# 'Putting An Islamic Scholar's Hat on Psychologist': A Framework for Integrating Islamic Concepts into Psychological Research

\*Mohd Ferdaus Harun<sup>1</sup>, Maisarah Mohd. Taib<sup>2</sup>

<sup>1,2</sup>Department of Psychology, International Islamic University Malaysia, Malaysia

\*Corresponding email: ferdaus.harun@gmail.com/ferdausharun@iium.edu.my

#### **ABSTRACT**

The integration of Islamic principles into psychological research has gained momentum in the last 40 years, reflecting a growing effort to establish a theologically grounded Islamic psychology paradigm. This study identifies four prevailing trends in Islamic psychological research: exploratorydescriptive studies, psychometric and validation studies, Islamicallyoriginated research, and Islamic-psychological integrative studies. The later trend highlights the need for an integrative framework to enhance the credibility, transparency, and holistic development of Islamic psychology. However, significant challenges remain, including limited theological knowledge among Muslim psychologists and the lack of structured frameworks to guide integration efforts. To address these issues, this study introduces the Islamic-Psychological Research Integration Framework, a systematic five-step process that requires collaboration between psychologists and Islamic scholars. The framework includes identifying, evaluating, adapting, validating, and empirically testing the integratedpsychological constructs in empirical research. By aligning psychological concepts with Islamic principles, the framework mitigates researcher uncertainty while ensuring methodological and theological rigor. It provides practical guidelines for researchers seeking to bridge the gap between modern psychological methodology and Islamic principles, thereby promoting a comprehensive understanding of human behaviour. This initiative enriches both theoretical discourse and the psychological needs of Muslim communities, fostering a harmonious integration of scientific inquiry and Islamic values.

#### ARTICLE HISTORY

Submitted 21 12 2024 Received 23 12 2024 Accepted 16 02 2025 Published 17 02 2025

#### **KEYWORDS**

Islamic Psychology; Integration; Framework; Islamization; Empirical Research

#### INTRODUCTION

The field of Islamic psychology has witnessed a surge of interest in recent years, as mental health professionals, psychologists, and researchers strive to explore the distinct perspectives and approaches that Islamic principles can offer for understanding and addressing psychological phenomena (Al-Karam, 2018; Rassool, 2023a; 2023b). The surge of publications and journals dedicated to the Islamic psychology discipline underscores the overwhelming academic interest in this field (Iqbal & Skinner, 2021). This trend reflects a growing interest among Muslim psychologists in exploring psychological phenomena through an Islamic lens, aligning their professional practice with their faith.

Despite this promising trend, substantial challenges persist, particularly in integrating Islamic principles with contemporary psychological frameworks. A prevalent concern among Muslim psychologists is their perceived inadequacy in Islamic theological knowledge, which in turn hinders their capacity to

effectively incorporate Islamic perspectives into their psychological research and practice (Bulut et al., 2021; Sabry & Vohra, 2013). Consequently, some have chosen to first deepen their understanding of Islamic theology before committing to the integration of Islamic concepts into their psychological practice and research. This hesitation underscores a pervasive gap in the ability to comprehend psychological phenomena through an Islamic lens, impeding the development of Islamic psychology field despite its obvious potential (Skinner, 2018).

The necessity of an Islamic framework for psychology has been acknowledged for many years. Prominent scholars, such as Malik Badri, have advocated for a distinct Islamic approach to the field, rather than simply adapting Western psychological models to fit Muslim contexts (Badri, 2020). This vision has given rise to the Islam and psychology movement since the 1970s (Badri, 2020). Furthermore, recent contributions from scholars like Al-Karam (2018), Rassool (2023a; 2023b; 2023c), Riyono (2022), and Skinner (2018) have emphasized the need for a robust scientific paradigm that aligns with Islamic principles.

This study aims to address the challenges faced by Muslim psychologists and students interested in conducting psychological research that integrates Islamic principles. By providing a clear and structured framework, it seeks to minimize the anxiety and uncertainty often associated with such integration research. The ultimate goal is to empower researchers to engage confidently in this endeavour, without fear of committing theological or methodological errors. Accordingly, this study introduces a framework to guide researchers in integrating Islamic principles into psychological research, ensuring the validity of the concepts and minimizing the anxiety of making mistakes.

# Trend of Empirical Research Integrating Islamic Perspectives

A survey of eight (8) journals that publish empirical studies on Islamic psychology has identified four distinct trends in research that integrate Islamic perspectives (see Table 1). These trends vary in their scope and focus. The four identified trends are exploratory-descriptive studies, psychometric and validation studies, Islamically-originated psychological research, and Islamic-Psychological Integrative Studies.

# Table 1. List of Islamic Psychology Journals (as of 13 December 2024)

- 1. International Journal of Islamic Psychology (IJIP)
- 2. Journal of Muslim Mental Health
- Asian Journal of Islamic Psychology
- Al Misykat: Journal of Islamic Psychology
- Studies in Islam and Psychology
- Journal of Islamic Faith and Practice
- 7. International Journal of Islamic Educational Psychology
- 8. Indonesian Journal of Islamic Psychology

Exploratory-descriptive studies investigate the status of specific psychological phenomena among Muslim participants or respondents. These studies offer valuable insights into the unique experiences and perspectives of Muslim individuals within the psychological domain. However, there is limited scope for integration in this type of research, as the focus is on Muslims as the participants or informants. For example, Hashem et al. (2023) examined the predictors of substance use among Muslim American

young adults. Other similar studies include those by Dover et al. (2020), Karimi and Ziaee (2023), and Verwey (2023).

The second trend is Psychometric and Validation studies. These studies reported on the processes of developing and/or validating psychological measures specifically designed for use with Muslim populations. The primary aim is to ensure the cultural and religious relevance of the assessment tools, thereby enhancing the overall validity and reliability of psychological research conducted among Muslim communities. By tailoring these measures to align with the Islamic worldviews, beliefs, and experiences of Muslim individuals, researchers can gain a more accurate and comprehensive understanding of various psychological phenomena within Muslims population. This can lead to more culturally sensitive and impactful interventions, as well as the formulation of psychological theories that align with the Islamic framework. Examples of studies following this trend include the initial development of the Iranian Religious Coping Scale (Aflakseir & Coleman, 2011) and the validation of the Multi-Faith Religious Support Scale among Muslim women (Bjorck & Maslim, 2011). Other related studies include those by Awaad et al. (2019), Dasti and Sitwat (2014), and Rayan et al. (2020).

The third trend is Islamically-originated psychological research which focuses on studies that operationalize Islamic concepts and investigate their effects and relationships with other psychological variables. Examples of these Islamic concepts include *Salah* (Suseno, 2024), *Dhikr* (Febriani et al., 2024), and *Rahmah* (Ab Hamid et al., 2023). This trend is particularly prominent in the field of Islamic psychotherapy, where researchers integrate Islamic principles and practices into therapeutic interventions (e.g., Hussain, 2022; Oyewuwo, 2020). In addition, there are studies operationalise Islamic concept in non-clinical research such as *Shukr* (gratitude) in positive psychology (Al-Seheel & Noor, 2016), *Hikmah* (wisdom) in education (Zulkifli & Hashim, 2019), and *Ihsan* (pursuits of excellence) in organizational psychology (Mokhtar et al., 2020).

The fourth trend is Islamic-Psychological Integrative Studies which encompasses two distinct approaches that delve deeper into the intersection of Islamic perspectives and psychological paradigm. The first approach investigates the intricate role and effects of spirituality and/or religiosity on a diverse range of psychological phenomena. This line of inquiry explores how the spiritual and religious dimensions of the Islamic faith influence and shape various aspects of human behaviour, cognition, and well-being. By examining these complex relationships, researchers can gain a more holistic understanding of the psychological experiences of Muslim individuals and communities. Examples of studies following this approach includes Ghufran (2020), Imron et al. (2023), and Kenia et al. (2023).

The second approach adapts modern psychological variables to align with an Islamic psychological framework and then examines their effects and relationships with other psychological constructs, such as Islamic corporate social responsibility (Khurshid et al., 2014; Yusuf & Bahari, 2015), Islamic coping strategies (Tahir et al., 2018), and spiritual needs (Irajpour & Moghimian, 2018). This integration of Islamic principles and contemporary psychological concepts allows for the development of more religiously relevant and empirically grounded theories, models, and interventions that can better address the unique experiences and concerns of Muslim populations.

Collectively, these four trends in research illustrate the growing interest and concerted efforts to meaningfully integrate Islamic perspectives into the field of psychology. This integration aims to offer a more inclusive, holistic, and culturally sensitive understanding of human behaviour, cognition, and mental processes. The present study introduces a comprehensive framework that is specifically applicable to the Islamic-Psychological Integrative Studies, the fourth trend, which represents a crucial intersection between the principles and worldviews of Islam and the theories and methodologies of contemporary psychological research.

# The Need for Integration Framework

Establishing an integration framework is essential to address the unique challenges and opportunities in developing an Islamic psychological paradigm. By providing a systematic and verified approach, the integration framework can promote greater acceptance of Islamic psychology within the broader academic and professional communities and ensure that it evolves into a reliable paradigm that caters to the spiritual and psychological needs of the Muslim community while maintaining academic rigor and cultural relevance (Al-Karam, 2018; Kaplick & Skinner, 2017; Rothman & Coyle, 2018). This framework is crucial in assisting Muslim psychologists and the field of Islamic psychology to confront key challenges, mitigating the anxiety and uncertainty faced by researchers, recognizing the need for a multi- and trans-disciplinary approach to advance the field, minimizing the risk of bias arising from personal interpretations, and enhancing the overall transparency and credibility of Islamic psychology discipline.

According to Iqbal and Skinner (2021), the complexity of integrating mainstream psychology with Islamic thought stems from several critical challenges. Muslim psychologists must have a deep and comprehensive understanding of mainstream psychological theories, methodologies, and practices, including the modern psychology scientific underpinnings and clinical applications, including the cultural and philosophical assumptions. They need to critically evaluate the Western philosophical traditions of secularism and materialism that underpin mainstream psychology and develop competencies to explore alternative frameworks that resonate with Islamic principles. Islamic psychology must reconnect with the insights on the human psyche and ethical behaviour provided by early Muslim scholars such as Al-Farabi, Ibn Sina, and Al-Ghazali, and ground itself in a thorough knowledge of the *Quran* and *Hadith* to construct an authentically Islamic psychological framework aligned with core religious and ethical principles.

These challenges have generated hesitation, anxiety, and uncertainty among Muslim psychologists who intended to contribute to the development of Islamic psychology. Rassool (2021, 2023c) highlighted the dilemma faced by Muslim psychologists in integrating Islamic perspectives into modern psychology. Many Muslim psychologists questioned their ability and authority to integrate Islamic principles into psychology, which affected their commitment to this endeavour. This often involved evaluating whether they possess the necessary knowledge, exposure, and experience to incorporate Islamic perspectives into psychological knowledge. This led to issues of role legitimacy and role adequacy. Role legitimacy refers to their belief about whether they have the right to modify psychological knowledge and integrate Islamic psychology, as this specific role may not be part of their official job duties. Role adequacy

concerns the depth of Muslim psychologists' knowledge about Islamic psychology and Islamic principles.

This dilemma has hindered the conceptual and theoretical growth of Islamic psychology, slowing its development and application (Iqbal & Skinner, 2021; Kaplick & Skinner, 2017; Rassool & Luqman, 2023). A systematic integration framework would be instrumental in reducing this uncertainty by providing a cohesive approach to incorporate Islamic and modern psychological principles. Such framework would pave the way for an enhanced understanding of the intersections between Islamic principles and psychological inquiry, fostering meaningful progress and advancement in this field (Rassool, 2023a; 2023b). By addressing the core concepts and bridging the gaps between these two domains, the integration framework would enable Muslim psychologists to navigate the complexities with greater clarity and confidence, ultimately propelling the discipline forward in a more systematic and impactful manner.

The integration framework will foster the development of Islamic psychology as a multidisciplinary and transdisciplinary discipline, drawing rich insights from a diverse array of fields such as theology, philosophy, neuroscience, sociology, and mental health (Rassool, 2021). By incorporating this wideranging interdisciplinary perspective, Islamic psychology can holistically address the intricate psychosocial, psychospiritual, and mental health needs of the Muslim community, ensuring the discipline remains dynamic, adaptive, and responsive in meeting their ever-evolving requirements. This framework will help Islamic psychology develop into a strong and detailed approach that combines scientific psychological research with the profound spiritual and ethical principles of Islam. This will ensure the field remains flexible and responsive to the growing needs of the community.

A proper integration framework would be crucial in minimizing the risk of bias and enhancing the credibility of Islamic-Psychological research (Rothman & Coyle, 2018). By ensuring the systematic and rigorous validation of psychological constructs, the framework would reduce the risks of bias attributed to the personal interpretations of Islamic principles and establish clear guidelines and protocols for the development and application of Islamic psychological theories and interventions. This systematic and verified approach would foster greater acceptance towards research that integrate these two perspectives within the broader academic and professional communities, as it would demonstrate the discipline's commitment to empirical evidence and scholarly rigor (Iqbal & Skinner, 2021; Skinner, 2018).

Furthermore, this would promote transparency by emphasizing the use of rigorous methodologies in the selection, evaluation, and adaptation of psychological constructs to align with the Islamic framework (Rassool, 2021; 2023a; 2023b). This would ensure construct validity and enhance the reliability of the integration research through evidence-based approach. Islamic psychology requires the development of a systematic paradigm that effectively integrates evidence-based practices with Islamic principles, values, and beliefs system (Al-Karam, 2018). This would address the psychosocial, psychospiritual, and mental health needs of the Muslim community, ensuring the discipline is accurate, relevant, and religiously grounded (Keshavarzi & Haque, 2012). In this instance, the integration framework would provide practical guidelines to facilitate the advancement of Islamic psychology, enabling it to move beyond theoretical discussions and serve as a transformative force for the well-being of Muslim community.

In summary, the integration framework for Islamic psychology is essential to address foundational challenges, reduce Muslim psychologists' hesitation, minimize bias, enhance transparency, and foster the discipline's multidisciplinary development. Such framework would ensure that Islamic psychology matures into a vigorous, reliable, and culturally relevant paradigm that effectively meets the spiritual and psychological needs of the Muslim community. Overall, this framework will empower the Muslim community to gain a deeper understanding of the human mind and achieve greater well-being in all aspects.

#### THE ISLAMIC-PSYCHOLOGICAL RESEARCH INTEGRATION FRAMEWORK

The proposed framework aims to integrate Islamic principles into psychological research to address the secularistic aspects of modern psychology and ensure alignment with Islamic values. This framework consists of a five-step collaborative process between psychologists and Islamic scholars, emphasizing the importance for validation of psychological concepts from an Islamic perspective. Table 2 summarizes the step, enabler, process, and deliverable of the framework.

Table 2. *Islamic-Psychological Research Integration Framework*:

	Step	Enabler	Process	Deliverable
1.	Identification of Psychological Construct	Psychologist	Literature review	<ul> <li>Conceptualization</li> <li>Construct development</li> <li>Application of the concept</li> <li>Theoretical foundations</li> </ul>
2.	Evaluation of the Construct	<ul><li>Psychologist</li><li>Islamic Scholars</li></ul>	Collaborative dialogue	<ul><li>Need for Islamization</li><li>Need for Integration</li><li>Need for Contextualization</li></ul>
3.	Proposing New @ Adapted @ Modified Psychological Construct	Psychologist	Critical analysis	<ul> <li>Adaptation or modification of the construct</li> </ul>
4.	Construct validation	Islamic Scholars	<ul> <li>Interview</li> <li>Focus group discussion</li> <li>World café</li> <li>Delphi method</li> </ul>	Evidence of construct validity from Islamic scholars
5.	Hypothesis Testing	Psychologist	Empirical research	<ul> <li>Empirical evidence of the effects, effectiveness, or relationships of the construct</li> </ul>

#### 1. Identification of Psychological Construct by Psychologist

The first step of the framework is the careful identification of the psychological construct by psychologists. Through a comprehensive literature review, psychologists should conduct a thorough

examination of the historical and cultural contexts in which the psychological construct was first developed. This is essential for understanding the underlying philosophical, scientific, or sociocultural influences that shaped its creation. This investigation should delve into the specific origins of the construct, ascertaining whether it emerged primarily within a Western intellectual tradition or if it draws from a broader spectrum of global perspectives, certain religious principles, or any cultural traditions. Recognizing the foundational influences on the construct's development is crucial for assessing its alignment with Islamic principles and values (Lumbard, 2024) and identifying potential areas of convergence or divergence that may impact its integration into an Islamic framework for psychological research and practice (Cucchi, 2022; Skinner, 2018).

In addition, psychologists must thoroughly comprehend the conceptualization of the psychological construct within the contemporary field of psychology. This entails identifying the construct's core components, dimensions, and the underlying assumptions of its theoretical framework. For instance, it is crucial to ascertain whether the construct is grounded in notions of free will or deterministic paradigms, as this has significant implications for assessing its alignment with Islamic values and principles (Hoover, 2015).

Furthermore, psychologist should analyse the practical application of the construct, such as its use in clinical, social, or organizational context. This step helps determine the relevance and adaptability of the construct in addressing human behaviour across diverse cultural contexts and settings, including for Muslim communities. Psychologists should also assess potential biases or limitations in the construct's development and usage. For example, they should explore whether the construct reflects universal principles or if it is narrowly framed by specific cultural or philosophical ideologies that may not resonate with Islamic worldviews.

Besides, psychologist should articulate the theoretical underpinnings of the construct, outlining the psychological theories, conceptual models, or empirical research that inform its conceptualization and validation. This comprehensive understanding is vital for assessing the construct's alignment with Islamic principles and values (Al-Karam, 2018). By undertaking these steps, psychologists establish a solid foundation for integrating Islamic perspectives into their research. This phase ensures that the construct is critically understood in its entirety before aligning it with Islamic epistemology, values, and ethical frameworks.

# 2. Evaluation of the Psychological Construct by Psychologist and Islamic Scholars

This step highlights the crucial importance of interdisciplinary collaboration between psychologists and Islamic scholars to critically evaluate the psychological construct. The goal is to determine whether the construct necessitates Islamization, integration, or contextualization for its effective application within an Islamic framework.

This step requires a rigorous collaborative dialogue (Ayora-Talavera et al., 2022) between psychologists and Islamic scholars. Through structured and in-depth discussions, the team critically analyses the philosophical and theoretical foundations of the psychological construct under consideration. These dialogues involve a comprehensive examination of the construct's alignment with core Islamic principles, values, and epistemologies.

Psychologists provide comprehensive information about the selected psychological construct, allowing Islamic scholars to gain a thorough understanding of the psychological concepts under review. Islamic scholars then evaluate whether the construct needs to be Islamized, can be integrated, or can be contextualized for Muslims.

# The Need for Islamization:

The evaluation of the psychological construct must carefully consider its alignment with key Islamic principles and concepts. First, the construct's underlying assumptions and implications must be assessed to determine if they are consistent with the fundamental Islamic belief in *Tawhid* - the recognition of Allah as the ultimate source and arbiter of human purpose and behaviour (Shuriye, 2014; Unus & Caldwell, 2018). Any tendencies that undermine this core principle of the Islamic doctrine would necessitate the Islamization of the construct (McKechnie et al., 2007; Unus & Caldwell, 2018).

Similarly, the construct's assumptions, applications, and potential outcomes must be scrutinized to ensure they are ethically permissible within the bounds of Islamic law and jurisprudence. If any aspects of the construct are found to be in conflict with the principles of *halal* and *haram*, or if they disregard the ethical guidelines set forth by the *Shariah*, then substantial Islamization would be required (Badri, 2020; Butt, 2020)

The compatibility of the construct with the innate human disposition (*fitrah*) as created by Allah must also be carefully examined. Constructs that contradict or undermine this fundamental Islamic belief about the nature of humanity would need to be Islamized to ensure alignment with the Islamic worldview (Rassool, 2021). Finally, the construct's alignment with the natural and divine laws (*Sunnatullah*) that govern human behaviour, and the universe must be assessed, with any discrepancies requiring Islamization (Badri, 2020; Jou, 2022).

If a conflict exists, the construct must undergo an Islamization process. This may involve scholarly consultation, where Islamic scholars are engaged to verify why the selected psychological construct is not aligned with Islamic principles. The scholars should provide insights grounded in Islamic sources, such as Quranic verses, *Hadith*, *Ijma'*, *Qiyas*, and the works of early Muslim scholars (Al-Karam, 2020). Alternatively, systematic methods such as interviews, focus group discussions, or the Delphi method (Salahuddin & Othman, 2018) can be utilized to consolidate expert opinions. One example of a psychological concept that requires re-conceptualization from Islamic perspectives is "religious fundamentalism" in the Psychology of Religion. This concept is often defined as a rigid and literal adherence to religious doctrines, coupled with intolerance towards other worldviews (Taylor & Horgan, 2001). Such a definition could conflict with Islamic principles that promote adherence to truth (*al-haqq*) and tolerance (*Wasatiyyah*). This concept requires redefinition from an Islamic perspective.

# The Need for Integration:

If the construct under consideration aligns with core Islamic principles and shares meaningful similarities with Islamic teachings or applications, it can be effectively integrated into the framework of Islamic psychology. For instance, studies have suggested that the psychological construct of Motivation demonstrates a strong alignment with the core tenets of the Islamic Paradigm of Motivation (Bhatti et al., 2016; Cader, 2016). This Islamic paradigm emphasizes the primacy of spiritual and intrinsic

motivators, such as the desire to please Allah and attain ultimate fulfilment in the Hereafter (*Yaummul Akhirah*), over materialistic or extrinsic goals. By seamlessly integrating this Islamic paradigm into the psychological construct of motivation, the construct becomes enriched with Islamic insights, fostering a more holistic, comprehensive, and Islamically-grounded understanding of human motivation and behaviour. This integration allows for a deeper exploration of how Islamic principles and values can shape and inform our understanding of psychological concepts, ultimately leading to a more authentic and relevant application of these constructs within Muslim communities and contexts.

# The Need for Contextualization:

If the psychological construct under consideration does not inherently conflict with core Islamic principles, but rather exists solely within the modern psychological framework, the process of contextualization becomes necessary to make it meaningful and relevant for Muslim individuals and communities. The contextualization process involves carefully adapting the construct to benefit the wellbeing and effectiveness of Muslim individuals and communities (Carle, 2019; Hoseini, 2018). This ensures that the psychological concept aligns with the Islamic worldview while also preserving its relevance, applicability, and practical utility for Muslim believers. By contextualizing the construct within an Islamic paradigm, it becomes more relevant, authentically grounded, and implementable for Muslim researchers, clinicians, and end-users, ultimately enhancing its impact and resonance within the diverse Muslim community (Rothman & Coyle, 2020; Tanhan & Young, 2022).

Examples of neutral psychological concepts such as mindfulness, work-life integration, and traumacentrality can be particularly beneficial and relevant for Muslim individuals and communities. Mindfulness which refers to the practice of cultivating present-moment awareness and acceptance, aligns with Islamic teachings on self-reflection, emotional regulation, and spiritual connectedness (Aldbyani & Al-Abyadh, 2023). Work-life integration which emphasizes balancing professional and personal responsibilities (Bulut et al., 2024), resonates with Islamic principles of moderation, prioritizing family, and maintaining a holistic approach to life (Qayyum et al., 2018). Similarly, the trauma-centred approach which focuses on healing and resilience in the face of adversity, corresponds with Islamic values of patience, reliance on Allah, and the belief in the ability to overcome hardship through faith and community support (Berzengi et al., 2016). By contextualizing these psychological constructs within an Islamic framework, they can be more effectively applied to address the needs and experiences of Muslim populations and enhancing their wellbeing, personal growth, and effectiveness.

## 3. Proposing New, Adapted, or Modified Construct by Psychologists

In this third step, psychologists play an active role in proposing a refined or adapted conceptualization of the psychological construct under study. This involves a critical analysis (Dodgson, 2021) and adaptation, or modification of the construct based on insights derived from the previous step (i.e., need for Islamization, need for integration, or need for contextualization). The goal is to propose a construct that maintains its academic rigor and applicability across diverse contexts, while also being religiously and culturally relevant to Muslim populations.

This step emphasizes balance and inclusivity. While the proposed construct retains relevant and evidence-based aspects of the original conceptualization, it also incorporates new dimensions that reflect Islamic teachings. A critical aspect of this step is the practical application of the modified construct.

Psychologists must consider how the new or adapted construct can be effectively applied in research, clinical practice, or interventions (Abu-Raiya et al., 2007; Al-Karam, 2018).

By integrating Islamic principles into the conceptualization process, this step not only enriches the understanding of psychological phenomena but also bridges the gap between contemporary psychological research and the spiritual worldview of Muslim communities (Al-Karam, 2018; Rassool, 2023b; Tanhan & Young, 2022). The outcome is a more holistic and culturally sensitive framework that recognizes the interplay between the spiritual, emotional, and social aspects of human experience.

# 4. Construct Validation by Islamic Scholars

The fourth step in integrating Islamic perspectives into psychological research involves validating the newly adapted or modified psychological construct to ensure its alignment with Islamic principles. This validation process necessitates collaboration with Islamic scholars, who lend their expertise to critically assess whether the construct accurately reflects and upholds Islamic values. The involvement of these scholars is crucial in ensuring the proposed construct remains authentic and consistent with the principles of the Islamic worldview.

Islamic scholars assess the construct on several levels, including its conceptual foundation, ethical implications, and practical applications. For instance, if the construct involves behavioural norms or attributes, scholars evaluate whether these align with Islamic teachings derived from primary sources like the *Qur'an*, *Hadith*, *Ijma'*, and *Qiyas*. They may also examine the extent to which the construct promotes values such as *Maqasid Shariah*, justice ('adl), compassion (rahmah), and balance (mizan), which are central to Islamic thought.

To validate the construct, various qualitative and participatory methods can be employed. These methods enable a robust evaluation while incorporating diverse perspectives from scholars of different Islamic traditions and schools of thought. Common methods include interviews, focus group discussions, world café (Löhr et al., 2020), and Delphi method.

This validation process is not merely an evaluative step but also a collaborative and iterative process. Islamic scholars may recommend modifications, clarifications, or additional dimensions to enhance the construct's alignment with Islamic teachings. For example, they might suggest incorporating Quranic verses or Prophetic traditions that directly support the construct's conceptualization, thereby adding spiritual depth and theological foundation.

This step is essential for ensuring that the adapted construct does not inadvertently conflict with Islamic teachings or promote values that are inconsistent with the faith. By incorporating scholarly validation, the framework ensures that the resulting construct is both spiritually and academically sound (Rassool & Luqman, 2023). Moreover, this collaboration bridges the gap between the fields of psychology and Islamic scholarship, fostering interdisciplinary dialogue and mutual understanding.

Ultimately, construct validation by Islamic scholars reinforces the credibility, acceptability, and practical relevance of the adapted construct (Al-Karam, 2018). It provides assurance to Muslim communities and

researchers alike that the construct reflects their worldview while maintaining the rigor required for psychological research.

# 5. Hypothesis Testing by Psychologists

The final step in this framework involves hypothesis testing, where psychologists empirically evaluate the newly adapted construct. This process ensures the construct is scientifically valid, reliable, and practically applicable. By formulating clear, testable hypotheses, psychologists investigate how the construct functions in real-world contexts. For instance, they might test a construct like Islamic emotional resilience to examine how practices such as *dhikr* impact well-being under stress (Reza et al., 2021). Researchers may employ various methods, including surveys, experiments, and interviews, to assess the construct's relevance and ensure it aligns with both Islamic principles and psychological theories (Abu-Raiya & Pargäment, 2010; Lynn & Moberg, 1999).

This step provides critical empirical evidence that strengthens the validity of the adapted construct. By testing the construct across diverse settings and populations, psychologists can refine its scope, validate its measures, and highlight its practical utility. The findings not only bridge the gap between Islamic teachings and psychological theories but also contribute to culturally sensitive research addressing the needs of Muslim communities (Al-Karam, 2018; Abu-Raiya & Pargäment, 2010). Ultimately, this step ensures the construct is both spiritually meaningful and scientifically robust, paving the way for further interdisciplinary collaboration and real-world applications.

#### KEY CONSIDERATIONS FOR IMPLEMENTING THE FRAMEWORK

## **Expertise of Psychologists and Islamic Scholars**

The successful implementation of an integration framework in psychological research necessitates careful consideration of the expertise of both psychologists and Islamic scholars. Researchers must ensure that psychologists involved in the study meet established criteria for competence, such as those highlighted by Iqbal and Skinner (2021), which outline essential attributes like academic rigor, familiarity with the integration agenda, practical experience in addressing real-world psychological issues, and knowledge in *Quran* and *Hadith*. These criteria, described earlier in the Need for Integration Framework section, formed the foundation for selecting psychologists who can contribute effectively to research that integrates Islamic perspectives.

Similarly, selecting Islamic scholars for the framework requires attention to their specialization within the relevant field of Islamic studies that corresponds to the psychological construct under investigation. Referring to *Ahli*, experts with deep knowledge in specific Islamic areas, is essential to ensure scholarly precision and relevance (Skinner, 2018). Beyond their subject-matter expertise, these scholars should also possess familiarity with social sciences, enabling them to engage meaningfully with psychological research methodologies and constructs. Moreover, they should understand the core objectives and principles of the Islamization of psychology agenda, which emphasizes aligning psychological constructs with Islamic worldviews without compromising scientific integrity. This dual expertise ensures that the integration framework remains rooted in both scientific inquiry and Islamic framework (Rothman & Coyle, 2018; Rassool, 2023a; 2023b).

#### 12

# Measurement Issues in Islamic-Psychological Research

Another critical concern in implementing the integration framework is addressing measurement challenges. Psychological research frameworks typically accommodate qualitative, quantitative, and mixed-methods research designs, each requiring unique approaches to operationalize adapted psychological constructs (Rassool, 2023a; 2023b). For instance, in quantitative inquiry, researchers face an additional challenge of developing reliable and valid instruments that align with the newly adapted constructs. These instruments must not only measure psychological phenomena accurately but also reflect Islamic values and perspectives, adding complexity to their development and validation.

Furthermore, the inclusion of spiritual and metaphysical dimensions within psychological constructs poses ongoing debates about measurement validity (Lewis, 2018). Some researchers question whether spiritual aspects, such as concepts of faith (*iman*), trust in God (*tawakkul*), or spiritual well-being, can be accurately quantified using traditional psychological scales (Frey et al., 2005; King & Crowther, 2004). This highlights the importance of methodological innovation to create tools that can effectively capture these dimensions without oversimplifying or misrepresenting them. In mixed-methods research, the integration of qualitative insights with quantitative measures provides an avenue for addressing these challenges, allowing for a richer understanding of constructs while maintaining methodological rigor (Palinkas et al., 2019).

Researchers implementing the integration framework must therefore employ a thoughtful and careful approach, balancing the scientific demands of psychological research with the philosophical and theological underpinnings of Islamic principles. This requires collaboration between psychologists and Islamic scholars during the development and validation of measurement tools, ensuring they reflect both scientific standards and Islamic principles.

#### CONCLUSION

The proposed Islamic-Psychological Research Integration Framework offers a structured approach to integrating Islamic principles into psychological research. This framework addresses the secular underpinnings of modern psychology by ensuring alignment with Islamic values, thus bridging the gap between the two disciplines. It provides a systematic, five-step collaborative process between psychologists and Islamic scholars. This framework emphasizes the importance of validating psychological concepts from an Islamic perspective. This collaborative process enriches the field of Islamic psychology and ensures the research outcomes are both scientifically sound and adhere to the Islamic teachings.

This framework holds significant potential for addressing key challenges faced by Muslim psychologists and the broader discipline of Islamic psychology. By adopting this structured approach, researchers can navigate the role ambiguity and role legitimacy that often accompany efforts to integrate Islamic perspectives with modern psychological paradigms. The framework also advocates for a multi- and trans-disciplinary approach, leveraging expertise across fields to advance Islamic psychology as a credible and innovative academic discipline. Furthermore, it mitigates the risk of personal bias that might arise from subjective interpretations of Islamic principles, thereby fostering greater transparency and ensuring the credibility of research findings.

At its core, this framework serves as a guide for integrating Islamic perspectives into psychology, offering a clear pathway for researchers to evaluate and adapt psychological constructs through an Islamic lens. It establishes a foundation for developing research methodologies, tools, and interventions that are effective and ethically grounded in Islamic principles.

In essence, this study symbolizes the process of "putting an Islamic scholar's hat on a psychologist's head." It seeks to empower psychologists with the ability to apply an Islamic lens to critically evaluate psychological constructs before employing them in empirical research. This approach enriches the field by providing a fresh perspective that harmonizes scientific inquiry with Islamic principles and values, ultimately contributing to the development of a holistic and balanced understanding of human psychology.

#### **Ethics statement**

This conceptual study based on literature analysis and do not require ethical approval from the authors' institution.

#### Authors contribution

- 1: Conceptualization, formal analysis, visualization, and writing original draft
- 2: Conceptualization, resources, validation, and review and editing

# Conflict of interest

There was no conflict of interest in this study.

#### ORCID

Mohd Ferdaus Harun https://orcid.org/0000-0001-5336-0892

Maisarah Mohd. Taib <a href="https://orcid.org/0009-0000-6972-3053">https://orcid.org/0009-0000-6972-3053</a>

#### REFERENCES

- Ab Hamid, M. H., Tumiran, M. A., Adli, D. S. H., Zulkifli, M. Y., Mahaiyadin, M. H., Latiff, A. M. A., & Daud, M. Z. (2023). Determination of the concept of Rahmah in the lives of persons with disabilities. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 8(11), e002587-e002587. https://doi.org/10.47405/mjssh.v8i11.2587
- Aflakseir, A., & Coleman, P. G. (2011). Initial development of the Iranian Religious Coping Scale. *Journal of Muslim Mental Health*, 6(1), 44-61. https://doi.org/10.3998/jmmh.10381607.0006.104
- Abu-Raiya, H., & Pargament, K. I. (2010). Empirically based psychology of Islam: Summary and critique of the literature. *Mental Health, Religion & Culture,* 14(2), 93-115. https://doi.org/10.1080/13674670903426482

- Abu-Raiya, H., Pargament, K. I., Stein, C. H., & Mahoney, A. (2007). Lessons learned and challenges faced in developing the Psychological Measure of Islamic Religiousness. Journal of Muslim Mental Health, 2(2), 133-154. https://doi.org/10.1080/15564900701613058
- Aldbyani, A., & Al-Abyadh, M. H. A. (2023). The effect of mindfulness meditation on academic burnout and perceived stress among Muslim students: A quasi-experimental approach. Islamic Guidance and Counselling Journal, 6(1), 152-164. https://doi.org/10.25217/igcj.v6i1.3467
- Al-Seheel, A. Y., & Noor, N. M. (2016). Effects of an Islamic-based gratitude strategy on Muslim students' happiness. Mental Health, Religion Culture, 19(7), 686-703. https://doi.org/10.1080/13674676.2016.1229287
- Al-Karam, C. Y. (2018). Islamic psychology: Towards a 21st century definition and conceptual framework. Journal of Islamic Ethics, 2(1-2), 97-109. https://doi.org/10.1163/24685542-12340020
- Awaad, R., Fisher, A. J., Ali, S., & Rasgon, N. (2019). Development and validation of the Muslims' Perceptions and Attitudes to Mental Health (M-PAMH) scale with a sample of American Muslim women. Journal Mental Health, 13(2), https://doi.org/10.3998/jmmh.10381607.0013.205
- Ayora-Talavera, A., Ayora-Talavera, D. A., Goyri-Ceballos, J., & Campo-Marín, T. C. (2022). Revisiting a dialogue: Collaborative and dialogical practices in motion. Journal of Systemic Therapies, 41(3), 68-85. https://doi.org/10.1521/jsyt.2022.41.3.68
- Badri, M. (2020). The Islamization of psychology: Its "why", its "what", its "how" and its "who". International Journal of Islamic Psychology, 3(01), 22-33.
- Berzengi, A., Berzenji, L., Kadim, A., Mustafa, F. I., & Jobson, L. (2016). Role of Islamic appraisals, trauma-related appraisals, and religious coping in the posttraumatic adjustment of Muslim trauma survivors. Psychological Trauma: Theory, Research, Practice, and Policy, 9(2), 189-197. https://doi.org/10.1037/tra0000179
- Bhatti, O. K., Aslam, U. S., Hassan, A., & Sulaiman, M. (2016). Employee motivation an Islamic perspective. Humanomics, 32(1), 33-47. https://doi.org/10.1108/H-10-2015-0066
- Bjorck, J. P., & Maslim, A. A. (2011). The Multi-Faith Religious Support Scale: Validation with a sample Muslim Muslim women. Journal Mental Health, 6(1), 62-80. of https://doi.org/10.3998/jmmh.10381607.0006.105
- Bulut, S., Hajiyousouf, I. I., & Nazir, T. (2021). Depression from a different perspective. Open Journal of Depression, 10, 168-180. https://doi.org/10.4236/ojd.2021.104011
- Bulut, S., Rostami, M., Bulut, S., Bukhori, B., Alitabar, S. H. S., Tariq, Z., & Zadhasn, Z. (2024). Work-life integration in women's lives: A qualitative study. Psychology of Woman Journal, 5(1), 36-42. https://doi.org/10.61838/kman.pwj.5.1.4
- Cader, A. A. (2016). Towards an Islamic model of work motivation. Intellectual Discourse, 24(1). https://doi.org/10.31436/id.v24i1.750
- Carle, R. (2019). Islamically integrated psychotherapy. Journal of Religion and Health, 58, 358–360. https://doi.org/10.1007/s10943-018-0724-x
- Cucchi, A. (2022). Integrating cognitive behavioural and Islamic principles in psychology and psychotherapy: A narrative review. Journal of religion and health, 61(6), 4849-4870. https://doi.org/10.1007/s10943-022-01576-8
- Dasti, R., & Sitwat, A. (2014). Development of a multidimensional measure of Islamic spirituality 47-67. (MMIS). Journal Muslim Mental Health, 8(2), https://doi.org/10.3998/jmmh.10381607.0008.204
- Dodgson, J. E. (2021). Critical analysis: The often-missing step in conducting literature review research. Journal of Human Lactation, 37(1), 27-32. https://doi.org/10.1177/0890334420977815
- Dover, H., Issaka, A. I., & Agho, K. (2020). Factors associated with counter terrorism-related behaviour change among Australian Muslims. International Journal of Islamic Psychology, 3(01), 34-43.
- Febriani, A., Abdillah, T. A., & Syahputra, A. (2024). Impact Dhikr on mental health. International Journal of Islamic Studies and Social Sciences, 1(1), 107-125.

- Frey, B. B., Daaleman, T. P., & Peyton, V. (2005). Measuring a dimension of spirituality for health research: Validity of the Spirituality Index of Well-Being. *Research on Aging*, 27(5), 556-577. https://doi.org/10.1177/0164027505277847
- Ghufran, M. (2020). Spirituality and health in relation to religious internalization and collective religious practices. *International Journal of Islamic Psychology*, *3*(01).
- Hashem, H., Dossani, H., Ghani, M., Ahsen, A. S., & Morshed, C. (2023). Belonging as a predictor of substance use for Muslim American emerging adults. *Journal of Muslim Mental Health*, 17(2). https://doi.org/10.3998/jmmh.1176
- Hussain, M. (2022). Using Islamically integrated psychotherapy for the treatment of sexual issues in a Muslim male: A Pakistani case study. *Journal of Muslim Mental Health*, 16(1), 59-73. https://doi.org/10.3998/jmmh.418
- Hoover, J. (2015). Free will and predestination in Islamic thought: Theoretical compromises in the works of Avicenna, al-Ghazālī and Ibn 'Arabī. *Islam and Christian–Muslim Relations*, 26(4), 516–518. https://doi.org/10.1080/09596410.2015.1053274
- Hoseini, A. S. S. (2019). A proposed Islamic nursing conceptual framework. *Nursing science quarterly*, 32(1), 49-53. https://doi.org/10.1177/0894318418807944
- Imron, I., Mawardi, I., & Şen, A. (2023). The influence of spirituality on academic engagement through achievement motivation and resilience. *International Journal of Islamic Educational Psychology*, 4(2), 314-326. https://doi.org/10.18196/ijiep.v4i2.19428
- Iqbal, N., & Skinner, R. (2021). Islamic psychology: Emergence and current challenges. *Archive for the Psychology of Religion*, 43(1), 65-77. https://doi.org/10.1177/0084672420983496
- Irajpur, A., & Moghimiyan, M. (2018). Dimensions of the spiritual needs of Muslim chronic patients: A qualitative study. *Journal of Muslim Mental Health*, 12(2), 29-43. http://dx.doi.org/10.3998/jmmh.10381607.0012.203
- Jou, D. (2022). Ibn Taymiyya on human nature and belief in god: Using the cognitive science of religion to study the Fiṭra. *Religions*, 13(10), 951-966. https://doi.org/10.3390/rel13100951
- Karimi, N., & Ziaee, S. S. (2024). Effectiveness of group metacognitive therapy on psychological symptoms of Muslim women with substance use disorder: Evidence from Afghanistan. *Journal of Muslim Mental Health*, 17(2). https://doi.org/10.3998/jmmh.1964
- Kaplick, P. M., & Skinner, R. (2017). The evolving Islam and psychology movement. *European Psychologist*, 22(3), 198-204. https://doi.org/10.1027/1016-9040/a000297
- Kenia, D., Uyun, M., & Barry, M. S. (2023). Islamic religiosity and perceived behavioural control on academic cheating. *International Journal of Islamic Educational Psychology*, 4(1), 33-47. https://doi.org/10.18196/ijiep.v4i1.17743
- Keshavarzi, H., & Haque, A. (2013). Outlining a psychotherapy model for enhancing Muslim mental health within an Islamic context. *International Journal for the Psychology of Religion*, 23(3), 230-249. https://doi.org/10.1080/10508619.2012.712000
- Khurshid, M. A., Al-Aali, A., Ali Soliman, A. and Mohamad Amin, S. (2014). Developing an Islamic corporate social responsibility model (ICSR) *Competitiveness Review*, 24(4), 258-274. https://doi.org/10.1108/CR-01-2013-0004
- King, J. E., & Crowther, M. R. (2004). The measurement of religiosity and spirituality: Examples and issues from psychology. *Journal of Organizational Change Management*, 17(1), 83-101. https://doi.org/10.1108/09534810410511314
- Lewis, C. A. (2018). Assessment of mental health, religion and culture: The development and examination of psychometric measures (Part IV). *Mental Health, Religion & Culture*, 21(9), 851-854. https://doi.org/10.1080/13674676.2018.1616383
- Löhr, K., Weinhardt, M., & Sieber, S. (2020). The "World Café" as a participatory method for collecting qualitative data. *International Journal of Qualitative Methods*, 19, 1-15. https://doi.org/10.1177/1609406920916976

- Lumbard, J. E. (2024). Islam and the challenge of epistemic sovereignty. Religions, 15(4), 406. https://doi.org/10.3390/rel15040406
- Lynn, M. L., & Moberg, D. O. (1999). Research in the social scientific study of religion. In M. L. Lynn & D. O. Moberg (eds.), Research in the Social Scientific Study of Religion (vol. 6, pp. 257-262). Brill. https://doi.org/10.1163/9789004493285\_015
- McKechnie, D. S., Grant, J., Tucker, L. R., & Kuehn, R. (2007). Guided by Tawhid (unity): Ethics in The workplace. Journal of management, spirituality religion, 4(1), 35-55. https://doi.org/10.1080/14766080709518645
- Mokhtar, M. Y. O., Arifain, S. M. K., Isa, M. F. M., Jailani, A. I., & Othman, W. N. W. (2020). The concept of altruism and Ihsan as an approach towards achieving psychological well-being at the workplace: An observation at the Islamic university college of Melaka. International Journal of Academic Research in Business Social Science, s, 10(10), 637-648. http://dx.doi.org/10.6007/IJARBSS/v10-i10/7997
- Oyewuwo, O. B. (2020). Black Muslim Women's use of spirituality and religion as domestic violence coping strategies. Journal Muslim Mental Health, 14(1), 3-22. of https://doi.org/10.3998/jmmh.10381607.0014.101
- Palinkas, L. A., Mendon, S. J., & Hamilton, A. B. (2019). Innovations in mixed methods evaluations. Annual Review of Public Health, 40(1), 423-442. https://doi.org/10.1146/annurevpublhealth-040218-044215
- Rassool, G. H. (2021). Islamic psychology: Human behaviour and experience from an Islamic perspective. Routledge.
- Rassool, G. H. (2023a). Advancing Islamic Psychology education: Knowledge integration, model, and application. Taylor & Francis.
- Rassool, G.H. (2023b). Integrated research methodologies in Islamic psychology. Routledge.
- Rassool, G. H. (2023c). Islamic psychology: The basics. Routledge.
- Rassool, G. H., & Luqman, M. M. (2022). Foundations of Islamic psychology: From classical scholars to contemporary thinkers. Routledge.
- Rayan, A., Baker, O., & Fawaz, M. (2020). The psychometric properties of attitudes toward seeking professional psychological help scale-short form in Jordanian University students. Journal of Muslim Mental Health, 14(1), 23-35. https://doi.org/10.3998/jmmh.10381607.0014.102
- Reza, I. F., Siregar, S. A., Aulia, N., Aziza, K. N., Apriansyah, A., Wulandari, D., Putra, F. A., Sabrina, H., Mastura, L., Maulana, M. G., Kurnia, M., Resilawati, R., Rizki, R. A., & Triana, W. (2021). Dhikr as psychotherapy to overcome academic stress of Muslim youth. Indonesian Journal of Behavioral Studies, 1(1), 53-60. https://doi.org/10.19109/ijobs.v1i1.9257
- Riyono, B. (2022). The scientific principles of Islamic psychology. International Journal of Islamic Psychology, 5(1), 30-36.
- Rothman, A., & Coyle, A. (2018). Toward a framework for Islamic psychology and psychotherapy: An religion model of the Soul. Journal of and health, 57, 1731-1744. Islamic https://doi.org/10.1007/s10943-018-0651-x
- Rothman, A., & Coyle, A. (2020). Conceptualizing an Islamic psychotherapy: A grounded theory study. Spirituality in Clinical Practice, 7(3), 197-213. https://doi.org/10.1037/scp0000219
- Sabry, W. M., & Vohra, A. (2013). Role of Islam in the management of psychiatric disorders. Indian Journal of Psychiatry, 55(2), 205-214. https://doi.org/10.4103/0019-5545.105534
- Salahuddin, A. A., & Othman, R. (2018, July). A Delphi study on thematic interpretations of Al-Quran. In 2018 International Conference on Information and Communication Technology for the Muslim World (ICT4M) (pp. 311–316). IEEE. https://doi.org/10.1109/ict4m.2018.00064
- Shuriye, A. O. (2014). The role of Tawheedic stimulus in the conscience of Muslim Journal individuals. Mediterranean of Social Sciences, 5(23), 1940-1948. https://doi.org/10.5901/mjss.2014.v5n23p1940

- Skinner, R. (2018). Traditions, paradigms and basic concepts in Islamic psychology. *Journal of religion and health*, *58*, 1087-1094. https://doi.org/10.1007/s10943-018-0595-1
- Suseno, B. (2024). Muslim prayer (*Salah*), and its restorative effect: Psychophysiological explanation. *Asian Journal of Islamic Psychology*, 1(1), 1-7.
- Tanhan, A., & Young, J. S. (2022). Muslims and mental health services: A concept map and a theoretical framework. *Journal of religion and health*, 61(1), 23-63. https://doi.org/10.1007/s10943-021-01324-4
- Tahir, L. M., Khan, A., Musah, M. B., Ahmad, R., Daud, K., Al-Hudawi, S. H. V., Osman, W. R. S., Yasin, M., Abdul Rahman, S. B., Nor, F. M., & Talib, R. (2018). Administrative stressors and Islamic coping strategies among Muslim primary principals in Malaysia: A mixed-method study. *Community Mental Health Journal*, 54(5), 649–663. https://doi.org/10.1007/s10597-017-0206-8
- Taylor, M., & Horgan, J. (2001). The psychological and behavioural bases of Islamic fundamentalism. *Terrorism and Political Violence*, 13(4), 37-71. https://doi.org/10.1080/09546550109609699
- Unus, I., & Caldwell, C. (2018). Ethical principles of the Islamic faith: Insights for the modern world. *Business and Management Research*, 7(3), 27-35. https://doi.org/10.5430/bmr.v7n3p27
- Qayyum, A., Kousar, S., Jamil, R. A., & Sarmad, M. (2018). Relationship between work-family and interpersonal conflicts: Mediating role of psychological distress and the moderating effect of Islamic work ethics. *Journal of Islamic Business and Management*, 8(2), 501-519. https://doi.org/10.26501/jibm/2018.0802-010
- Yusuf, M. Y., & Bahari, Z. B. (2015). Islamic corporate social responsibility in Islamic banking: Towards poverty alleviation. *Ethics, Governance and Regulation in Islamic Finance*, 73(5), 92-99.
- Verwey, L. (2024). An investigation of Australian Muslims' help-seeking pathways for mental health problems. *Journal of Muslim Mental Health*, 17(2), 67-87. https://doi.org/10.3998/jmmh.251
- Zulkifli, H., & Hashim, R. (2019). Moral reasoning stages through Hikmah (wisdom) pedagogy in moral education. *International Journal of Academic Research in Progressive Education and Development*, 8(4), 886-899. http://dx.doi.org/10.6007/IJARPED/v8-i4/6779