

Impact of self-reflection training using Kawa model on quality of life and academic performance among undergraduate occupational therapy students

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ABSTRACT

Background: Self-appraisal and reflection are crucial for occupational therapy students (OT) and practitioners, fostering learning and professional growth. The Kawa model, typically used clinically, may aid self-reflection by helping students recognize their strengths and challenges. However, while the model has been extensively studied in clinical settings, research on its application as a self-reflection tool for OT students remains limited.

Objectives: This study aimed to evaluate the impact of self-reflection training using the Kawa model on the quality of life and academic performance of undergraduate occupational therapy students.

Materials and methods: A randomized controlled trial was conducted. A total of 183 occupational therapy students were initially screened using the Study Skills Assessment Questionnaire. Based on poor and moderate study skill levels, along with teacher reports, 77 students met the inclusion criteria. Through simple randomization using the lottery method, 50 students were selected and assigned to either the experimental group (N=25) or the control group (N=25). The quality of life and academic performance were assessed using the WHOQOL-BREF and an academic performance scale. The experimental group received self-reflection training based on the Kawa model, while the control group underwent conventional occupational therapy for six months. Data analysis was performed using SPSS version 23.0, with paired and independent t-tests applied.

Results: Post-test scores showed statistically significant improvements in the experimental group in both quality of life ($p<0.001$) and academic performance ($p<0.01$). The results of this study showed that self-reflection training using the Kawa model was effective in enhancing both quality of life and academic performance among occupational therapy students.

Conclusion: The results suggested that self-reflection training with the Kawa model was beneficial for the experimental group, it improved quality of life and better academic performance of occupational therapy students after the intervention.

Introduction

Medical studies expose students to stress, causing mental health issues and professional burnout, making academic and personal success challenging during pre-clinical phase.¹ The World Health Organization (WHO) defines quality of life as, "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns".² Medical and health-profession careers, including occupational therapy programs, are challenging due to high-intensity academic

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courses, leading to stress, burnout, and poor good point average (GPA). High academic achievements impact professional competence, causing pressure and lengthy revision periods.³

In response to these challenges, self-reflection is crucial for professional growth and learning in health profession education. During clinical rotations, occupational therapy students benefit from techniques like video recording, journaling, group discussions, and feedback which aid their personal and professional development. Research showed that both internal and interactive self-reflection help medical and allied health students transition into practice.⁴ Reflective practice in occupational therapy is vital for learning from experience and skill development, supporting client-centered and goal-directed care. Self-reflection, a key aspect of emotional intelligence, is fundamental to professionalism and underpins adult education and lifelong learning.⁵

To support reflective practice, innovative tools like the KAWA model have gained prominence. Metaphors enhance self-reflection by adding meaning in which the Kawa Model, using a river as a life journey metaphor, serves as one such framework.⁴ The Kawa model, developed by the Japanese Canadian occupational therapist Dr. Michael Iwama, uses the metaphor of a river (Kawa in Japanese) to represent life's journey. It illustrates how environmental factors influence the flow and balance of life, from birth to death or the achievement of a goal. Along the way, interactions with various elements shape experiences, challenges, and progress.⁶

The Kawa model illustrates how life's flow is influenced by surroundings and interactions. It consists of five components: water represents life's flow, riverbanks symbolize environmental factors, rocks signify obstacles, driftwood represents personal abilities, and space denotes opportunities for growth. As individuals encounter challenges, their flow may be disrupted, leading to stress and hindrances in achieving life goals. The model promotes self-awareness and integration of one's environment, skills, and aspirations. Development plans represented by space in the model helps to overcome obstacles, enhance well-being, and restore self-efficacy.⁶

The Kawa model has demonstrated practical value in occupational therapy education by enhancing students' cultural awareness, professional development, and self-reflection. It aids in identifying learning barriers, personal attributes, and contextual influences, and supports adaptive learning during clinical placements, particularly in remote settings. However, most existing studies use qualitative designs focused on self-reported reflections, often during fieldwork. These studies commonly lack objective measures, control groups, and adequate sample sizes, and do not assess outcomes like academic performance or quality of life—highlighting a gap in understanding the model's broader educational impact.^{4,7} This highlights a critical gap in understanding the model's broader educational impact.

This gap underscores the need for empirical evidence to validate the model's effectiveness in educational

contexts. This study aims to provide empirical evidence supporting the use of kawa model as self-reflection training for occupational therapy students, promoting well-being, academic success, and long-term professional sustainability. Therefore, this study aims to examine the impact of self-reflection training using the Kawa model on the quality of life and academic performance among occupational therapy students. It is hypothesized that the intervention group will demonstrate significantly greater improvements compared to the control group.

Materials and methods

Study design

The study employed a randomized controlled trial to evaluate the effect of Kawa model-based self-reflection training on occupational therapy students' quality of life and academic performance. Participants were randomly assigned to experimental or control groups using the lottery method. A single blinding method was used, in which the students were unaware of their group allocation.

Participants

This study received ethical approval from the Institutional scientific review board of Saveetha college of occupational therapy, with REF.no of SCOT/ISRB/085/2024 on 02.08.2024. Samples were collected from Saveetha college of occupational therapy college in Chennai. A total of 183 undergraduate occupational therapy students, aged 18 to 24 years, were initially screened using the Study Skills Assessment Questionnaire. Based on the inclusion criteria, students with poor and moderate study skills levels along with teacher reports, 77 students were identified as eligible. Using simple randomization through the lottery method, 50 students were selected and randomly assigned to either the experimental group (N=25) or the control group (N=25). Single blinding was implemented, wherein the students were unaware of their group allocation. Students with extensive prior experience with the Kawa model or participation in similar therapeutic interventions were excluded. All participants provided written informed consent prior to the study.

Instruments

WHOQOL-BREF

The WHOQOL-BREF was used to assess the quality of life among participants in this study. It is a 26-item self-report instrument divided into four domains: physical health, psychological health, social relationships, and environment. Each item is rated on a 5-point Likert scale, with higher scores indicating better quality of life. The WHOQOL-BREF demonstrates strong internal consistency, with a Cronbach's alpha coefficient of 0.896 for the entire scale. Test-retest reliability was also satisfactory for all domains, with correlation coefficients significant at the $p < 0.01$ level, indicating good stability over time. However, the "Social Relationships" domain showed lower internal consistency ($\alpha = 0.533$), which should be taken into consideration when interpreting results, as it may affect the reliability of findings within that domain.

Principal component analysis identified four components accounting for 49.5% of the variance.⁸ For interpretive clarity, quality of life scores were categorized as follows: 0-20 = poor, 21-40 = moderate, 41-60 = good, and 61-80 = very good.⁹

Academic performance scale (APS)

The Academic Performance Scale (APS), developed by Christopher McGregory and colleagues at Saginaw Valley State University, is a self-report questionnaire assessing academic behaviors and actions. It consists of eight items rated on a 5-point scale, with higher scores indicating better academic performance. The scale has strong reliability, with an internal consistency of 0.89 and a test-retest reliability of 0.85. It also demonstrates satisfactory concurrent validity. Score interpretation is as follows: 33-40 (excellent), 25-32 (good), 17-24 (moderate), 9-16 (poor), and 0-8 (failing).¹⁰ A recent study has successfully employed the APS to explore academic outcomes in college students, reinforcing its applicability.¹⁰ In our study, the APS was selected due to its ability to capture self-reported academic behaviors aligned with the constructs targeted by the intervention.

Procedure

The experimental group (25 participants) received self-reflection training with the kawa model, while the control group (25 participants) underwent conventional occupational therapy. In self-reflection training using the Kawa model, the therapist introduces the model's key components-water, rocks, riverbanks, and riverbed. The participant then creates a river drawing that represents their life flow, allowing for free expression without time constraints. The participant also constructs a river cross-section, which serves as both a diagnostic and therapeutic tool for intervention planning and evaluation. Once the drawing is completed, the therapist and participant discuss its meaning and analyze the elements from the participant's perspective. Topics are then prioritized for intervention, focal points are identified, and interventions are implemented in a client-centered manner, tailored to individual needs and goals. The final stage involves assessing the effectiveness of the intervention. The control group received conventional occupational therapy, incorporating time management, relaxation techniques and academic performance guidance. The study duration was 6 months, one day per week, 24 sessions and 45 minutes per session. Following that, the post test was conducted with WHOQOL-BREF and Academic performance scale (Figure 1).

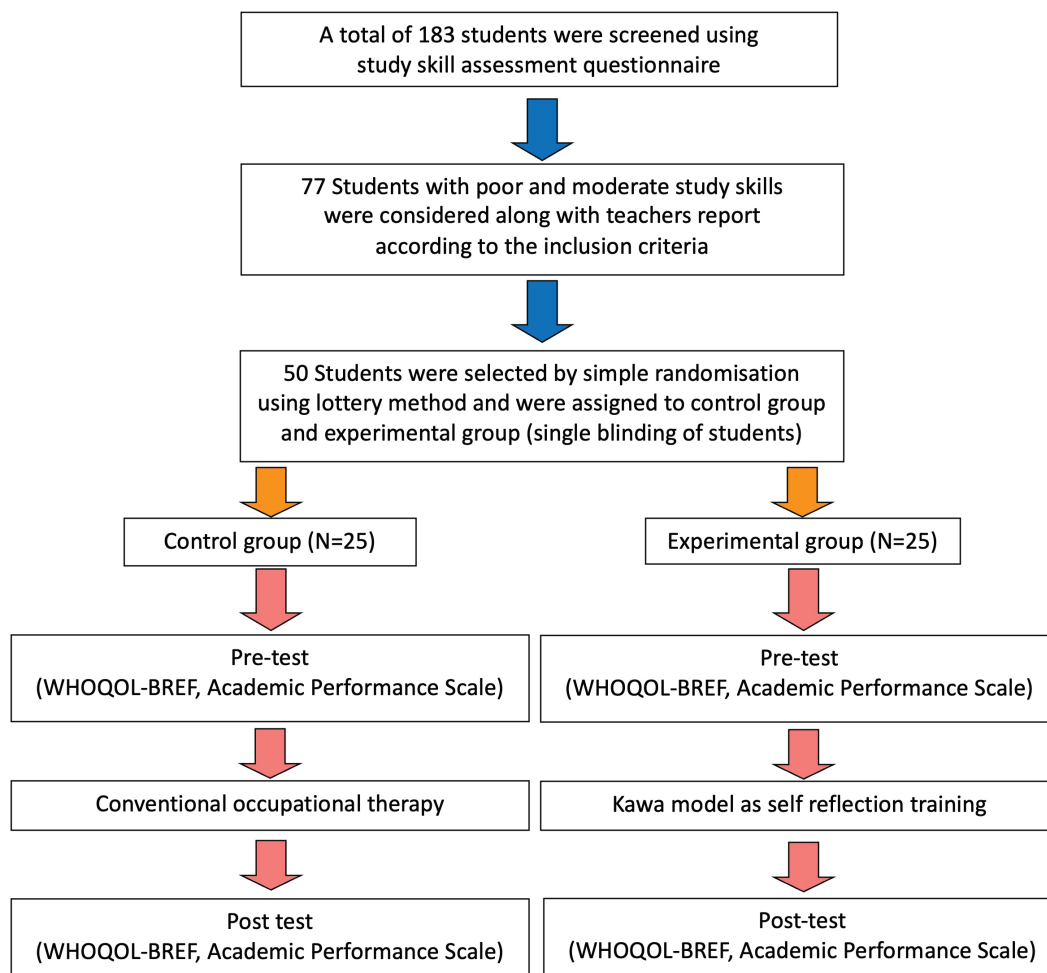


Figure 1. Consort diagram of the study.

Data analysis

Descriptive statistics (means, standard deviations, frequencies, and percentages) were used to summarize demographic and baseline data. Normality of the data was assessed using the Kolmogorov-Smirnov test. As the data were normally distributed, inferential statistics appropriate for randomised control trial design were applied. Participants were randomly allocated to experimental and control groups using the lottery method. Paired T-tests were used to compare pre- and post-intervention scores within groups, and independent t-tests were used to assess differences between groups. A 95% confidence interval was used in this study to estimate the precision of the observed effects. All statistical analyses were conducted using a significance level of $p < 0.05$; results with $p < 0.05$ were considered statistically significant, and those with $p < 0.01$ were considered highly significant. The statistical analysis was done with the help of IBMSPSS version 23.0.

Results

Table 1 shows the baseline comparison between the control and experimental groups on demographic variables and outcome measures. All participants were undergraduate occupational therapy students. The mean age and gender distribution were comparable between the groups, with no statistically significant differences ($p > 0.05$). Similarly, there were no significant differences in the baseline WHOQOL-BREF scores ($p = 0.46$) and Academic performance scale scores ($p = 0.26$), indicating that both groups were homogeneous at the start of the study.

Table 2 displays the statistical difference between the pre-test and post-test WHOQOL-BREF scores within each group. In the control group, the mean score increased slightly from 46.87 to 47.42 with a statistically significant p -value of 0.027, but the effect size (Cohen's $d = 0.06$) was small. In contrast, the experimental group showed a substantial improvement in WHOQOL-BREF scores from 48.67 to 53.13, with a highly significant ($p < 0.001$) and a moderate effect size (Cohen's $d = 0.50$). This suggests that the intervention in the experimental group had a stronger impact on quality of life.

Table 3 presents the pre-test and post-test comparison of Academic performance scale scores within groups. The control group showed a small but statistically significant improvement from 18.24 to 19.08 ($p = 0.032$, Cohen's $d = 0.32$). The experimental group showed a larger increase in Academic performance scale scores from 18.92 to 21.68, with a highly significant ($p < 0.001$) and a large effect size (Cohen's $d = 1.24$), indicating a strong impact of the intervention on academic performance.

Table 4 compares the post-test scores between the control and experimental groups. The experimental group had significantly higher WHOQOL-BREF scores (53.13 vs 47.42; $p = 0.025$, Cohen's $d = 0.65$) and Academic performance scale scores (21.68 vs 19.08; $p = 0.001$, Cohen's $d = 0.95$) than the control group. These findings indicate that the intervention provided to the experimental group resulted in significantly better outcomes in both quality of life and academic performance.

Table 1. Baseline comparison of groups on demographics and outcome measures.

Variable	Control group (N=25)	Experimental group (N=25)	t/ χ^2	p value
Age (years), Mean $\pm$ SD	19.16 $\pm$ 0.95	19.40 $\pm$ 1.16	0.80	0.43
Gender	Female: 12 (48%) Male: 13 (52%)	Female: 13 (52%) Male: 12 (48%)	0.08	0.78
WHOQOL-BREF (pre-test)	46.87 $\pm$ 8.62	48.67 $\pm$ 8.91	0.74	0.46
Academic performance scale score (pre-test)	18.24 $\pm$ 2.03	18.92 $\pm$ 2.18	1.13	0.26

Table 2. Pre-post comparison of WHOQOL-BREF scores (Paired T-test).

Group	Test	Mean $\pm$ SD	Mean Diff	t (df)	p value	Cohen's d
Control	Pre-test	46.87 $\pm$ 8.62	0.55	-2.35 (24)	0.027*	0.06
	Post-test	47.42 $\pm$ 8.69				
Experimental	Pre-test	48.67 $\pm$ 8.91	4.46	-10.08 (24)	<0.001**	0.50
	Post-test	53.13 $\pm$ 8.78				

Note: *significant at 5% level.

Table 3. Pre-post comparison of academic performance scale scores (Paired T-test).

Group	Test	Mean±SD	Mean Diff	t (df)	p value	Cohen's d
Control	Pre-test	18.24±2.03	0.84	-2.28 (24)	0.032*	0.32
	Post-test	19.08±3.01				
Experimental	Pre-test	18.92±2.18	2.76	-20.80 (24)	<0.001**	1.24
	Post-test	21.68±2.25				

Note: *significant at 5% level.

Table 4. Post-Test Comparison between groups (Independent T-test).

Outcome	Group	Mean±SD	Mean Diff	t (df)	p value	Cohen's d
WHOQOL-BREF	Control	47.42±8.69	5.71	-2.31 (48)	0.025*	0.65
	Experimental	53.13±8.78				
Academic performance scale score	Control	19.08±3.01	2.60	-3.46 (48)	0.001**	0.95
	Experimental	21.68±2.25				

Note: *significant at 5% level.

Discussion

This study found that self-reflection training using the Kawa Model significantly improved both quality of life and academic performance among occupational therapy students, with greater gains than conventional interventions. These findings highlight the model's role in enhancing self-understanding, which supports better learning and overall well-being.

Table 2 presents the statistical analysis of pre-test and post-test quality of life (QoL) scores in both the control and experimental groups. In the control group, the mean QoL score increased slightly from 46.87 to 47.42 ($T=-2.350$, $p=0.027^*$), indicating a statistically significant improvement following conventional occupational therapy. These findings are supported by the American Occupational Therapy Association's Vision 2025, which emphasizes the role of occupational therapy in enhancing health, well-being, and overall quality of life (AOTA, 2017).¹¹ Similarly, Espiritu reported that an occupation-based intervention positively impacted well-being among OT students in a mixed-methods study, further highlighting the potential of occupational therapy to support student mental health and quality of life.¹²

In contrast, the experimental group, which received self-reflection training using the Kawa Model alongside conventional OT, demonstrated a more pronounced improvement in QoL scores—from 48.67 to 53.13 ($T=-10.075$, $p=0.000$)—indicating a highly significant change. This aligns with previous findings on the model's adaptability and effectiveness across diverse populations. For instance, Galof reported improved QoL in individuals with visual impairments due to enhanced therapist-client interactions and greater independence,¹³ while Hsiao HY found it effective in supporting recovery among individuals with ketamine use by fostering motivation and readiness for change.¹⁴ Although these studies involved different populations, they emphasize the Kawa model's capacity to foster meaningful reflection and personal growth. In the present study, such reflective practices may have enabled

students to better understand their life experiences, identify barriers and supports, and set realistic goals—ultimately contributing to enhanced confidence, resilience, and overall quality of life. However, the low reliability of the social relationship domain in the WHOQOL-BREF may limit the accuracy of related findings and be interpreted with caution.

Table 3 presents the statistical analysis of pre-test and post-test academic performance in both the control and experimental groups. In the control group, mean scores improved significantly from 18.24 to 19.08 ($T=-2.281$, $p=0.032^*$), demonstrating the effectiveness of conventional occupational therapy (OT) interventions in enhancing academic performance. These results align with findings by Zolotnitsky *et al.*, who reported that OT-led coaching significantly improves self-regulation and structured learning among college students with disabilities,¹⁵ and Nagata *et al.*, who highlighted the value of evidence-based OT in promoting academic engagement and well-being in students with learning differences.¹⁶

These complementary findings support the notion that OT interventions, whether conventional or coaching-based, contribute positively to academic outcomes, reinforcing the improvements observed in our control group. In the experimental group, which received self-reflection training using the Kawa Model, the mean score increased markedly from 18.92 to 21.68 ($T=-20.804$, $p=0.000^{**}$), indicating a highly significant improvement. This finding supports Naidoo, who emphasized that the Kawa model fosters self-awareness and reflection, helping students better understand themselves in both personal and professional contexts.⁷ In our study, the metaphor-based, structured Kawa model enabled deeper reflection, clearer goal setting, and more effective problem-solving, likely contributing to academic gains. These findings suggest that while conventional OT is beneficial, the Kawa model-based intervention has a greater impact on academic performance.

Tables 4 present the statistical analysis of post-test QoL and academic performance in both the experimental and control groups. A statistically significant difference was observed for both QoL ($T=-2.312$, $p=0.025^*$) and academic performance ($T=-3.458$, $p=0.001^{**}$), with the experimental group performing better. This may be due to the Kawa model's client-centered design, which focuses on self-reflection, goal setting, and understanding challenges using the river metaphor. Unlike standard OT, the Kawa model helps students visualize their obstacles (rocks), strengths (driftwood), and environment (riverbanks), helping them become more self-aware and better at coping. These strategies may have improved their mental health, self-confidence, and ability to bounce back from challenges, leading to better QoL and academic outcomes. This is supported by prior studies, including those by Blakeley *et al.* and Foo *et al.*^{4,6} This study highlights the Kawa model as a culturally meaningful, structured approach that supported both mental and academic improvement in OT students. The findings suggest its potential to enhance personal insight, motivation, and resilience in OT education. Future research could explore its long-term impact, adaptability across settings, and use with other student groups. Clinically, it may complement standard OT by addressing emotional well-being and learning needs.

Conclusion

This study demonstrated that integrating the kawa model into occupational therapy education enhanced students' personal and academic development. The positive outcomes in quality of life, academic performance in the experimental group highlight the model's effectiveness, reinforcing its educational value. These results also suggest the model's potential for broader application beyond occupational therapy, encouraging further exploration in diverse educational settings and among healthcare professionals to enhance professional competence and support student success. Given the study's limited sample size and age range, future research should evaluate its effectiveness in larger, more diverse student groups and across various educational contexts to inform broader curriculum development and evidence-based training practices.

Conflict of interest

The authors declare no conflict of interest.

Ethical approval

This study has been approved by the Institution Scientific Review Board (ISRB) of Saveetha College of Occupational Therapy with Reference No. of SCOT/ISRB/085/2024.

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Credit authorship contribution statement

The main author designed the study, analyzed

data, and prepared the manuscript. The second author conducted the study under the main author's supervision. All authors approved the final manuscript.

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