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The Evaluation of 'Starting University Workbook' as an Intervention Module at Improving the Adaptability Skills, Psychological Well-Being, and Stress Among First-Year Students in Universiti Teknologi PETRONAS (UTP)

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ABSTRACT

The Starting University Workbook was developed to address the need for psychological support for first-year students at Universiti Teknologi PETRONAS. An evaluation of its effectiveness in improving adaptability skills, psychological well-being, and reducing stress was conducted, as these are considered essential during the transition year for students. The workbook consists of four modules, a web-based assisted intervention. This study aims to evaluate the effectiveness of the Starting University Workbook in enhancing adaptability and psychological well-being and reducing stress among first-year students at UTP. It employed an evaluation which included setting goals, conducting a needs analysis, and assessing the module's effectiveness. All 189 first-year students, aged 16-24, were recruited and given access to complete the four modules integrated into the Ulearn system. Study outcomes were measured using self-reported questionnaires, including the Student Adaptability College Questionnaire, Psychological Wellbeing Scale, and Perceived Stress Scale, administered before and after the intervention to both completers and non-completers. Results indicated that those who completed the Starting University Module showed improvements in adaptability skills and psychological well-being compared to non-completers. However, no significant impact on perceived stress was observed. This study explicitly highlights potential pathways to incorporate the Starting University Workbook as a psychological support programme for first-year students, with suggestions for enhancements, such as the inclusion of mindfulness practices and gamification, to create a more versatile interface.

Keywords: *adaptability, effectiveness, first year students, perceived stress, psychological wellbeing,*

INTRODUCTION

The transition to university among first-year students is considered challenging and can affect their academic, social, and emotional well-being. In Malaysia, stress affects 1 in 10 adolescents, according to the 2017 National Health and Morbidity Survey. This indicates that first-year students are already vulnerable or at risk before beginning their journey in higher education, which may influence their transition to university, a process known to be challenging. The Bridges Transition Model identifies three stages related to transitional issues.

When addressing the difficulties faced by first-year students, it has been observed that the first stage typically occurs in the first week of enrolment and involves adjusting to a new academic environment, location, or culture. Students often exhibit psychological distress

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during this stage, which includes annoyance, doubt, sadness, anger, denial, confusion, feelings of loss, and fear (Cheng et al. 2015). Transition may lead students into isolation, anxiety, unhappiness, confusion, depression, and homesickness. These findings align with other studies.

A study of first-year students at UiTM investigating the relationship between stress and psychological well-being found that perceived stress negatively affected psychological well-being (Malik et al., 2020). Similarly, Joo et al. (2021) examined first-year students' adaptation to college life in Korea and found a negative correlation between perceived stress and adaptation ($r = -0.696$, $p < .001$). The effects of elevated perceived stress are consistently found to negatively impact students, causing low sleep quality, class skipping, headaches, anxiety, substance use, rumination, and poor self-concept clarity (Alias et al., 2019; Willis & Brunett, 2016).

However, help-seeking behaviour has been identified as low among first-year students (St Stunden et al., 2020). This is also consistent with Orlov et al. (2018), who identified factors for first-year students not seeking help during challenging times as stemming from personal motivation, communication, cognition, and regulation. David and Nita (2014) further emphasised that guided assistance for first-year students is necessary to help them adapt to new challenges, new friends and peers, a new system, and new learning methods. Therefore, psychosocial interventions provided by the university during this period, as a form of support, are genuinely meaningful and could serve as protective factors for first-year students.

Furthermore, changes are inevitable and will occur both internally and externally, such as neurobiological development, puberty, psychosocial changes, and a sense of self-direction (Magnuson and Redekopp, 1992; National Academies of Sciences, Engineering, and Medicine, 2019). This emphasises the importance of adaptability in individuals, despite the challenges they face during transitions. Adaptability is similar to the concepts of coping and resilience, which explain an individual's ability to confront issues that require attention (Zorzie, 2012). Badelina (2020) further expanded the concept of adaptability, specifically for first-year students, to include qualities such as motivation, psychological comfort, and self-moral satisfaction.

Additionally, a systematic literature review by Zanden et al. (2018) on domains and predictors of first-year student success found that social support from friends and parents is a significant factor with small effect sizes. Consistent with these findings, another contributor to well-being is a sense of belonging to the institution (Sax & Weintraub, 2014), with reported small to medium effect sizes. Few universities have reported on efforts to promote student engagement and foster a sense of belonging (Boulton et al., 2019; Martin & Bolliger, 2018). Institutional efforts to provide social, emotional, and practical support for new students have positively contributed to first-year students' adjustment to university (Ramsay et al., 2007).

LITERATURE REVIEW

Transition is an emerging issue among first-year university students. This is due to changes that have happened concurrently in psychological, biological, and social aspects, which justifies the need for them to develop adaptability skills. An individual perceives a situation as stressful at different levels, and various coping strategies accompany this perception. At low stress levels, problem-focused and emotion-focused coping occur equally, while at high stress levels, individuals tend to display increased emotional and defensive behaviours (Lazarus and Folkman, 1984). Consequently, some individuals experience stress in

each situation, whereas others do not because they perceive and interpret the same scenario differently.

First-year students in transition undergo various changes, both internal (e.g., neurobiological development, puberty, psychosocial adjustments, and a sense of self-direction; National Academies of Sciences, Engineering, and Medicine, 2019) and external (Magnuson and Redekopp, 1992). Additionally, other changes, such as the learning environment, might also contribute to increased stress levels (Clinciu, 2013). For example, workload and feelings of being overwhelmed often lead to stress (Giangrade, 2019). Untreated prolonged unhealthy stress may develop into symptoms of depression or other emotional issues (Mheidly et al, 2020). Therefore, appropriate interventions to support first-year students are crucial for their successful adjustment (De Clercq et al., 2019).

Adaptability is like the concepts of coping and resilience, in which an individual's capacity to manage uncertainty encompasses cognitive, behavioural, and affective adjustments (Zorzie, 2011). Adaptability is moderated by social support, primarily external support from friends and peers at the same university. The study concludes that higher social support is associated with greater adaptability and life satisfaction (Zhou & Lin, 2016). A qualitative study was conducted at several higher education institutions in Northwest England to identify aspects of university experience support for new students during the transition phase. The emerging themes include tackling multiple challenges, the role of university staff, and friendship. (Worsley et al, 2021).

Adaptability was conceptualised with four domains, including academic adjustment, social adjustment, personal-emotional adjustment, and institution attachment by Baker and Siryk (1986) to measure student adaptability through the Student Adaptability College Questionnaire. A holistic approach to measuring adaptability is vital, as adaptation is not determined by the individual but by the ecosystem in which they live. A study found that adaptability correlates with motivational, communicative, cognitive, and regulatory difficulties among first-year students (Orlov et al., 2018). This study suggested that the university provide psychological and educational strategies to enhance personal skills, thereby enabling successful adaptation.

A systematic literature review by van der Zanden et al. (2018) on three domains and predictors of first-year student success, including academic critical thinking and social-emotional well-being, found that students who recognised and managed their emotions were better able to adjust. Additionally, social, emotional, and practical support positively contributed to students' adjustment. At the institutional level, the study revealed that first-year programmes that offered students opportunities to strengthen networks and receive support had a moderate-to-large effect size on their social-emotional well-being. Moreover, the types of support students received, such as social, emotional, and practical, favourably influenced the transition of first-year college students (Ramsay et al., 2007). University involvement in facilitating the transition of first-year students, particularly in psychological well-being and coping skills, resulted in improved academic adjustment, which in turn enhanced academic performance (Morales-Rodriguez et al., 2020). Therefore, new students need specific guidance in their first year, as adaptability involves coping and resilience, which together explain an individual's capacity to confront situations requiring resolution (Zorzie, 2012).

Scrutinising intervention effectiveness among first-year students has found some inconsistent findings. They conducted a 2-hour experimental intervention that did not affect well-being. They proposed that the effect on well-being is distal rather than immediate. In

addition, a systematic literature review of quasi-experimental designs for first-year programmes across the United States, with a total sample size of n=1,225 in the experimental and control groups, found no significant difference immediately after the programme. Still, over time, the data showed significance at three semesters when measuring GPA (Culver and Bowman, 2018). They suggested that the first-year programme should be situated within the broader student success framework. They argued that a stand-alone first-year programme would not directly affect college satisfaction, college grades, or college retention. Another meta-analysis of digital interventions for university students' psychological well-being, conducted over 6-8 weeks, found only a slight improvement in well-being. However, 30 % of the studied population was diagnosed with a mental disorder. This aligns with the well-being terminology described by Cohen et al. (2013), which refers to the presence of positive emotions and moods and the absence of negative emotions, leading to life satisfaction, fulfilment, and positive functioning.

On the other hand, psychological well-being significantly affected students' academic performance, particularly in the domains of personal growth, self-acceptance, and purpose in life, according to Ryff's psychological well-being model (Lo & Ip, 2021). This has been supported by another study, which found that high perceived stress may lead to low levels of psychological well-being (Harding et al., 2019). In addition, a study suggested that fostering first-year students' awareness of their emotional and mental well-being is likely to improve their well-being and adaptability (Colizzi et al., 2020).

Concerning student well-being, intervention-related research ranks fourth among the most notable studies worldwide on mental health and well-being among university students, based on 45 years of mapping (Hernández-Torrano et al., 2020). However, the intervention programmes were typically designed to target their students and to use university-specific information, which reduces generalizability and may prevent other schools with a comparable target demographic from replicating them (Shin, 2013; Stebleton et al., 2012). Based on a meta-analysis, interventions that may be replicated among them include Acceptance and Commitment Therapy, Cognitive Behavioural Therapy, and Mindfulness, each with its own specific guidelines and trained professionals to conduct the programme (Ferrari et al., 2022). Additionally, any changes to the intervention procedures should be thoroughly discussed, as should the feasibility of implementation.

Narrowing the focus to intervention approaches, Franzoi et al. (2022) conducted a systematic literature review on psychological interventions for higher education students in Europe to examine the types of interventions employed and the issues they addressed. They included 83 studies based on their eligibility criteria. They identified eight studies on counselling and group counselling, six on psychodynamic, 15 on Cognitive-Behavioural, 18 on other psychological interventions, nine on mindfulness, 17 on Online, and 10 on App and Mobile. The online intervention programmes were reported to reduce behaviours such as smoking and alcohol use and to improve memory, indicating their overall effectiveness. Moreover, the app and mobile intervention aided in improving participants' well-being, including reduced depression levels, greater time efficiency, active learning, and increased motivation.

Hence, this study aims to assess the effectiveness of Starting University, an intervention designed to support first-year students in improving adaptability and psychological well-being and reducing perceived stress.

The conceptual framework of the present study evaluates the effectiveness of the

psychosocial intervention: Starting University Workbook, which was conducted among first-year students, which may affect the change in psychological well-being, perceived stress and adaptability, as shown in Figure 1 below.

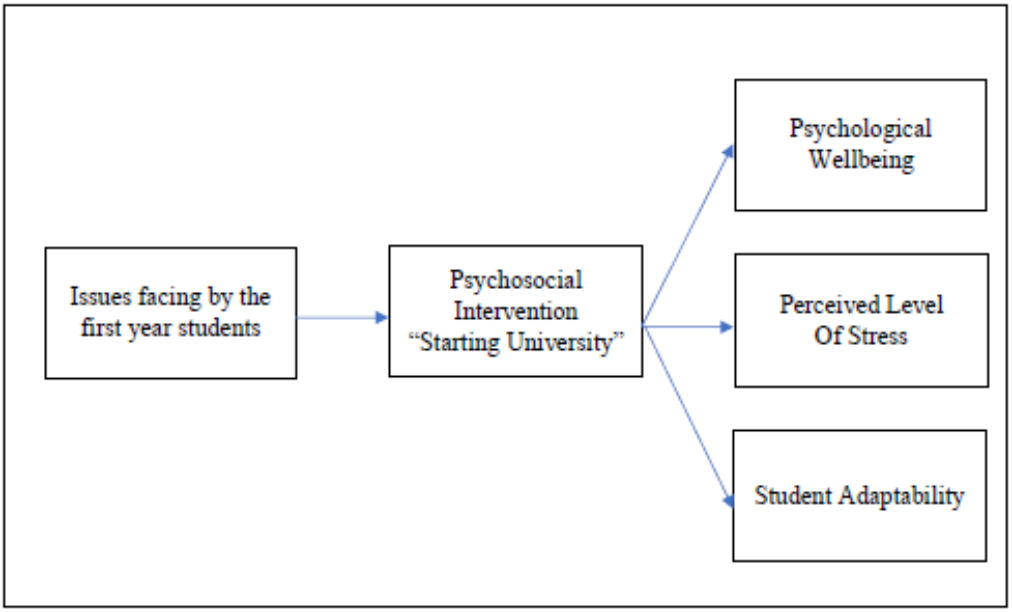

Figure 1: Conceptual framework

HYPOTHESES

The hypotheses of this study are as follows:

H1: There will be a significant increase in the score in students' adaptability after completing the 'Starting University Workbook'
H2: There will be a significant increase in the score in students' psychological well-being after completing the 'Starting University Workbook'
H3: There will be a significant decrease in the score of students who perceive stress after completing the 'Starting University Workbook'

METHOD

The study employed a quasi-experimental pretest-post-test design. A web-based Starting University Workbook module was developed to be incorporated into the formal orientation week and then used during the first 12 weeks of the active semester. Participants in the intervention group were enrolled in the student dashboard known as the Ulearn system and granted access to the Starting University Module, which is adapted from a published resource, Starting University Workbook (e-ISBN: 978-967-2880-13-4). Conversely, the control group consisted of participants who did not have access to the module available in the system but participated in other first-year activities, such as orientation week and engagement with the UTP First Year Experience Unit.

The target population for current study was decided as following inclusion criteria: 1) first-year students enrolled in UTP for foundation or undergraduate study in January semester 2023, 2) age range 16 – 24 years old, that is the age range for first-year students in Malaysia universities and 3) that have met the minimum requirement to continue in university such as able to read and comprehend information. On the other hand, the participants would be

excluded if they have any of these exclusion criteria: 1) have psychiatric conditions and are actively involved in treatment or medication, or 2) are married. Purposive sampling was employed to achieve the desired objective and sample size within a relatively short timeframe (Kendall, 2003).

Student Adaptation to College Questionnaire (SACQ). SACQ comprises 67 items and is a self-rated measure that assesses students' adaptation to university. The scale was developed in 1989 by Baker and *Syirk* and includes four subscales: academic adjustment, personal-emotional adjustment, social adjustment, and institutional commitment. A higher score in a particular domain may indicate better adjustment to university. Adams (2017) cites Baker and *Syirk* (1989), who reported well-established reliability scores for the subscales: the Academic Adjustment scale consists of 23 items with Cronbach's α = .84; the Social Adjustment scale includes 18 items with Cronbach's α = .84; the Personal-Emotional Adjustment scale comprises 15 items with Cronbach's α = .81; and the Institutional Commitment scale contains 14 items with Cronbach's α = .80. SACQ scores are based on a 9-point Likert scale (1 = applies very closely to me; 9 = does not apply to me at all). In the current study, the Cronbach's alpha is α = 0.88.

Psychological Wellbeing (PWB) Scale. The PWB scale was developed by Ryff and Keyes (1995). All 18 items are divided into six subscales: Autonomy, Cronbach's α =.60; Environmental Mastery, Cronbach's α =.70; Personal Growth, Cronbach's α =.71; Positive Relations with Others, Cronbach's α =.78; Purpose in Life, Cronbach's α =.78; and Self-acceptance, Cronbach's α =.75. All Cronbach's alpha values are reported from a study on Psychological Wellbeing by Gao and Mclellan (2018) in Chinese adolescents. In the current study, the Cronbach's alpha is α = 0.71. The PWB Scale uses a 7-point Likert scale (1 = strongly agree; 2 = somewhat agree; 3 = a little agree; 4 = neither agree nor disagree; 5 = a little disagree; 6 = somewhat disagree; 7 = strongly disagree), though it should be noted that some items are reversed, specifically items numbered 1, 2, 3, 8, 9, 11, 12, 13, 17, and 18. The total score indicates levels of psychological well-being; the higher the score, the higher the level of well-being.

Perceived Stress Scale-10 item (PSS-10). PSS-10 is used to measure the extent to which an individual perceives their life as stressful. There are three versions of the PSS with 14, 10, and 4 items, developed by Cohen and colleagues in 1983 and 1988, respectively. In this study, the PSS-10 was utilised, as recommended by Lee (2012), due to its better psychometric properties. The current study reports a Cronbach's alpha of α = 0.61. The PSS score is based on a 5-point Likert scale ranging from (0= never, 1= almost never, 2= sometimes, 3= fairly often, 4= very often); however, it should be noted that items 4, 5, 4,5,7, and 8 are reverse scored. The highest possible score is 40 (Al-Dubai et al., 2014). A higher score indicates greater perceived stress.

Ethical approval for this study has been granted by the IIUM Research Ethics Committee (IREC) with the ID number: IREC 2022-135.

FINDINGS

The total number of targeted participants was 189 first-year students in the January 2023 semester intake. A total of 112 voluntarily consented to participate in the study; however, upon screening, two of them self-reported having a psychiatric condition, which met the exclusion criteria. Students were then randomly assigned to either an intervention or a waitlist group. Subsequently, 110 first-year students were followed with baseline measures including

the SACQ, PWB scale, and PSS; n=51 were in the intervention group, and n=59 were in the waitlist group. This number was sufficient to meet the GPower requirements based on the sample size estimator (Faul et al., 2007), assuming an effect size of 0.25 and a 0.05 significance level, yielding 78% power for a minimum sample of 26 students.

During the intervention, there were 42 participants: 18 males (42.8%), comprising 11 from the intervention and seven from the control group, and 24 females (57.14%). In total, 13 participants were in the intervention group and 11 in the control group. For the current enrolled programme, the Technology & Business Management programme had the highest number of participants, n=17 (40.48%). While students in the Engineering & Sciences and Computer Sciences programmes participated equally, the total was n=11 (26.19%). Among races, Malay was the most common, with n=32 (76.19%). Participants also have a variety of entrance examination results, with the majority (n=26, 61.90%) taking the Sijil Pelajaran Malaysia (SPM), followed by an equivalent to SPM, the O-level, taken from the IGCSE programme (n=4, 9.52%). Participants reported a range of family incomes, with 13 reporting household incomes between RM3001 and RM5000 (39.0%). This was followed by household income levels between RM7001 and RM9000, and more than RM9001, which each had a similar total of n=9 (21.43%). The demographic table is shown in Table 1.

Table 1: Demographics of participant at baseline and at post-intervention

	Intervention (n=24)		Control (n=18)		Total (n=42)		Pvalue
	n	%	n	%	n	%	
Gender							
Male	11	45.80	7	38.90	18	42.86	
Female	13	54.20	11	61.10	24	57.14	
Current Enrolled Programmeme							0.27
Engineering & Sciences	9	37.5	5	27.80	11	26.19	
Technology & Business Management	11	45.80	6	33.30	17	40.48	
Computer Sciences	4	16.70	7	38.90	11	26.19	
Ethnicity,							0.17
Malay	17	70.8	15	83.30	32	76.19	
Indian	3	12.5	0		3	7.14	
Chinese	2	8.3	0		1	2.38	
Bumiputera (Sarawak, Sabah, or any related)	1	4.20	3	16.70	4	9.52	
International	1	4.20	0		1	2.38	
Entrance Examination,							0.16
O-Level	3		1	5.6	4	9.52	
SPM	16		10	55.6	26	61.90	
A-Level			3	16.7	3	7.14	
STPM			2	11.1	2	4.76	
Matriculation	2				2	4.76	
Diploma	4		2	11.1	2	4.76	
Family Income							0.41
Less than RM1000	1	4.2			1	2.38	
Between RM1001 – RM 3000	6	25.0	1	5.6	7	16.67	
Between RM 3001 – RM 5000	5	20.8	7	38.9	13	30.92	
Between RM5001 – RM 7000	2	8.3	1	5.6	3	7.14	
Between RM7001 - RM9000	5	20.8	3	16.7	9	21.43	
More than RM9001	5	20.8	6	33.3	9	21.43	

Note: SPM (Sijil Pelajaran Malaysia) and STPM (Sijil Tinggi Pelajaran Malaysia) P-values are based on the difference between the intervention and control groups using the Chi-Square test.

Additionally, the demographic characteristics of the participants were not significantly different between the intervention and control groups, as all p-values were > .05 when assessed

using the Chi-Square test, which was significant at the 0.001 level (2-tailed p<0.0005). This indicates there are no differences between the two groups at baseline. Accordingly, regarding adaptability, psychological well-being, and perceived stress, there are no significant differences between the intervention and control groups.

At the post-test, all 42 participants completed the SACQ, PWB, and PSS, including both those who completed and those who did not. Participants reported significant improvements in adaptability (Mean: -52.57, 95% CI: -78.16 to 28.98) and psychological well-being (Mean: 5.14, 95% CI: 0.42 to 9.87), with moderate effect sizes for adaptability and small effect sizes for psychological well-being. For the SACQ subdomains, all showed significant improvements: academic (Mean: -24.38, 95% CI: -34.03 to -14.73), personal-emotional (Mean: -9.61, 95% CI: -17.81 to -1.42), social (Mean: -14.07, 95% CI: -21.31 to -6.83), and institution (Mean: -7.54, 95% CI: -13.08 to -2.02). However, the results did not indicate a significant increase in perceived stress, as shown in Table 2.

Table 2: Average changes reported by 42 participants from baseline to posttest about adaptability, psychological well-being, and perceived stress level.

	Baseline to post-intervention				
	M	SE	(95% CI)	p-value	Cohen d
SACQ score	-52.57	12.67	-78.16 to -28.98	.00	0.64
Academic	-24.38	4.78	-34.03 to -14.73	.00	0.79
Personal-Emotional	-9.61	4.06	-17.81 to -1.42	.02	0.37
Social	-14.07	3.59	-21.31 to -6.83	.00	0.61
Institution	-7.54	2.74	-13.08 to -2.02	.01	0.43
PWB score	5.14	5.14	0.42 to 9.87	.03	0.34
PSS score	0.48	1.22	-1.99 to 2.94	.70	0.06

It is worth noting that the number of completers for each module shows a decreasing trend: module 1, n=17 (18.27%); module 2, n=7 (7.53%); module 3, n=7 (7.53%); and module 4, n=21 (4.30%). Among all modules requiring completion, 20 completers (21.51%) were identified.

Table 3: Starting University Workbook completed by participants at Ulearn

Module	**(N=93), n(%)**
Logged in	24 (25.81)
Completed Module 1	17 (18.27)
Completed Module 2	7 (7.53)
Completed Module 3	7 (7.53)
Completed Module 4	4 (4.30)
Completed all Module	20 (21.51)

Note: Completers considered are based on fulfilling one of the sub-activities in each module

DISCUSSION

The current study aimed to assess the effectiveness of implementing a university workbook as an intervention to enhance adaptability, psychological well-being, and reduce perceived stress among UTP first-year students. To our knowledge, this is the first evaluation study of the Starting University Workbook, published in 2022, for UTP first-year students. This aligns with one of the empowerment evaluation principles proposed by Kloos et al. (2012), and the intervention is evaluated as an evidence-based strategy for assisting first-year students, specifically at UTP, during the transition phase.

The results of this evaluation study indicate that the initial university workbook,

comprising four submodules, had a positive impact on first-year students at UTP. Notably, participants demonstrated improvements in adaptability and psychological well-being. This is significant, as the study showed that adaptability and psychological well-being among first-year students can be enhanced through an internally developed psychosocial module. This aligns with Nadiah (2013), who suggested that higher education institutions should implement effective interventions for first-year students to foster adaptability. However, the effect sizes were small, and their practical utility therefore might be limited.

Nonetheless, perceived stress levels among first-year students at UTP did not decline with the introduction of the Starting University Workbook as an intervention. Exploration revealed moderate effect sizes for stress reduction, as reported by Juniar et al. (2022) and Keng et al. (2022), through a standard module of mindfulness practices that has demonstrated effectiveness in lowering stress levels. Therefore, incorporating mindfulness practices may be vital and relevant for first-year students, who reportedly experience higher perceived stress than students at other stages of their studies.

Regarding student compliance with completing the modules, although the modules have been integrated into student dashboards, the results indicate a decline in the number of completers from one module to the next. The reasons for this decline remain unexplored. However, the shift to web-based delivery responds to the current mental health landscape, which has shifted primarily to electronic communication (Sheperis & Smith, 2021). Similarly, the dropout rate was over 50% in other e-psychosocial interventions, such as Rilek (91.7%; Juniar et al., 2022) and Internet-based Cognitive Behavioural Therapy (54.72%; Lu et al., 2021).

Although this study showed some promising results, there are several notable limitations. Firstly, since this is a quasi-experimental design with no interrupted time series, long-term impact cannot be measured; changes at follow-up should be considered. Secondly, the samples are purposive; that is, they lack generalisability to other populations beyond UTP. As such, completing the introductory university workbook and then comparing it with first-year students at other universities is highly recommended. Thirdly, the effectiveness of the study was limited based on the psychosocial-related variables, but it did not include other critical areas such as feasibility, usability, and satisfaction from the user's point of view; thus, future research is recommended to evaluate the intervention thoroughly.

CONCLUSION

This study aimed to evaluate the effectiveness of a psychosocial intervention, the Starting University Workbook, in improving adaptability and psychological well-being and reducing perceived stress levels. The Starting University Workbook, a web-based assisted intervention for first-year students at UTP, was reported. Findings indicate that using the Starting University Workbook enhances adaptability and psychological well-being among first-year students. However, its impact is limited by a web design that is not versatile or interactive. Despite the potential of web-based assisted interventions to support first-year students during the transition, our study suggests that further development is needed before expanding to other institutions. In summary, the intervention shows promise but requires refinement in its implementation and monitoring system.

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