

Development and Validation of a Tool to Facilitate Resilience and Good Mental Health: The My Sejahtera Ecology Map

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ABSTRACT

Background: There has been a growing body of research on the influence of social environment on mental well-being. Bronfenbrenner's Ecology Systems theory has proposed an extensive description of components and relationships of the social ecology of a person for their growth. However, there is a paucity of tools available for mental health professionals in implementing the theory within their practice. Therefore, this study aimed to develop and validate a tool to explore the social ecology of a person to aid understanding the influence of this on the state of mental well-being. **Methods:** This study developed instructions to draw and explore social ecology and established several validities evidence. Content validity used item-related content validity index employing five experts in psychiatry, psychology, and counselling to review the instructions for the tool. Face validity was established using a face validity index among ten working adults. Finally, criterion-related validity was established by improvement in mental health self-efficacy measured using the Mental Health Confidence Scale among 41 working adults. Descriptive analysis used frequency and percentage for categorical variables and mean and standard deviation for numerical variables. Inferential analysis used paired-sample t-test analysed on SPSS 29. **Results:** The My Sejahtera Ecology Map (MySEM) tool showed good content and face validity indices ranging from 0.80 to 1.00. Mental health self-efficacy showed significant improvement in optimism ($p < 0.05$) and factor coping ($p < 0.001$) after the MySEM activity. **Conclusion:** The tool has promising benefits in improving mental health self-efficacy through increasing factor-coping and optimism. The MySEM tool provided a standardised approach to apply the Bronfenbrenner's Ecology Systems theory for use by mental health professionals.

Keywords:

Bronfenbrenner's Ecology Systems theory; mental health self-efficacy; workplace; tool

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INTRODUCTION

A state of mental well-being allows a person to cope with life challenges, achieve their full potential, learn and work effectively, as well as be able to contribute to their community (WHO, 2022). Life experiences are dynamic with positive and negative events that can influence the state of mental health. A person should be equipped with flexibility and resources to adapt to the changes in order to maintain mental well-being. Both positive and negative experiences are opportunities for the person to grow psychologically, to achieve their full potential, to function effectively, and to contribute to their community. Providing insight into these experiences will empower the psychological growth of a person.

There has been a growing body of research on the influence of social environment on mental well-being. A

longitudinal study among the Dutch population revealed that social environment changes were associated with mental health changes (Sui et al., 2023). Social support has also been reported to have a direct impact on life satisfaction and is partially mediated by mental well-being (Wang et al., 2023) and has become the target of intervention to improve mental well-being (Appleton et al., 2023).

Interestingly, the influence of social support on mental well-being has also shown mixed outcomes. Perceived social support has been shown to influence positively on mental well-being, but receiving support has mixed outcomes (Uchino et al., 2023). It seems the type of stressor, the profile of the support provider, and the support process played a vital role in contributing to a positive outcome.

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Appleton et al. (2023) have extensively described different sources and types of social support. Sources of support may come from mental health or social practitioners, topic experts, peers, and community members. Resources that are available to the person are contingent on their social connectedness. A person may receive concurrent support from different sources and, in some instances, receive concerted support from multiple sources. These sources may provide support in terms of information, care, assistance, and direct provision of solutions. This can lead to additional support being provided by government services, an improved personal agency and coping strategies, and improvement in resources in both the cause of stress and social inclusion.

On a theoretical basis, Bronfenbrenner's Ecology Systems theory has proposed an extensive description of components and relationships of the social ecology of a person for their growth. The theory has been applied to various contexts such as health education (Cala & Soriano, 2014), social-emotional problems (Vaezghasemi et al., 2023), and work retention (Neiterman et al., 2021). The theory explained a person being surrounded by several systems that consisted of microsystem, mesosystem, exosystem, and macrosystem (Newman & Newman, 2020).

The microsystem described the individual that often interacted with the person, thus directly influencing their state of mental well-being. The mesosystem describes the interaction between the different individuals surrounding a person (microsystem) and dynamically influences the person. The exosystem, on the other hand, describes the individual that interacts with the microsystem and is not directly involved with the person. The exosystem interactions, nevertheless, have an indirect impact on the person by altering how the individual in the microsystem behaves towards the person. Finally, macrosystem describes the external factors involving culture, policy, and law that dictate or shape the interaction and practices of the community.

Currently, there is a paucity of tools available for mental health professionals in implementing the theory within their practice. Mental health professionals that were familiar with theory may implement it in their perspective without standardisation in approach. Therefore, this study aimed to develop and validate a tool to explore the social ecology of a person to aid understanding the influence of social ecology on the state of mental well-being.

MATERIALS AND METHODS

This study consists of three phases, that are: (a) conceptual

development and content validation, (b) pilot and face validation, and (c) criterion-related validation studies.

Conceptual Development & Content Validity

Conceptual development employed a narrative review methodology to define the components and use of the social ecology tool. Specific focus was placed on defining the components and ways to assess. The draft of the tool was sent for commentary and assessment for validity to five experts in psychiatry, counselling, and psychology. Amendments were made to the draft as appropriate and sent back to the expert reviewer for any additional comments.

Experts rated the relevance and clarity of the instructions and diagram on a scale from 1 to 4, representing "not relevant" or "not clear" to "very relevant" or "very clear". A response of 1 or 2 was recoded into 0, and 3 and 4 were recoded into 1. The average score was computed to derive the content validity index. An item-related content validity index (I-CVI) was computed for each instruction, and those scoring less than 0.80 were candidates for improvements. Feedback from experts on these instructions was sought as necessary.

Pilot & Face Validity Study

The tool was piloted on ten adult participants selected through convenience sampling and administered under guidance in a workshop setting. The participants followed the instructions narrated by a facilitator to draw their Sejahtera Ecology Map. The administration of the tool requires a trained facilitator following the set of questions provided and addressing questions from the participants.

Upon completion, the participants independently rated the face validity of the tool on a response scale ranging from 1 to 4 for ease of understanding, personal relevance, meaningfulness, and conciseness. Participants may provide comments, either written or verbally, to the facilitator. Such comments guided the amendments of the draft tool.

The four-point ordinal responses were dichotomised with "1" and "2" responses regarded as disagreement and "3" and "4" responses regarded as agreement, like recoding for I-CVI above. The proportion of agreements of more than 0.80 was considered to pass the item-related face validity index (I-FVI).

Criterion-related Validation Study

This phase employed methodology similar to content validity and attempted to assess the tool's impact on

mental health self-efficacy. This phase involved 41 working adults chosen using convenience sampling. Criterion-related validity was established as improvements in mental health self-efficacy.

Demographic information such as age, gender, education level, household income, and experience using mental health services was obtained. Mental health self-efficacy was measured two weeks before and immediately after participating in the MySEM activity.

Mental health self-efficacy was measured using the Mental Health Confidence Scale (Carpinello et al., 2000) translated into the Malay language, which consists of 15 items measuring three dimensions that are: (a) optimism, (b) factor coping, and (c) advocacy. The optimism and factor coping subdimensions have six items each. Whereas the advocacy subdimension has three items. The Malay instrument utilised a 6-point interval scale with the extremes defined as “very not confident” and “very confident”, respectively. It has good content and construct validities as well as a 0.72 to 0.86 reliability index on Cronbach’s alpha across the three subdimensions (Mohd Nazori et al., in press). Items can be scored by summation for each dimension or the whole construct. The optimism and factor coping subdimensions have scores ranging from 6 to 36, and the advocacy subdimension has scores ranging from 3 to 18. Therefore, the total score may range from 15 to 90 for the whole construct.

Descriptive analysis employed frequency and percentage for categorical variables and mean and standard deviation for numerical variables. A paired sample t-test was used to compare dimensions of mental health self-efficacy before and after utilising the Sejahtera Ecology Map.

Ethical approval was obtained from the IIUM Research Ethics Committee [IREC 2024-192].

RESULTS

There were five experts from psychiatry, counselling, and psychology who provided a review of the instructions for the My Sejahtera Ecology Map (MySEM) and a total of 51 participants involved in the face and criterion-related validation studies.

Content Validity

Initial content validity review revealed almost all instructions were relevant and clear (rating of 3 or 4), except for clarity on instructions to explore the mesosystem. Therefore, item-related CVI (I-CVI) ranged from 0.67 to 1.00. Some of the instructions that were

scored relevant and clear were also given feedback on how to improve the instructions. Much of the feedback was related to improving instructions on microsystem and chronosystem for better clarity and ease.

This feedback was considered during the modification of the instructions. After modification, the instructions were reviewed and resulted in I-CVI ranging from 0.80 to 1.00. Table 1 below summarises the I-CVI for the initial and final instructions.

Table 1: Item-related Content Validity Index (N = 5)

Systems	Criteria	I-CVI	
		Initial	Final
The person	Relevance	1.00	1.00
	Clarity	1.00	1.00
Micro	Relevance	1.00	1.00
	Clarity	0.80	1.00
Meso	Relevance	1.00	1.00
	Clarity	0.67	0.80
Chrono	Relevance	1.00	1.00
	Clarity	0.80	1.00

Pilot and Face Validity

The final instructions were then piloted to 10 adults that rated the experience drawing and exploring the MySEM on ease of understanding, relevance, meaningfulness, and conciseness. The initial FVI ranged from 0.80 to 1.00. The pilot study participants also provided feedback on how the tool was relevant to their situation and how their experience in drawing and exploring their MySEM can be improved. All feedback was used to improve the experience by including additional material and providing a suitable environment for the activity.

Criterion-related Validity

The criterion-related validity was established using mental health self-efficacy involving 41 participants across three sessions. The multiple sessions were an improvement for the activity environment to allow better engagement between facilitators and participants and improve openness to discuss and explore their MySEM. On average, participants were 37.3 years old with at least one child. Most participants were female, in permanent employment, worked at least six years or more, were married, had at least an undergraduate certificate, and never received help from any mental health professionals.

The pre-measurement for mental health self-efficacy reported a mean total score of 64.3 points (SD = 10.42) with each subdimension reporting mean scores of 28.7, 21.8, and 13.8 points for optimism, factor coping, and advocacy, respectively. Meanwhile, the post-

measurement for mental health self-efficacy reported a mean total score of 70.2 points (SD = 16.51) with each subdimension reporting mean scores of 30.5, 25.8, and 14.0 points for optimism, factor coping, and advocacy, respectively. Comparatively, the mean total score was higher in post-measurement, with the most notable differences in the subdimensions of factor coping, optimism, and advocacy in descending order of magnitude. Table 2 below summarises the descriptive statistics for demographic characteristics and measures of mental health self-efficacy prior to and after the MySEM activity.

Table 2: Demographic Characteristics and Mental Health Self-Efficacy (N = 41)

Variable	n (%)	Mean (SD)
Age (years)		37.3 (7.31)
Gender		
Male	7 (17.1)	
Female	34 (82.9)	
Employment term		
Permanent	32 (84.2)	
Contract	6 (15.8)	
Years of service		
Less than 3 years	3 (7.7)	
3 – 5 years	4 (10.3)	
6 – 10 years	13 (33.3)	
More than 10 years	19 (48.7)	
Marital status		
Married	25 (65.8)	
Single	10 (26.3)	
Divorced	2 (5.2)	
Deceased spouse	1 (2.6)	
Number of children		1.6 (1.37)
Highest education		
Highschool certificate	3 (7.9)	
Diploma	21 (55.3)	
Degree	13 (34.2)	
Master	1 (2.6)	
Received mental health professional help		
None	28 (71.8)	
Yes	11 (28.2)	
Mental health self-efficacy (pre-test)		64.3 (10.42)
Optimism		28.7 (2.06)
Factor coping		21.8 (7.71)
Advocacy		13.8 (2.79)
Mental health self-efficacy (post-test)		70.2 (16.51)
Optimism		30.5 (5.19)
Factor coping		25.8 (9.20)
Advocacy		14.0 (4.32)

The measures of mental health self-efficacy were tested for significant differences using a paired-sample t-test. Analysis revealed significant differences in subdimensions

of optimism [$t(40) = -2.47, p = 0.018$] and factor coping [$t(40) = -5.21, p < 0.001$], as well as the total score of mental health self-efficacy [$t(40) = -6.03, p < 0.001$]. The advocacy subdimension showed no significant difference ($p = 0.332$). Scores for optimism, factor coping, and total mental health self-efficacy were significantly higher after the MySEM activity, with mean differences of 1.3, 5.0, and 6.6 points, respectively.

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DISCUSSION

Scores reported were on moderate level among the British adult population (Swami et al., 2024) and among youths in Indonesia, Malaysia, and Thailand (Chusniyah et al., 2020). Male showed slightly higher mean scores of self-efficacy compared to female British adults despite showing no significant difference (Swami et al., 2024). Previous study on mental health self-efficacy showed positive correlation with various constructs such as positive self-belief and mental well-being (Swami et al., 2024). A study among youths in Indonesia, Malaysia, and Thailand reported mental health self-efficacy significantly correlated with positive mental health and subjective happiness (Chusniyah et al., 2020). Interestingly, youths in Malaysia reported significantly higher mental health self-efficacy compared to Thai and Indonesian youths. Geographical location and the sociodemographic background may play a role on the development of mental health self-efficacy among youths.

The level of self-efficacy was almost similar to the findings of this study. However, relationships and differences in mental health self-efficacy between the participants were not analysed. The small sample size, given the research objective and design of this study, did not allow for a robust and reliable analysis. Future research may seek to improve this by employing larger sample size using a cross-sectional or longitudinal design. The exploration of MySEM will develop insight into the dynamics in social interactions and identify problems and resources to improve mental well-being. Theoretically, this benefit may translate into other positive constructs related to mental well-being. The

two studies above have shown the potential of such benefits on positive self-belief, subjective happiness, and mental well-being.

A systematic review on social media-based intervention to improve awareness and mental health self-efficacy has reported an increase in advocacy activity, positive thinking, and help-seeking behaviour among diverse population (Draganidis et al., 2024). This review provided clues on the possible benefits of improving mental health self-efficacy among adult population. The MySEM activity has reported significant improvement in optimism and factor coping which is conceptually related to positive thinking and help-seeking behaviour. These benefits become more pertinent as a recent study among Malaysian adults reported home- or work-related stress significantly predicted depressive symptoms (Mohd Tamil et al., 2024). Home and work-related stresses have a dynamic and consequential impact on each other. This is especially tangible as most of an adult's productive hours were spent at work. The MySEM activity included the exploration of social ecology in both settings and how the interactions within the microsystem and mesosystems contributed to the current state of mental health. Causes of stress may originate primarily from one specific interaction and affect subsequent interactions: producing an incremental cycle of the stress level. Gaining insight into these dynamics within and between home and work settings may have contributed to better factor coping.

The advocacy subdimension measured the degree to which respondents were confident in advocating for their personal needs and did not show significant changes before and after the MySEM activity. This may possibly be due to the lack of exploration of the intrapersonal needs in the MySEM activity. Current exploration focuses mainly on the interactions within the micro- and mesosystems. Advocacy for personal needs may also involve assertive communication skills and awareness. Future research may consider exploring the intrapersonal system for personal needs and identifying skills needed to advocate for it.

Uniquely, the MySEM activity included the appreciation of the current home or work-related interactions within the context of time (chronosystem). Conflicts that arise in either setting may have been contributed to by the temporal effect of the experience. For example, suddenly caring for a sick child at home will affect quality sleep and work performance in subsequent days. Both experiences may show compounding contributions to the stress level and may improve as the sick child recovers. The appreciation of temporal effect may have contributed to the improvement in optimism as participants gained insight into the transient nature of their current experience. Future research may consider improving the

exploration process to include solution-focused questions to guide participants in determining their actions. Clarifying needs and purpose will be the first step towards making constructive actions to improve their state of mental well-being.

The MySEM tool offers several practical applications for mental health professionals to enhance both individual and community mental health outcomes. It can be used to assess an individual's readiness to engage in therapeutic interventions. This baseline information can guide treatment planning and allow for the development of tailored interventions that focus on improving areas of low self-efficacy, thereby increasing both engagement and effectiveness. The assessment of readiness provides valuable baseline data, which can then be used in follow-up evaluations to monitor treatment progress and make necessary adjustments. This will ensure that therapeutic strategies are aligned with the evolving needs of the individuals.

Besides that, the tool allows for tailored interventions based on an individual's need for psychoeducation; helping individuals understand how self-efficacy influences their mental health within the specific context of their social ecology. By addressing areas of low self-efficacy, individuals can be empowered to develop the skills and confidence needed to improve their mental well-being. Studies suggested that individual psychoeducation interventions based on integrated self-awareness and self-determination were associated with a significant increase in self-efficacy (Engku Kamarudin et al., 2020). Moreover, in group settings, the tool can highlight common areas where participants may struggle, such as coping or optimism. This information can guide the development of group interventions that target these collective challenges, such as stress management or resilience-building exercises.

The current tool focuses on exploring the intrapersonal, microsystem, and mesosystem of an individual. According to the theory, the exosystem and macrosystem were yet to be developed for exploration. This would enable appreciation of the stakeholder and culture in influencing the interaction between the individual and their microsystem and within the mesosystem. However, much of the influence was outside of the individual's control and less helpful for developing coping strategies and therapeutic plans. Nevertheless, the understanding of exosystem and macrosystem influence on an individual may enable deeper exploration and instigate fundamental change in an individual.

The tool may also benefit from multiple studies replicating

the same methodology as the criterion-related validation study. The current evidence suggested benefits from a small sample of university staff from a single public university. Interaction dynamics may be different in other institutions or populations.

In all, the MySEM tool showed potential and value in assisting mental health professionals in exploring the social ecology of their clients, developing insights into interactions and resources, and improving mental health self-efficacy. Additionally, the mental health self-efficacy tool can be applied in practice by mental health professionals to assess, track, and enhance various aspects of mental health. It offers a framework for understanding individual's needs, personalizing interventions, and fostering empowerment. By using this tool, professionals can better support individuals in building the skills and confidence necessary to manage their mental health more effectively.

Training and certification activities may be organised to introduce and guide mental health professionals in utilising the tool. Currently, the tool was prepared for a trained facilitator to administer the tool during the psychotherapy session. The process of drawing may also be improved by using information technology to assist clients in drawing their social ecology. This would reduce time taken during consultation with mental health professionals. Such improvement will enable equitable access to mental health professionals, especially in commercial service centres.

CONCLUSION

The MySEM tool showed good content and face validity among experts and working adults. The tool has promising benefits in improving mental health self-efficacy through increasing factor-coping and optimism. The MySEM tool provided a standardised approach to apply the Bronfenbrenner's Ecology Systems theory for use by mental health professionals.

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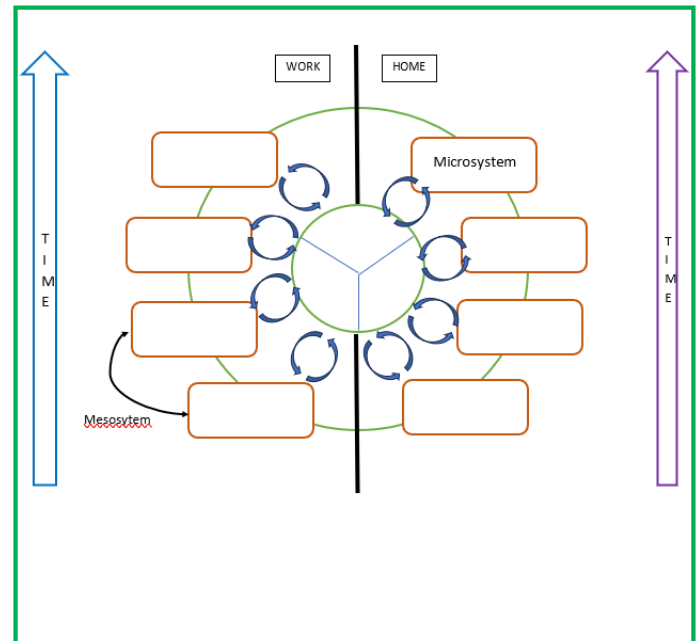


Figure 1: MySEM template for drawing intrapersonal, microsystem, and mesosystem interactions.

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