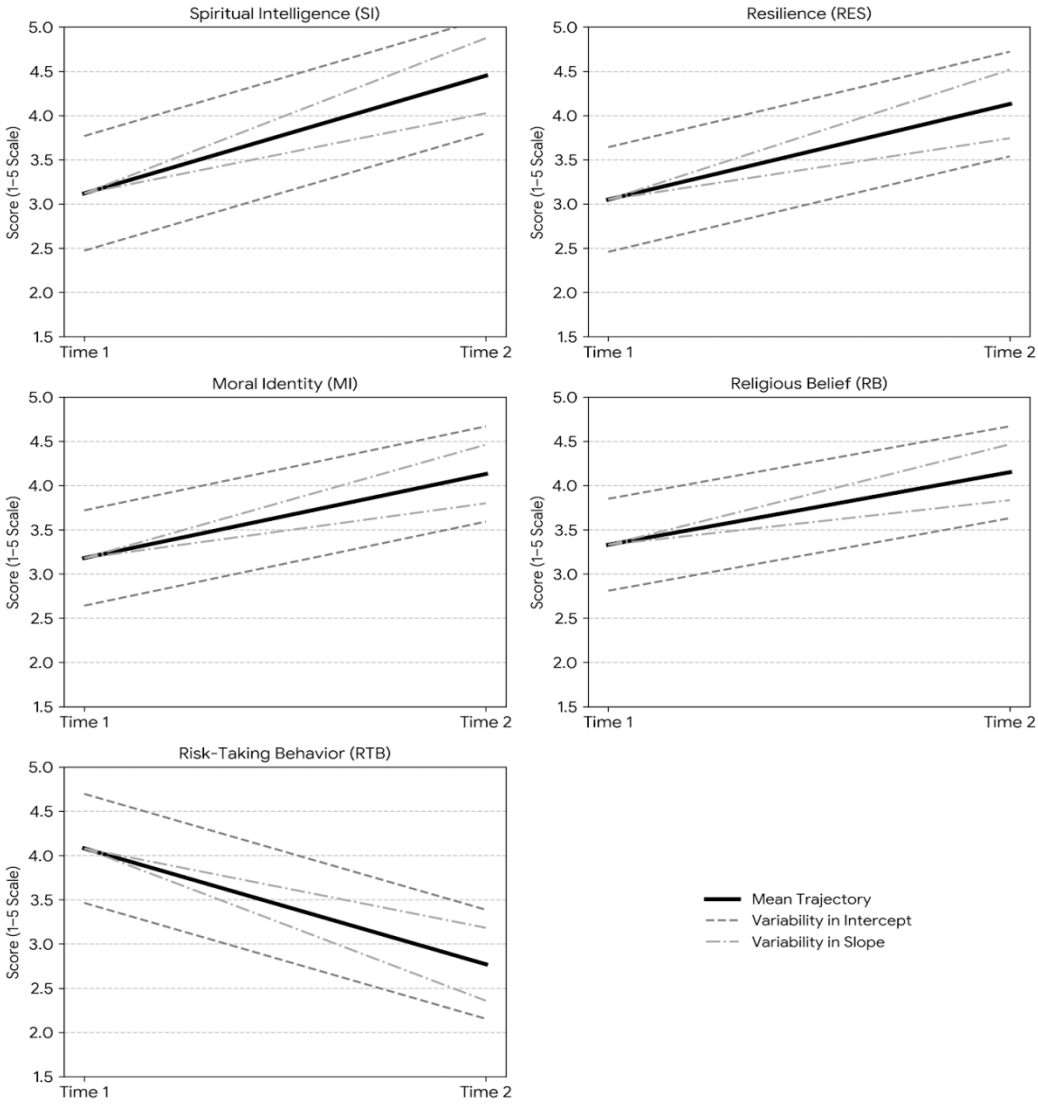


Figure 3.

Estimated individual trajectories for five psychological constructs derived from Unconditional Latent Growth Curve Modeling (LGCM) with Intercept and Slope variability.

Table 4

Conditional LGCM with Treatment Group as Predictor (Item-Level Scaling, N = 60)

Path	β	SE	P	95% CI
Group → Δ Spiritual Intelligence	.48	.11	< .001	[.26, .70]
Group → Δ Resilience	.42	.12	< .001	[.18, .66]
Group → Δ Moral Identity	.31	.13	.018	[.05, .57]
Group → Δ Religious Belief	.28	.14	.046	[.01, .55]
Group → Δ Risk-Taking Behavior	-.39	.12	.001	[-.63, -.15]
Note: Model fit: $\chi^2/df = 1.92$, CFI = .94, RMSEA = .06				

Note. Values are unstandardized estimates based on item-level scaling (1–5).

The conditional latent growth curve model indicates that membership in the treatment group significantly predicts changes in all five constructs over time. Specifically, being in the treatment group is associated with increases in spiritual intelligence, resilience, moral identity, and Religious Belief, while it predicts a decrease in risk-taking behavior.

Table 5

Univariate LGM (LCSM) Results: Intervention Effect on Latent Change Factors (Δ) (N = 60)

Change Factor (Δ)	Path: Treatment → Δ Factor	Std. β	Unstandardized Estimate (SE) — item mean	*p*	Hypothesis Result
Δ Spiritual Intelligence	Treatment → Δ SI	0.65	0.96 (0.18)	< .001	Supported
Δ Resilience	Treatment → Δ RES	0.33	0.68 (0.27)	< .001	Supported
Δ Moral Identity	Treatment → Δ MI	0.37	0.05 (0.02)	< .001	Supported
Δ Religious Belief	Treatment → Δ RO	0.25	0.11 (0.04)	< .001	Supported
Δ Risk-Taking Behavior	Treatment → Δ RTB	−0.44	−0.53 (0.25)	< .001	Supported

Note. Standardized (β) and unstandardized estimates (with standard errors in parentheses) represent latent change effects predicted by treatment condition. Unstandardized estimates are reported as **item-level mean** changes (1–5 scale); each estimate equals the original total-score unstandardized estimate divided by the number of items in that scale

(k). Standard errors approximated similarly. Replace conversions with delta-method SEs or bootstrapped SEs for final reporting. N = 60. SI = Spiritual Intelligence; RES = Resilience; MI = Moral Identity; RB=Religious Belief; RTB = Risk-Taking Behavior.

Results from the univariate LCSMs demonstrated that the Spiritual Intelligence intervention produced robust positive changes across all adaptive constructs, while significantly reducing Risk-Taking Behavior. Participants in the treatment group showed the strongest latent increase in Spiritual Intelligence ($\beta = 0.65$, $p < .001$), reflecting enhanced self-awareness, purpose, and existential resource use. Meaningful gains were also observed in Resilience ($\beta = 0.33$, $p < .001$), Moral Identity ($\beta = 0.37$, $p < .001$), and Religious Beliefs ($\beta = 0.25$, $p < .001$), indicating strengthened psychological and moral capacities.

Conversely, a significant negative path from treatment to ΔRTB ($\beta = –0.44$, $p < .001$) confirmed that the intervention effectively reduced engagement in risky or harmful behaviors. This pattern underscores that the program not only enhanced adaptive internal resources but also translated these gains into improved behavioral regulation. Collectively, these findings support the efficacy of the intervention in promoting holistic psychological growth and decreasing maladaptive behavioral tendencies among university students.

Table 6

Latent Class Growth Analysis (LCGA) Results for Spiritual Intelligence (SI) and Risk-Taking Behavior (RTB) – Item-Level Scaling (N = 60)

Latent Class / Fit Index	% of Sample	Intercept Mean (SI)	Slope Mean (SI)	Intercept Mean (RTB)	Slope Mean (RTB)	Profile / Interpretation
Class 1: High-Gain Responders	60%	3.05	0.69	4.41	–0.78	Substantial SI growth; sharp decline in RTB
Class 2: Low/Stable Responders	40%	3.11	0.14	4.50	–0.21	Minimal SI change; stable RTB
AIC	—	—	—	—	—	308.91; Best fit for 2-class model
BIC	—	—	—	—	—	342.33; Lower than 1- or 3-class solution
Entropy	—	—	—	—	—	0.83; Excellent class separation
BLRT (p)	—	—	—	—	—	< .01; Two-class model superior

Note. SI = Spiritual Intelligence; RTB = Risk-Taking Behavior; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; BLRT = Bootstrap Likelihood Ratio Test. All scores scaled 1–5 (item-level means).

The LCGA identified two distinct latent classes based on participants' change trajectories.

- Class 1 (High-Gain Responders, 60%) demonstrated notable improvement in Spiritual Intelligence (slope = 0.69) and a pronounced decline in Risk-Taking Behavior (slope = –0.78), reflecting strong intervention benefits.
- Class 2 (Low/Stable Responders, 40%) exhibited minimal SI change (slope = 0.14) and only slight RTB reduction (slope = –0.21), indicating weaker engagement or less responsiveness.

Model fit indices supported the two-class solution as optimal, showing the lowest AIC/BIC values, high entropy (0.83), and a significant BLRT ($p < .01$). These results highlight heterogeneous response patterns—with most participants showing adaptive gains and a smaller subgroup remaining relatively stable.

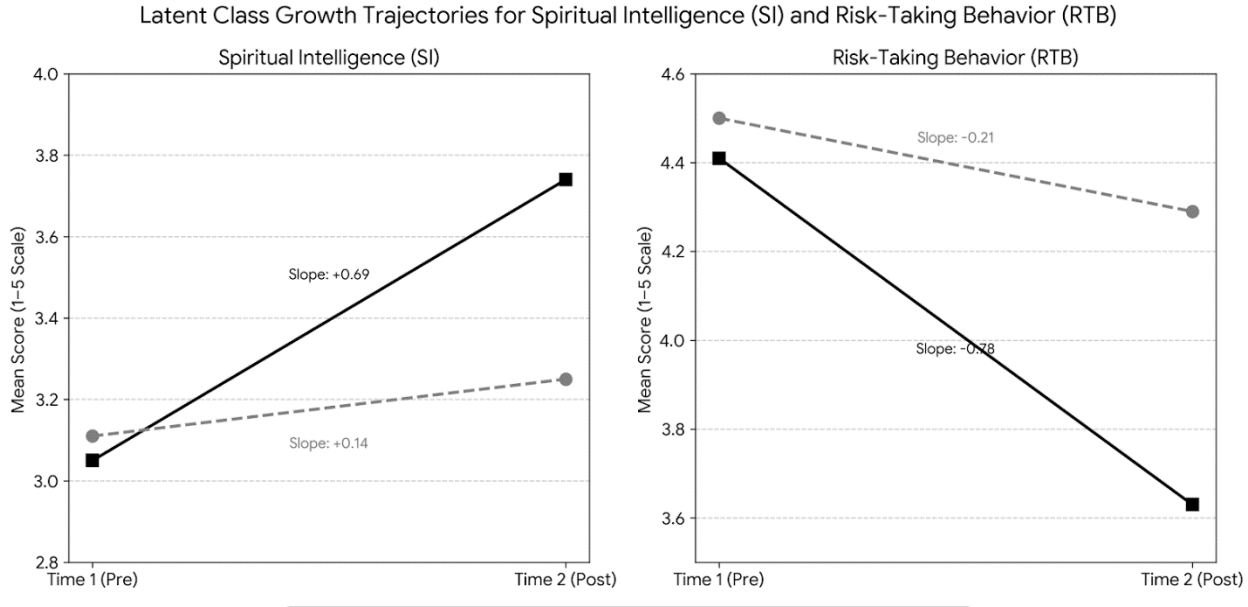


Figure 4.
Latent class growth trajectories for Spiritual Intelligence (SI) and Risk-Taking Behavior (RTB), showing distinct profiles for High-Gain and Low/Stable responders.

Discussion

The present study investigated the effects of Spiritual Intelligence Training (SIT) on resilience, moral identity, religious orientation, and risky behaviors among female university students. Results from latent growth curve modeling (LGCM) and latent change score models (LCSM) revealed significant improvements in adaptive psychological and moral constructs and a notable reduction in risk-taking behaviors following the eight-week intervention.

Consistent with previous research, participants in the experimental group exhibited a substantial increase in spiritual intelligence, reflecting enhanced existential awareness, critical reflection, and conscious state expansion (King, 2009). This increase was strongly associated with gains in resilience, suggesting that SIT may facilitate adaptive coping and stress management by promoting self-reflection, purpose, and meaning-making (Connor & Davidson, 2003; Tedeschi & Calhoun, 2004). Prior studies have shown that individuals with higher spiritual intelligence are better able to manage stress, regulate emotions, and engage in problem-focused coping strategies, all of which reduce vulnerability to maladaptive behaviors (Khodayarifard et al., 2014; Nasel, 2004).

The observed improvement in moral identity aligns with findings that spiritual and reflective interventions strengthen internalized moral values and guide ethical behavior (Aquino & Reed, 2002; Hardy & Carlo, 2005). By reinforcing the centrality of moral traits within the self-concept, SIT appears to promote consistent ethical decision-making and behavioral regulation, which is critical during the developmental period of emerging adulthood when identity exploration is heightened (Arnett, 2000). Similarly, religious beliefs increased moderately, indicating that spiritual intelligence interventions can support intrinsic religiosity and personal meaning production (Gorsuch & McPherson, 1989; Park, 2005). This suggests that SIT not only enhances abstract spiritual capacities but also integrates these capacities into culturally relevant religious and moral frameworks, particularly relevant in collectivist societies such as Pakistan.

A notable finding of this study was the significant decline in risk-taking behaviors, including impulsive, aggressive, and self-harming actions, among experimental group participants. This effect supports prior evidence that enhanced spiritual and moral capacities are inversely related to engagement in maladaptive or high-risk behaviors (Baskin-Sommers & Simons, 2014; Sadeh & Baskin-Sommers, 2017). Risk-taking in emerging adults often reflects attempts to cope with stress, peer influence, or identity uncertainty (Steinberg, 2008). The observed reduction in risk behaviors suggests that SIT strengthens internal protective factors—resilience, moral identity, and intrinsic religiosity—that collectively buffer against impulsivity and maladaptive coping (Fergus & Zimmerman, 2005; Quansah et al., 2020).

Latent class growth analysis revealed heterogeneity in response, with 60% of participants classified as high-gain responders, demonstrating strong improvements, while 40% showed minimal change, highlighting the importance of individual differences in intervention responsiveness (Muthén & Muthén, 2000). These differences may reflect variations in baseline spiritual intelligence, personal motivation, cultural interpretation of moral values, or pre-existing coping resources. Future research may benefit from exploring moderator variables such as personality traits, family support, and prior exposure to spiritual practices to better understand differential responsiveness.

Overall, these findings underscore the efficacy of SIT as a structured, culturally adaptable program capable of promoting holistic psychological growth while reducing maladaptive behaviors. Enhancing spiritual intelligence appears to not only strengthen internal resources such as resilience and moral identity but also facilitates practical behavioral regulation, supporting a comprehensive approach to adolescent and young adult

development. In line with broader literature, these results suggest that interventions targeting spiritual and moral capacities may provide a sustainable and internally motivated pathway to risk reduction, complementing traditional cognitive-behavioral or social skills approaches (Watts & Abduljalil, 2019; Zimmerman, 2013). Furthermore, integrating SIT into university counseling services or student well-being programs may offer culturally sensitive avenues for promoting mental health, ethical development, and adaptive coping among female students navigating complex sociocultural pressures.

Limitations and Future Directions

Despite robust findings, the study has several limitations. First, the sample was restricted to female students from select institutions, limiting generalizability. Second, follow-up assessments were not conducted, preventing evaluation of long-term maintenance of gains. Future research should explore **longitudinal effects**, include **male participants**, and examine mechanisms linking spiritual intelligence to behavioral outcomes. Additionally, incorporating **qualitative methods** could provide deeper insight into individual experiences of spiritual growth and behavior change.

Conclusion

This study investigated the impact of Spiritual Intelligence Training (SIT) on psychological resources and risk-taking behavior among female university students. The findings indicate that SIT significantly enhanced spiritual intelligence, resilience, moral identity, and intrinsic religiosity, while reducing engagement in risk-taking behaviors. These results highlight the importance of meaning-making, value internalization, and self-regulation in promoting adaptive functioning during emerging adulthood.

Latent growth analysis further revealed variability in individual change trajectories, suggesting that intervention effects are not uniform and may require more tailored approaches. Conceptually, the study supports an integrated model in which spiritual, moral, and psychological resources jointly reduce vulnerability to maladaptive behavior. Despite its contributions, the study is limited by a relatively small, homogeneous sample and the absence of long-term follow-up. Future research should examine sustained effects, include more diverse populations, and explore mechanisms underlying individual differences in responsiveness. Overall, SIT represents a promising, holistic intervention for enhancing well-being and reducing risk among female university students in culturally grounded contexts.

References

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469–480. https://doi.org/10.1037/0003-066X.55.5.469

Aquino, K., & Reed, A. II. (2002). *Moral Identity Scale (MIS)*. In *The self-importance of moral identity*. Journal of Personality and Social Psychology, 83(6), 1423–1440. https://doi.org/10.1037/0022-3514.83.6.1423

Aquino, K., & Reed, A. II. (2002). The self-importance of moral identity. *Journal of Personality and Social Psychology, 83*(6), 1423–1440.

Baskin-Sommers, A., & Simons, R. (2014). Development and validation of the RISQ: Risky, Impulsive, and Self-Destructive Behavior Questionnaire. *Journal of Psychopathology and Behavioral Assessment, 36*(1), 23–35.

Batson, C. D., Schoenrade, P., & Ventis, W. L. (1993). *Religion and the individual: A social-psychological perspective.* Oxford University Press.

Chowdhury, S. R., & Ravi, S. (2020). Psychometric properties of the Risky, Impulsive, and Self-Destructive Behavior Questionnaire (RISQ) in adolescents and young adults. *Journal of Behavioral Assessment, 42*(4), 567–580. https://doi.org/10.1007/s10862-020-09802-x

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety, 18*(2), 76–82.

Donahue, M. J., & Benson, P. L. (1995). Religion and the well-being of adolescents. *Journal of Social Issues, 51*(2), 145–160. https://doi.org/10.1111/j.1540-4560.1995.tb01310.x

Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health, 26*, 399–419. https://doi.org/10.1146/annurev.publhealth.26.021304.144357

Gorsuch, R. L., & McPherson, S. E. (1989). Intrinsic/extrinsic measurement: I/E-revised and single-item scales. *Journal for the Scientific Study of Religion, 28*(3), 348–354.

Hardy, S. A., & Carlo, G. (2005). Identity as a source of moral motivation. *Human Development, 48*(4), 232–256.

Hardy, S. A., Walker, L. J., & Carlo, G. (2015). Longitudinal trajectories of moral identity and moral behavior. *Developmental Psychology, 51*(1), 72–82. https://doi.org/10.1037/a0038407

Khodayarifard, M., Malek, A., & Yazdan, S. (2014). Spiritual intelligence and resilience: Effects on mental health. *Iranian Journal of Psychiatry, 9*(3), 153–160.

Kim-Sharp, K., et al. (2016). The role of religiosity on substance use and delinquency: A meta-analysis. *Journal of Youth and Adolescence, 45*(10), 2036–2049. https://doi.org/10.1007/s10964-016-0516-2

King, D. B. (2009). *Spiritual Intelligence Self-Report Inventory (SISRI-24)*. Toronto, Canada: Multi-Health Systems.

Muthén, B., & Muthén, L. (2000). Integrating person-centered and variable-centered analyses: Growth mixture modeling with latent trajectory classes. *Alcoholism: Clinical and Experimental Research, 24*(6), 882–891.

Nasel, C. (2004). A qualitative study of spiritual intelligence: The lived experience of adults. *International Journal of Children's Spirituality, 9*(3), 263–274.

Park, C. L. (2005). Religion as a meaning-making framework in coping with life stress. *Journal of Social Issues, 61*(4), 707–729. https://doi.org/10.1111/j.1540-4560.2005.00426.x

Quansah, F., et al. (2020). Psychosocial predictors of risk-taking behavior among university students. *Journal of American College Health, 68*(6), 600–609. https://doi.org/10.1080/07448481.2019.1589637

Sadeh, N., & Baskin-Sommers, A. (2017). *Risky, Impulsive, and Self-Destructive Behavior Questionnaire (RISQ)*. Assessment, 24(3), 287–303.

Sadeh, N., & Baskin-Sommers, A. (2017). Assessing impulsive and risky behaviors: The RISQ. *Journal of Psychopathology and Behavioral Assessment, 39*(1), 20–32.

Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. *Developmental Review, 28*(1), 78–106.

Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry, 15*(1), 1–18. https://doi.org/10.1207/s15327965pli1501_01

Watts, F., & Abduljalil, A. (2019). Moral identity and ethical functioning in young adults: A cross-cultural perspective. *Journal of Moral Education, 48*(2), 182–197. https://doi.org/10.1080/03057240.2018.151616

Yu, X., & Zhang, J. (2007). Factor analysis and psychometric evaluation of the Connor–Davidson Resilience Scale (CD-RISC) with Chinese people. *Social Behavior and Personality, 35*(1), 19–30. https://doi.org/10.2224/sbp.2007.35.1.19

Zimmerman, M. A. (2013). Resilience theory: A strengths-based approach to research and practice for adolescent health. *Health Education & Behavior, 40*(4), 381–383. https://doi.org/10.1177/1090198113493782