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Development of the Healing Minds Through Play Prototype: A CBT–DBT Psychoeducational Snakes and Ladders Game to Enhance Early Engagement in Adolescent Counselling Sessions in Malaysia

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Abstract

Background

Adolescent mental health is increasingly recognised as a critical public health issue, particularly as many mental disorders begin in early adolescence. In Malaysia, findings from the 2023 National Health and Morbidity Survey (NHMS) revealed significant prevalence of depressive and anxiety symptoms among adolescents.

Objective

Despite the growing need for early intervention, many adolescents struggle to actively engage in their first counselling session due to stigma, fear of being judged, and difficulty expressing emotions. In practice, this often manifests as silence, minimal responses, and prolonged pauses, which delay therapeutic alliance formation and therapeutic engagement.

Method

This study aimed to develop and assess the early feasibility of Healing Minds Through Play, a CBT–DBT-based psychoeducational Snakes and Ladders game designed to support early engagement and emotional expression among adolescents. The study employed a Research and Development (R&D) approach encompassing needs analysis, prototype development, expert validation, and a pilot feasibility test. The needs analysis involved 101 respondents, while the pilot test was conducted through individual counselling sessions lasting 45–60 minutes with adolescents aged 10 to 19 years in real-world settings.

Findings: Preliminary results indicate that the prototype is easy to use, positively received, and demonstrated potential in mitigating communication barriers and enhancing readiness to communicate during early counselling sessions.

Future Research: Further studies are recommended to develop a hybrid digital version incorporating interactive boards, DBT audio, CBT animations, and multilingual support to enhance inclusivity.

Conclusion

The game-based approach creates a *clinically-informed, less intimidating medium*,thereby strengthening the foundation for early rapport between adolescents and mental health professionals. As a low-cost, culturally adaptable psychoeducational tool, Healing Minds Through Play has the potential to contribute meaningfully to the achievement of SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), and SDG 10 (Reduced Inequalities) by improving access and early engagement in adolescent mental health services.

1.0 Introduction

1.1 Background of the Study

At the global level, adolescent mental health is increasingly recognised as a critical public health priority. The World Health Organization reports that nearly half of all mental disorders occur before the age of 14; however, stigma and difficulties in emotional expression remain major barriers preventing adolescents from seeking early support [1].

The National Health and Morbidity Survey (NHMS) 2023 found that 20.1% of Malaysian adolescents experience anxiety and 25.2% experience depression. These data indicate that adolescents face significant mental health challenges that necessitate urgent attention and more responsive early interventions to meet their developmental needs [2]. During initial counselling sessions, many adolescents remain silent, provide minimal responses, and struggle to articulate their feelings verbally. According to the literature on adolescent development, limited emotional awareness and underdeveloped emotion-labelling skills at this age are often associated with such difficulties [3].

1.2 Challenges in Early Engagement

Minimal responses during initial counselling sessions often prolonged therapeutic silence and lacking in engagement. Such behaviour reflects underlying anxiety, mistrust, and discomfort towards a therapeutic relationship that has yet to be established[4]. The process of building rapport which is an essential foundation for effective therapeutic engagement and the continuity of psychological intervention is therefore disrupted[5].In adolescent counselling practice, several behaviours such as prolonged silence, avoidance of responses, and difficulties in naming emotions frequently present significant barriers to initiating structured interventions. These challenges are not confined to the local context; international scholarly literature consistently identifies them as major obstacles during the early phase of adolescent counselling [6].

Studies indicate that low levels of initial engagement are commonly accompanied by heightened anxiety[7]. In addition, fragile trust in the counsellor and difficulties in emotional regulation further contribute to these challenges. Under such circumstances, the establishment of a therapeutic relationship in the early stages of counselling does not always progress smoothly and often requires extended time before evolving into a meaningful and consolidated therapeutic alliance [8]. Previous research has also shown that when early engagement is poor, adolescent clients are more likely to experience premature treatment dropout and demonstrate less favourable responses to interventions in the longer term [9].

Within adolescent psychotherapy, fragile therapeutic relationships during early sessions frequently restrict discussion of core issues and reduce clients' readiness to participate actively in subsequent treatment phases [10].This indicates that silence and minimal responses at the outset should not be interpreted simplistically as individual deficits. Rather, they should be understood as part of a therapeutic process that is not yet stabilised, thereby requiring cautious and developmentally sensitive approaches tailored to adolescents' emotional needs. Despite the existence of gamified CBT interventions, there is a

scarcity of research that specifically examines the obstacles to first-session engagement in the context of counselling for adolescents in Malaysia. Additionally, there is a lack of research on culturally adapted non-digital board-based CBT–DBT prototypes in low-resource clinical settings.

a) The Role of CBT–DBT in Addressing Early Engagement Challenges

In adolescent psychotherapy, Cognitive Behavioural Therapy (CBT) and Dialectical Behaviour Therapy (DBT) are widely employed as evidence-based interventions for emotional and behavioural difficulties [11]. CBT focuses on the cognitive appraisals of self-related stimuli and their subsequent impact on emotional and behavioural responses. By identifying recurring thought patterns in specific situations, adolescents are supported to evaluate whether such cognitions are helpful or maladaptive. This process facilitates the development of adaptive coping mechanisms in managing daily stressors [12]. However, several studies have noted that verbally oriented CBT can be challenging during early counselling sessions with adolescents, particularly when clients struggle to name emotions, provide minimal responses, or display tendencies towards silence [13].

DBT, in contrast, evolved as an approach that addresses affective dysregulation and psychological distress, which frequently impair interpersonal functioning. It emphasises the dialectic between acceptance and change [14].In clinical practice, DBT is frequently applied during early sessions, especially when adolescents remain cautious and are not yet ready to engage actively in counselling interactions. Skills such as emotional awareness, distress tolerance, and self-validation enable adolescents to participate in sessions without pressure to share directly, which is particularly significant during the initial phase of therapeutic relationship-building [15]. This is highly relevant to the present study, as adolescents involved often demonstrate tendencies towards silence, avoidance of responses, and difficulty in expressing emotions during early counselling sessions.

b) Linking CBT–DBT with the Rationale for Gamification

In this context, gamification functions as an a mediating platform that facilitates the dissemination of CBT and DBT principles through a non-intimidating approach. Game-based approaches allow adolescents to identify cognitions (CBT) and explore emotions (DBT) through symbols, narratives, and structured interactions, without the immediate demand for verbal communication [16]. The utilization of game-based modalities is associated with diminished clinical defensiveness and enhanced psychological safety, which promotes emotional disclosure during initial therapeutic encounters [17]. Consequently, the gamified integration of CBT–DBT directly addresses Research Question 1 regarding adolescents' requirements for early engagement by establishing a secure and developmentally appropriate environment.. At the same time, gamification features such as structured prompts, avatars, and visual symbols support Research Question 2, which relates to the appropriate delivery characteristics of CBT–DBT for adolescent clients. Finally, the implementation of the psychoeducational prototype allows for a preliminary assessment of its capacity to enhance emotional articulation and counsellor–adolescent dyadic interaction, in alignment with Research Question 3.

1.3 Research Objectives

1. To design and develop a CBT–DBT-based psychoeducational game prototype.
2. To evaluate the prototype's usability, appropriateness, and comprehensibility among target users.
3. To explore the potential of the prototype in enhancing early therapeutic engagement.

1.4 Research Questions

1. What are the specific requirements of adolescents during the initial phase of counselling engagement?
2. What gamification features are most appropriate for the delivery of CBT–DBT principles to adolescent clients?
3. To what extent does the prototype facilitate emotional articulation and enhance the quality of counsellor–adolescent interaction?

2.0 Literature Review

2.1 Early Engagement of Adolescents in Counselling Sessions

Early therapeutic engagement is defined as adolescents' readiness to attend, respond, and initiate the disclosure of experiences during the initial counselling encounter. Scholarly literature emphasizes that initial sessions constitute a critical phase, as they often predict treatment adherence or premature termination [18]. Many adolescents enter their first session with feelings of hesitation, low levels of trust, and uncertainty about the counselling process. Initial experiences perceived as intrusive or threatening may elicit defensive mechanisms or psychological withdrawal, thereby significantly impeding verbal interaction verbal interaction[19].

Research on therapeutic alliance consistently emphasises that a safe, non-judgemental, and trust-based relationship is essential for supporting early client engagement. When adolescents feel understood and respected, they are more likely to demonstrate greater willingness to participate actively in counselling[20].Conversely, a weak therapeutic relationship in the early stages is often associated with withdrawal from counselling and reduced long-term intervention effectiveness[21]. Consequently, early engagement transcends mere attendance; it serves as a pivotal determinant of the overall therapeutic trajectory and outcomes for adolescent clients.

2.2 Difficulties in Emotional Expression and the Role of Silence in Adolescent Counselling

A primary challenge in early counselling involves adolescents' inability to accurately label and articulate their emotional states. In psychological literature, this condition is often linked to difficulties in

identifying and describing feelings, commonly referred to as alexithymia [22].

Among adolescents, alexithymia is relatively prevalent and frequently associated with challenges in emotional regulation and social communication, which can affect the counselling process. In such situations, adolescents often provide brief, non-descriptive responses such as “don’t know” or “normal,” even when experiencing distress [23].

Furthermore, the role of silence in adolescent counselling differs from that in adult therapy. While silence functions as a reflective modality in adult psychotherapy, evidence suggests that prolonged therapeutic silence often induces discomfort in adolescents, further inhibiting their verbal output [24].These findings suggest the need for more active, structured, and youth-friendly approaches to facilitate emotional expression during the initial stages of counselling.

2.3 Gamification and Game-Based Interventions in Delivering CBT–DBT

Gamification refers to the use of game elements such as challenges, symbols, rewards, and visual interactions to enhance user engagement and motivation. In adolescent mental health contexts, game-based approaches are considered [25].

Game-based interventions, whether digital or non-digital, have been reported to support sustained early engagement among adolescents. Studies also indicate that such interventions can help adolescents learn to regulate emotions and communicate more effectively during counselling sessions [26]. These modalities offer adolescents opportunities for indirect communication prior to achieving verbal readiness, utilizing symbolic elements such as avatars, structured prompts and visual metaphors [27].

Dialectical Behaviour Therapy (DBT) focuses on skills for emotion regulation and distress tolerance, while Cognitive Behavioural Therapy (CBT) emphasises awareness of thought patterns and cognitive restructuring. When combined through game-based mediums, these skills can be introduced in a more relaxed and gradual manner, aligned with adolescents’ developmental stages [28].

In most cases, the effects of interventions incorporating gamification have been reported as moderate. However, several studies suggest that such approaches enhance early engagement and session continuity, particularly when used as supportive tools facilitated by counsellors [29].Despite these promising findings, research on the development of culturally adapted prototypes with practical usability in Malaysia’s public health system remains limited.

2.4 Conceptual Framework of Healing Minds Through Play

This Fig. 1, illustrates the conceptual mechanism through which Healing Minds Through Play operates during initial adolescent counselling sessions. At the problem layer, early silence is conceptualised not

merely as passive behaviour but as a manifestation of anxiety and emotional inhibition, which may contribute to a weak initial therapeutic alliance. The intervention layer introduces a gamified CBT–DBT board incorporating symbolic elements: snakes (representing cognitive distortions), ladders (adaptive coping), prompt cards (cognitive and emotional labelling), and avatars (symbolic self-representation).These components serve as structured delivery mechanisms for CBT and DBT principles in a developmentally appropriate and non-threatening format, thereby alleviating the stress associated with direct verbal disclosure during early session[30].

At the mechanism layer, the board is expected to reduce anticipatory anxiety, externalise emotional setbacks so they are not internalised as personal failure, scaffold gradual emotional articulation, and increase interactional flow between counsellor and adolescent[31]. These processes are presented as mutually reinforcing outcomes, as they collectively facilitate enhanced early engagement and the strengthening of therapeutic rapport.Overall, the model positions the gamified intervention as a mediating platform that transforms communicative barriers in first-session encounters into opportunities for relational and emotional activation.

3.0 Methodology

3.1 Research and Development (R&D) Design

This study employed a Research and Development (R&D) approach to design and evaluate the feasibility of the prototype Healing Minds Through Play, a psychoeducational board game (Dam Ular) integrating Cognitive Behavioural Therapy (CBT) and Dialectical Behaviour Therapy (DBT). The R&D framework was selected due to its efficacy in developing novel interventions through iterative processes and user-driven refinement [32].

The study implemented an adapted version of Sugiyono's R&D model, focusing on specific strategic phases tailored to the research objectives. This adaptation ensured alignment with the scope of the article and the research objectives, which emphasise prototype development and initial feasibility rather than clinical effectiveness evaluation [33].

In this study, seven critical phases from Sugiono's original model were adopted:

This adaptation strengthened the development process of Healing Minds Through Play, ensuring that the CBT–DBT-based psychoeducational board game was practical and responsive to the needs of adolescent counselling sessions in Malaysia.

3.2 Development Phases

The research was executed across three interconnected phases. Phase 1 involved a comprehensive needs analysis, followed by prototype construction in Phase 2, and concluding with expert validation and pilot feasibility testing in Phase 3. This structure is consistent with the developmental research model proposed by [34] in the fields of education and psychology.

This phased approach ensured that the real challenges faced by adolescents were identified through needs analysis before the prototype was developed based on CBT–DBT theoretical frameworks. Finally, the third phase assessed the prototype's acceptance and suitability in real counselling contexts through expert and target group involvement[35].

3.3 Study Subjects and Objects

Participants comprised adolescents aged 10 to 19 years receiving counselling services at Hulu Langat Health Clinic. Participants were selected via purposive sampling, targeting adolescents requiring early engagement support due to communication barriers [36].

The primary object of this study is 'Healing Minds Through Play', a psychoeducational board game (locally known as Dam Ular) integrated with CBT and DBT principles. The game was designed to enhance early engagement, facilitate emotional expression, and improve interaction between adolescents and counsellors [28].

3.4 Data Collection Methods

Data collection was conducted in stages, consistent with the R&D approach. According to [37],data collection techniques are critical to ensuring that intervention development is evidence-based and responsive to actual user needs.

Data triangulation was achieved through three primary modalities: questionnaires, structured observations and professional feedback. Needs analysis was conducted through questionnaires in Phase 1, while observation was carried out during pilot testing. In addition, professionals and counsellors involved in prototype implementation provided structured feedback [38].

a) Questionnaire

A needs analysis was conducted with 101 respondents to establish a baseline understanding of the challenges faced by adolescents during initial sessions. The questionnaire identified barriers to early engagement and the need for interactive, non-threatening support tools. Respondents included educators, parents, healthcare workers, and students, who completed the survey via Google Forms. The inclusion of a larger respondent pool ensured that prototype development was grounded in actual user needs rather than anecdotal observations[39].

The questionnaire was specifically developed by the researchers to assess public perceptions regarding adolescent emotional expression during counselling sessions and the perceived need for the *Healing Minds Through Play* innovation. The questionnaire was designed to capture adolescents' tendencies towards silence and suggestions for alternative approaches in early counselling. It comprised both closed and open-ended items, combining quantitative and qualitative data to provide a holistic understanding of user needs [40].

To establish content validity, the questionnaire was reviewed by a panel of three subject matter experts comprising two registered psychologists and one family medicine specialist. The experts evaluated the relevance, clarity, appropriateness, and comprehensiveness of the questionnaire items. Revisions were made based on their recommendations to improve the quality and suitability of the instrument prior to data collection. The complete English-language questionnaire is provided in Supplementary Material S1.

3.5 Observation During Pilot Testing

Systematic observation was carried out during Phase 3 (pilot testing) to evaluate the operational feasibility of the prototype[41]. Counsellors who facilitated the sessions using 'Healing Minds Through Play' observed key indicators, including adolescent engagement levels, emotional responsiveness and the overall flow of interaction throughout the therapeutic process.

This observational approach yielded qualitative data regarding the lived experiences of adolescents interacting with the prototype within the context of initial counselling sessions. Observational methods are highly suitable for feasibility research, as they allow for a direct assessment of participant acceptance, tool appropriateness and potential scalability in real-world clinical settings[42].

3.6 Data Analysis Methods

Quantitative data from questionnaires were analysed descriptively to identify general patterns and response tendencies. To complement these findings, qualitative data from open-ended responses and field observations were evaluated using thematic analysis to extract core themes pertaining to user requirements, operational challenges and iterative improvement suggestions. [43].

Ultimately, this integrated analytical framework was selected as the study's primary objective was to evaluate initial feasibility and user acceptability, rather than to establish statistical inference or definitive clinical efficacy [44].

3.7 Phase 1: Needs Analysis for Prototype Development

3.7.1 Purpose and Respondent Profile

The needs analysis phase engaged 101 respondents from diverse stakeholder groups to ensure that the prototype's development was grounded in empirical user requirements rather than researcher assumptions (see Fig. 3). The analysis focused on adolescents' difficulties in expressing emotions and their initial engagement levels in therapeutic interactions. Based on this analysis, the Healing Minds Through Play prototype was designed, integrating CBT and DBT principles into the Dam Ular psychoeducational game[45].

A comprehensive needs analysis is fundamental in developmental research, ensuring that the resulting intervention is precisely tailored to user requirements and addresses contextually relevant issues.At the feasibility stage, this approach is commonly used to design psychosocial and educational interventions [46].Respondents included students, parents/guardians, educators, healthcare workers, and members of

the public. This diverse sample provided a comprehensive overview of challenges in adolescent counselling engagement. Incorporating perspectives from multiple stakeholders ensured that the intervention was more holistic and contextually relevant [47].

3.7.2 Difficulties in Emotional Expression and Barriers to Early Adolescent Engagement

Data presented in Fig. 4 indicates that a significant majority of respondents perceive adolescents as facing substantial challenges in articulating their emotions during initial counselling sessions. Most respondents assessed adolescents' capacity for emotional expression as limited, while only a small proportion considered them able to share feelings easily at the initial stage. This phenomenon is consistent with international findings, which report that adolescents frequently encounter constraints in naming and verbally articulating emotions [23]. These communicative difficulties are closely linked to the developmental trajectory of emotional and cognitive maturation, which remains ongoing during the adolescent period [48].

3.7.3 The Need for Alternative Approaches and the Acceptance of Board Games

Respondents noted that traditional counselling modalities, which rely heavily on direct inquiry, may inadvertently heighten psychological distress, subsequently impeding adolescents' willingness to communicate openly during initial sessions. Conversely, therapeutic communication is more effectively established when initial interactions utilize interactive, non-intimidating alternative media. In this context, gamified and symbolic play-based activities facilitate more fluent emotional and experiential disclosure among adolescents, particularly during phases of clinical caution [49].

The needs analysis, as illustrated in Fig. 5, revealed that board games were highly well-received by adolescents as effective psychoeducational tools within the counselling process. Respondents described board games as calming and psychologically low-pressure methods that help reduce tension during the early stages of sessions. Extant literature corroborates that therapeutic gamification enhances adolescent interaction readiness and fosters the cultivation of an initial therapeutic alliance [50].Board games have also been reported as suitable for use in both clinical and school settings due to their accessibility, low cost, and independence from digital technologies [51].

3.7.4 Summary of Phase 1

The needs analysis revealed that adolescents frequently exhibit limited active engagement during the initial stages of the counselling process. This phenomenon is primarily attributed to communication barriers, and the inherent challenges adolescents face in articulating their emotions at the onset of therapeutic sessions[52]. Consequently, the findings necessitate the development of the 'Healing Minds Through Play' prototype as a CBT–DBT-based psychoeducational instrument that is interactive, culturally

sensitive and designed to minimize psychological pressure. This methodological approach aligns with extant literature emphasizing the importance of adolescent-centric early interventions that prioritize rapport-building and therapeutic alliance formation[53]. In summary, the empirical evidence from 102 respondents underscores the urgent requirement for more approachable and non-intimidating early support tools to facilitate adolescent participation in counselling.

3.8 Phase 2: Prototype Development (Adaptation of Sugiyono's Model)

The conceptualization of the 'Healing Minds Through Play' prototype originated from the needs analysis phase, which derived empirical data from 102 respondents via structured questionnaires. This analysis established the foundational evidence for developing a psychoeducational game that directly addresses the actual challenges adolescents encounter during initial counselling encounters[54].Given the diverse backgrounds of the respondents, the analysis provided a robust empirical basis for designing a prototype precisely tailored to the developmental and psychological needs of the target users.

3.8.1 Prototype Development and Visual Design

The prototype was developed by synthesizing CBT and DBT principles within the framework of an interactive and culturally adapted 'Dam Ular' board game. The prototype was refined and validated by experts prior to pilot feasibility testing. The theoretical frameworks of Cognitive Behavioural Therapy (CBT) and Dialectical Behaviour Therapy (DBT) served as the core conceptual foundation for the prototype development process[55].Visual design for the game board, psychoeducational prompt cards and adolescent avatars was executed using Canva software to ensure aesthetic consistency and a user-friendly interface. Canva was selected for its capacity to produce clear, consistent, and user-friendly designs, while also enabling iterative modifications to the prototype.

The board design utilizes a progressive linear arrangement comprising 50 distinct squares. Within the game mechanics, snakes represent emotional obstacles or cognitive distortions, whereas ladders signify individual strengths, therapeutic progress and adaptive coping mechanisms. Specific squares were paired with CBT–DBT prompt cards, which functioned as triggers for reflection, emotional labelling, and therapeutic interaction between adolescents and counsellors[56].

Table 1
Key game elements of Healing Minds Through Play and their therapeutic functions in adolescent counselling.

Game Element	Structure / Design	Psychological & Therapeutic Function
Game board	Numbers 1–50	Provides progressive structure and clear direction for the session; reduces uncertainty during initial counselling stages.
Snakes	Specific squares leading downwards	Symbolise emotional challenges and cognitive distortions that hinder progress; create opportunities for safe reflection.
Ladders	Specific squares leading upwards	Represent self-strength, progress, and positive coping strategies.
CBT–DBT prompt cards	Structured reflective cards	Stimulate cognitive labelling, emotional regulation, and gradual self-expression.
Avatars	Simple self-representations	Enable adolescents to express themselves symbolically, reducing anxiety about direct sharing.

a) Prompt Cards as a Core Component of the Healing Minds Through Play Prototype

As a central component of the *Healing Minds Through Play* prototype, this study developed a set of prompt cards based on Cognitive Behavioural Therapy (CBT) and Dialectical Behaviour Therapy (DBT) to support adolescents' early engagement in counselling sessions. These cards were designed to address common difficulties faced by adolescents during initial sessions, including challenges in expressing emotions, tendencies towards silence, and communication barriers[57].

The design of the prompt cards emphasises a symbolic, non-threatening, and game-based approach, enabling adolescents to share more safely and comfortably compared to direct clinical questioning. Each card contains a brief reflective question or prompt written in accessible language, adaptable to the adolescent's level of readiness[58].

The prompt cards are divided into four main functions:

1. **CBT cards** – assist adolescents in identifying and labelling thoughts through gradual cognitive awareness.
2. **DBT cards** – support emotional regulation and stress tolerance by helping adolescents recognise emotions and self-soothing strategies.
3. **Symbolic expression cards** – employ visual elements, metaphors, and emojis to encourage indirect emotional expression.
4. **Self-strength cards** – focus on identifying adolescents' strengths, positive experiences, and internal resources.

The use of these prompt cards functions as an intermediary tool, shifting the focus from the adolescent to the game activity, thereby reducing pressure to speak directly. This approach facilitates the counsellor's ability to build a therapeutic relationship more naturally, supports conversational flow, and provides a solid foundation before deeper therapeutic interventions are introduced.

b) Adolescent Avatars as Symbolic Self-Representation

In addition, the adolescent avatar element was designed to enable symbolic self-representation, thereby fostering a sense of safety and reducing anxiety about directly sharing emotional experiences. The overall visual design of the prototype aims to create a non-threatening, enjoyable, and supportive environment that encourages adolescents' early engagement in counselling sessions.

Table 2: Types of avatars and their therapeutic functions in adolescent counselling.

Type of Avatar	Key Characteristics	Therapeutic Function in Counselling Sessions
Expressive	Enjoys speaking and sharing experiences; readily expresses emotions; cheerful and open	Facilitates early emotional expression, reduces passivity in sessions, and helps counsellors identify issues more quickly.
Reflexive	Thinks before speaking; calm and cautious; retains ideas internally	Provides a safe space for self-reflection, suitable for clients who require time before verbal sharing.
Resilient	Persistent; able to recover after challenges; confident in trying despite setbacks	Reinforces narratives of self-strength and coping strategies, supporting the development of confidence and therapeutic motivation.



3.8.2 Prototype Storage Box Design

The Healing Minds Through Play prototype was designed in the form of a simple, portable rectangular wooden box. The specified dimensions of the box are 20 cm (length) × 12 cm (width) × 1.5 cm (height),

making it practical for storing the game board, CBT–DBT prompt cards, avatars, and other game accessories as a complete set.

The rectangular design ensures portability, allowing the prototype to be used across diverse counselling environments such as clinics, schools, and community programmes. The CBT–DBT prompt cards, avatars, game board, and supporting materials were intentionally designed to be integrated into a single set, enabling all components to be used together during counselling sessions without the need for additional tools. This arrangement facilitates ease of use and storage during practice.

The design of the Healing Minds Through Play storage box carries both functional and therapeutic significance. The use of wood provides a neutral and professional appearance, suitable for formal environments such as clinics, schools, and community settings. The flat and organised internal layout ensures that components can be handled efficiently during sessions while also enhancing durability. Overall, the design contributes to creating a safer, non-threatening environment that supports adolescents' participation in counselling during the early stages of engagement.

3.9 Phase 3: Expert Validation and Pilot Feasibility Testing

3.9.1 Expert Selection Criteria

Prior to wider application, the third phase of the study aimed to assess the suitability and initial feasibility of the Healing Minds Through Play prototype. This phase comprised two key components: expert validation and pilot feasibility testing. Conducted within the Research and Development (R&D) framework, the process emphasised iterative refinement based on feedback before effectiveness evaluation [37].The approach ensured that the prototype was not only theoretically aligned with CBT–DBT principles but also culturally appropriate, emotionally safe, and comprehensible for adolescent counselling contexts.

3.9.2 Expert Validation Process

a) Purpose

Experts provided feedback using a structured validation form alongside qualitative open-ended comments to facilitate comprehensive prototype refinement.

b) Selection of Experts

Experts were purposively selected based on professional experience in psychology, counselling, and adolescent mental health, particularly those engaged in psychosocial interventions and health services.

c) Evaluation Criteria

1. Experts assessed the prototype across four domains:
2. Theoretical alignment – appropriateness of CBT and DBT integration within game activities.

3. Language and delivery – clarity of instructions, developmental suitability, and absence of judgemental elements.
4. Emotional sensitivity and psychological safety – potential risks, appropriateness of prompts, and capacity to create a safe environment.
5. Counselling usability – practicality of application in individual or small-group sessions.
6. Feedback was collected via structured evaluation forms and written comments, analysed descriptively to guide prototype refinement.

d) Refinements Based on Expert Feedback

Improvements included more precise language for psychoeducational cards, adjustments to visual elements to enhance adolescent appeal, and simplification of game structure to avoid emotional overload. These refinements ensured the prototype was safer, clearer, and more practical for early counselling sessions[59].

3.9.3 Pilot Feasibility Testing

The prototype was trialled in initial counselling sessions lasting 45–60 minutes, consistent with standard clinical practice. The pilot focused on assessing acceptance, comprehension, and contextual suitability rather than clinical effectiveness [60].

Adolescents aged 10–19 participated in counselling sessions at health facilities, where the prototype was introduced as a supportive activity to facilitate emotional expression and interaction[61].Structured observation was conducted by counsellors to evaluate comprehension of instructions, comfort levels, engagement, and the prototype's ability to stimulate discussion and emotional reflection. Adolescents and counsellors also provided brief feedback on their experiences. Data were analysed descriptively to identify design strengths and areas for iterative improvement, consistent with early-stage intervention development practices [62].

3.9.4 Summary of Validation and Pilot Phase

Overall, Phase 3 enabled preliminary evaluation of the prototype's suitability and feasibility in adolescent counselling contexts. Needs analysis involved 102 respondents, while pilot testing was conducted in a single counselling session. Findings highlighted usability, acceptance, and early interaction as key strengths. The prototype was validated against CBT–DBT theory, emotional safety, and practical application, confirming its potential as an appropriate support tool for enhancing adolescents' early engagement in counselling[63].

4.0 Pilot Feasibility Findings

4.1 Usability and Flexibility of the Prototype in Practice

The pilot study demonstrated that the Healing Minds Through Play prototype possesses strong usability and flexibility for application across diverse professional contexts[64]. Medical officers in adolescent clinics, school counsellors, and psychologists reported that the game structure, instructions, and psychoeducational card content were clear, easily understood, and did not require intensive specialised training. These findings are consistent with the characteristics of early-stage feasibility interventions in clinical and educational settings [65].

The prototype was applied in adolescent clinics as an initial support tool prior to more in-depth clinical assessment, in schools to initiate discussions and foster rapport, and in clinical psychology to identify client issues before structured psychotherapeutic interventions. Results indicated that the prototype could be adapted to session objectives and professional roles without disrupting existing workflows, which aligns with principles of feasibility and early acceptance in developmental interventions [66].

4.2 Adolescents' Initial Acceptance and Impact on Engagement

Professional observations revealed that adolescents responded more positively to the game-based approach compared to conventional direct counselling interactions. The use of the Dam Ular game reduced tension, awkwardness, and reluctance to speak, particularly during initial sessions. This finding supports literature indicating that play-based approaches can lower initial anxiety and enhance adolescents' readiness for therapeutic interaction [67].

The game created a calmer, non-threatening environment, enabling adolescents to participate actively without pressure to verbalise emotions directly[68]. Adolescents demonstrated a greater willingness to respond through reflections on gameplay, card selection, and gradual sharing of daily experiences. This indirect approach supported early engagement and is consistent with previous studies reporting that structured and symbolic activities facilitate emotional expression and adolescent participation in counselling [69].

4.3 Support for Interaction, Conversational Flow, and Rapport Building

The pilot also showed that the prototype facilitated a smoother conversational flow between adolescents and mental health professionals. Psychoeducational cards and game elements acted as safe discussion triggers, reducing communication gaps and silence often observed in early sessions. The activity-based approach enabled adolescents to respond indirectly before progressing to deeper verbal sharing, consistent with findings that non-threatening methods reduce initial communication barriers [70].

Medical officers and school counsellors reported significant reductions in minimal responses and prolonged silence, while psychologists noted that the prototype helped identify clients' communication styles and emotional readiness more efficiently[71]. Overall, the game-based method supported rapport

building in a more natural manner, without excessive clinical pressure, thereby facilitating subsequent intervention planning. These findings align with literature emphasising that early therapeutic relationships established through active and structured interaction are critical for enhancing adolescent engagement and intervention effectiveness [72].

In summary, the pilot findings indicate that Healing Minds Through Play demonstrates promising early feasibility and potential for use by a range of adolescent mental health professionals. The prototype supported initial client engagement, facilitated interaction, and contributed to the development of therapeutic relationships in counselling sessions [73]. However, these findings are limited to feasibility and early acceptance, and do not constitute evidence of clinical effectiveness.

5.0 Discussion

This section discusses the study findings based on the pilot test of the feasibility of the Healing Minds Through Play prototype, with reference to existing literature and in response to the research questions (RQ1–RQ3). The discussion highlights how CBT–DBT-based gamification elements support early engagement, emotional expression, and therapeutic interaction among adolescents. In line with the study design, which focused on development and early feasibility, these findings should not be interpreted as evidence of the full clinical effectiveness of the intervention. Nevertheless, the preliminary results indicate the potential of the Healing Minds Through Play prototype as a supportive intervention tool to assist adolescents in engaging and expressing emotions within the context of counselling sessions.

5.1 Adolescents' Needs in Early Counselling Engagement

The findings of this study indicate that adolescents require an initial approach that is non-threatening, flexible, and relationship-oriented, particularly during their first counselling session[74]. The experiences of medical officers, school counsellors, and psychologists show that issues such as silence, reluctance to speak, and communication pauses often occur in the early stages of conventional counselling. Several developmental factors among adolescents can be linked to this situation, including difficulties in expressing emotions due to limited emotional vocabulary, concerns about social evaluation, and a lack of trust at the early stage of the therapeutic relationship. These findings are consistent with previous research showing that adolescents tend to remain silent in ways that hinder the therapeutic process, in contrast to adult clients who often use silence as an opportunity for reflection[75].

The use of Healing Minds Through Play addresses these needs by enabling adolescents to engage indirectly through an intermediary medium. In this way, the pressure to verbalise complex emotions is reduced, facilitating early engagement and helping to build a stronger therapeutic relationship.

5.2 Gamification Features Suitable for Delivering CBT–DBT

Instead of being chosen at random, the gamification features in Healing Minds Through Play are carefully chosen based on early treatment engagement theory, developmental psychology, and CBT–DBT principles.

Why Snake and Ladders?

Three key factors readiness, symbolic clarity, and cultural accessibility guided the choice to modify the classic Snakes and Ladders format. Initially, there is no necessity for an explanation, as Snakes and Ladders is a well-known game in Malaysian culture. During the initial session, adolescents can concentrate on interaction rather than rule comprehension when they are adequately prepared, which alleviates cognitive strain. To avert defensive retreat and pre-emptive anxiety, it is essential to reduce uncertainty during the beginning phases of counselling. Secondly, the game features an inherent symbolic progression pattern: ascending (ladders) and descending (snakes)[76].

Why 50 Squares?

The board was designed with 50 progressive squares to create a structured yet manageable therapeutic trajectory within a 45–60 minute session. Cognitive strain and session fatigue are mitigated by restricting the number of squares. Adolescents derive developmental advantages from structured containment, particularly during initial interactions where uncertainty may exacerbate stress responses. The progressive linear arrangement also symbolises incremental growth. In CBT terms, it reflects gradual cognitive restructuring; in DBT terms, it mirrors skill acquisition over stages. The finite board provides a sense of closure and predictability, reinforcing psychological safety during the first therapeutic interaction [77].

Why Symbolic Descent as Regression?

The inclusion of downward movement (snakes) represents symbolic regression rather than failure. In CBT, cognitive distortions often interrupt adaptive progress. In DBT, emotional dysregulation may temporarily disrupt behavioural stability. The snake metaphor externalises setbacks as part of the game rather than personal inadequacy.

This externalisation reduces shame. Instead of framing difficulties as “your mistake,” the game frames them as “a moment in the journey.” Such symbolic distancing is developmentally appropriate for adolescents who may struggle with self-blame or global negative self-evaluation. It is crucial to note that the game does not conclude with descent. Movement persists. This supports the therapeutic message that setbacks are temporary and manageable, which is consistent with the principles of resilience-building [78].

Why Avatars?

Adolescent avatars were introduced to facilitate symbolic self-representation and reduce direct exposure anxiety. The immediate face-to-face emotional disclosure of many adolescents causes them discomfort.

Avatars serve as psychological buffers, facilitating indirect communication and projection[79]. Adolescents can securely investigate aspects of themselves by associating with a selected avatar (e.g., expressive, reflective, resilient).

From a CBT perspective, avatars support cognitive distancing and perspective-taking. From a DBT lens, they allow gradual emotional awareness without overwhelming vulnerability.

Symbolic mediation is very important in the beginning meetings, when trust is still being built. Avatars help change the attention from "me being judged" to "my character in the game," which makes it seem like I'm not being watched as closely [80].

Why Prompt Cards Instead of Worksheets?

Prompt cards were intentionally selected over traditional worksheets to reduce formal clinical framing. Worksheets are frequently linked to academic tasks, assessments, or evaluations, which may exacerbate performance anxiety in adolescents. Conversely, prompt cards serve as conversational stimuli that are inadvertently integrated into the gameplay. The cards allow to gradual cognitive labelling (CBT),emotional recognition and validation (DBT),indirect narrative sharing and strength identification[81].

However, cards are drawn randomly, adolescents experience reduced pressure to “choose the right answer.” The structure shifts attention from introspection under scrutiny to participation in an activity. Additionally, the card-based format supports micro-interventions within limited session time, enabling counsellors to flexibly adjust depth based on the adolescent’s readiness [82].

5.3 Early Effectiveness of the Prototype in Enhancing Emotional Expression and Interaction

Findings from the pilot test suggest that the prototype can support adolescents’ readiness to communicate more openly, while also facilitating discussion and reducing prolonged silence during the early stages of counselling[83]. Although this study did not quantitatively assess clinical effectiveness, feedback from mental health professionals indicated that the use of games as an interactive medium made counselling discussions smoother and more natural. These preliminary findings suggest that game-based intervention protocols and interactive approaches have the potential to support adolescent engagement and acceptance, particularly in the initial stages of counselling. However, a comprehensive evaluation of deeper clinical effects still requires larger-scale studies with more robust research designs[84].

In addition, previous literature shows that the effectiveness of gamification interventions is often influenced by several factors, including intervention design, the role of facilitators, and cultural appropriateness[85]. Within this context, Healing Minds Through Play appears to have potential as an early support tool that helps initiate the therapeutic process by providing a safer, more flexible, and more acceptable foundation for adolescents.

5.4 Study Implications and Future Directions

5.4.1 Implications for Clinical Practice

This study found that the Healing Minds Through Play prototype can be used as an essential support instrument in adolescent counselling sessions in health clinics, particularly by medical officers and psychologists. The use of a game-based approach in the early stages of sessions helps reduce tension, facilitates rapport-building, and enables professionals to identify adolescents' communication styles and emotional readiness effectively before more in-depth clinical assessments are conducted. Such early support approaches are consistent with literature emphasising the importance of the initial phase of therapeutic interaction in determining treatment continuity and adolescent client engagement [86].

5.4.2 Implications for School Counselling Practice

This psychoeducational game has the potential to help students interact more effectively in school settings, particularly among adolescents who struggle to express feelings or show little interest in attending formal counselling sessions[87]. School approaches that are overly formal and clinical often act as barriers for adolescents in accessing counselling services. Based on implementation experiences, adolescents were found to be more receptive to game-based activities and more relaxed forms of interaction. This approach allows them to participate in counselling sessions more comfortably, while reducing feelings of awkwardness, stigma or being judged [88].

5.4.3 Implications for Policy and Adolescent Mental Health Programme Development

This study supports the need to develop psychoeducational tools that are cost-effective, culturally relevant, and applicable across diverse adolescent mental health service settings[89]. The Healing Minds Through Play prototype can be used in adolescent mental health programmes in clinics, schools, and communities as a safe form of early support. This approach aligns with public health perspectives that emphasise the importance of early intervention, improved access to services, and active adolescent participation in mental health care To strengthen policy implications, this innovation framework will be proposed to the National Centre of Excellence for Mental Health (NCEMH) as strategic input for the development of a national-level gamification module scheduled for this year[90]. This step is crucial to ensure that local research findings can be integrated into the broader mental health service ecosystem, thereby contributing to more inclusive and adolescent-friendly government intervention methods.

5.5 Future Directions and Limitations

To reinforce these findings, further research is recommended to quantitatively evaluate the prototype's effectiveness, including comparisons with conventional counselling methods. Future studies should examine the long-term effects of using the prototype, as well as test its suitability across different contexts and adolescent populations[91]. In addition, attention should be given to clinical outcomes

such as reduced anxiety, improved emotional regulation, and consistency of attendance in counselling sessions.

The development of digital and hybrid versions of the Healing Minds Through Play prototype is currently underway in line with research progress. To achieve this, elements such as interactive boards, digital CBT–DBT prompt cards, expressive avatars, and audiovisual support will be required. Literature shows that hybrid interventions combining professional support and digital tools can enhance access, engagement, and flexibility of adolescent mental health services, particularly for those in rural areas and those using tele-counselling services [92].

Language and symbolic adaptation is important because research shows that adolescents are more likely to express emotions and engage actively when interventions use language and cultural representations close to their identity (Bernal et al., 2009). In the context of early counselling sessions, the use of avatars has the potential to provide a safer space for indirect emotional expression, thereby reducing adolescents' anxiety about sharing personal experiences [93]. As part of ongoing efforts to develop locally relevant mental health innovations, the *Healing Minds Through Play* prototype has received recognition through an innovation competition and has been registered for intellectual property (IP) protection. This recognition reflects the perceived originality and practical relevance of the prototype within adolescent mental health support. However, further research is still needed to evaluate its effectiveness across broader counselling settings and diverse adolescent populations.

6.0 Conclusion

The focus of this study was to develop and evaluate a psychoeducational Snakes and Ladders game based on a combination of Cognitive Behavioural Therapy (CBT) and Dialectical Behaviour Therapy (DBT). When adolescents begin participating in counselling sessions, the game can be used as an early support instrument. The study findings were obtained through a needs analysis involving 102 respondents, followed by the implementation of a pilot test in an initial counselling session. Observations during the pilot test showed that the prototype was suitable as an early support tool to help adolescents express their emotions more clearly, particularly when the methods used were non-threatening and client centred. It also has the potential to reduce prolonged silence and communication barriers. This game-based approach supports Sustainable Development Goal (SDG) 3: Good Health and Well-being, particularly target 3.4 which emphasises mental health promotion and early prevention of psychological disorders. In addition, the use of psychoeducational games as a medium for socio-emotional learning also supports SDG 4: Quality Education, by providing inclusive self-learning and psychosocial support methods in school and clinical environments.

Healing Minds Through Play also supports SDG 10: Reduced Inequalities, particularly by providing greater mental health support to adolescents facing service barriers, stigma, or communication difficulties. At the national scale, the study's findings align with the goals of Malaysia MADANI, particularly the dimensions of well-being, compassion, and creativity, through the development of local

innovations that emphasise humane, ethical, and adolescent-centred approaches. Although this study was limited to early feasibility assessment and did not quantitatively evaluate clinical effectiveness, the preliminary findings indicate the potential of Healing Minds Through Play as a practical and relevant early support instrument. Larger-scale follow-up studies are recommended to evaluate effectiveness, long-term impact, and the contribution of this prototype to sustainable development agendas and adolescent mental well-being in Malaysia.

Declarations

Ethical approval for this study was obtained from the Research Ethics Committee of Universiti Kebangsaan Malaysia (Jawatankuasa Etika Penyelidikan, JEP) (Reference No.: JEP-2024-1106). The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and Good Clinical Practice (GCP) guidelines. Written informed consent was obtained from all participants prior to participation. For adolescent participants aged below 18 years, written parental or legal guardian consent and participant assent were obtained before participation. Participation was voluntary, and participants were informed of their right to withdraw from the study at any time without affecting access to routine services.

12.0 *Consent for publication*:

Not applicable. This manuscript does not contain identifiable personal data, images, or videos of participants.

13.0 *Competing interests*:

The authors declare that they have no competing interests.

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Author Contribution

Kallai Selvi Selvaraja conceptualized the study, conducted data collection, analysis, manuscript writing and prototype development. Nasruddin Bin Subhi supervised the research design and provided critical review of the manuscript. Muhammad Ajib contributed to methodological input and manuscript review. Noor Rafizah Aminah Binti Aziz and Norfaridah Binti Masiran contributed to professional consultation, validation and manuscript review. All authors read and approved the final manuscript

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Data Availability

Thank you for this comment. A Data Availability Statement has been added in the journal submission system under the Data Availability Declaration section. The statement indicates that the datasets generated and analyzed during the study are available from the corresponding author upon reasonable request, subject to confidentiality considerations.

References

1. Organization WH. Adolescent mental health. World Heal Organ, 2021.
2. Mat Rifin H, Mohd MF, Yusoff, Abd Hamid HA. Conducting the National Health and Morbidity Survey 2023 in Malaysia with focus on methodology and main findings on non-communicable diseases. Sci Rep. 2025;15(1):1–13. 10.1038/s41598-025-08311-9.
3. Lai C. A Review of Adolescent Emotion Regulation Ability. Int J Educ Humanit. 2024;15(2):357–64. 10.54097/5x2m1355.
4. Cirasola A, Fonagy P, Midgley N. Alliance Rupture and Repair in Adolescent Psychotherapy: What Clinicians Can Learn From Research. Psychotherapy. 2024;61(4):304–13. 10.1037/pst0000535.
5. Boerma M, Beel N, Jeffries C, Krishnamoorthy G. It's all about rapport': Australian therapists' recommendations for engaging adolescent males in counselling and psychotherapy. Couns Psychother Res. 2024;24(2):805–17. 10.1002/capr.12716.
6. Dimic T, Farrell A, Ahern E, Houghton S. Young people's experience of the therapeutic alliance: A systematic review. Clin Psychol Psychother. 2023;30(6):1482–511. 10.1002/cpp.2885.
7. Stige SH, Eik I, Oddli HW, Moltu C. Negotiating System Requirements to Secure Client Engagement – Therapist Strategies in Adolescent Psychotherapy Initiated by Others. Front Psychol. 2021;12. 10.3389/fpsyg.2021.704136.
8. Dambi JM, et al. The impact of working alliance in managing youth anxiety and depression: a scoping review. Npj Ment Heal Res. 2023;2(1). 10.1038/s44184-023-00021-2.
9. Karver MS, De Nadai AS, Monahan M, Shirk SR. Meta-analysis of the prospective relation between alliance and outcome in child and adolescent psychotherapy., *Psychotherapy (Chic).*, vol. 55, no. 4,

pp. 341–355, Dec. 2018, 10.1037/pst0000176

10. Shirk SR, Karver MS, Brown R. The alliance in child and adolescent psychotherapy., *Psychotherapy (Chic).*, vol. 48, no. 1, pp. 17–24, Mar. 2011, 10.1037/a0022181
11. Weisz JR, et al. What five decades of research tells us about the effects of youth psychological therapy: A multilevel meta-analysis and implications for science and practice. Am Psychol. 2017;72(2):79–117. 10.1037/a0040360.
12. Beck JS. Cognitive behavior therapy: Basics and beyond. 2nd ed. Guilford Press; 2011.
13. Shirk S and R. L. R., Russell. Change processes in child psychotherapy: Revitalizing treatment and research. J Consult Clin Psychol. 1996;64(4):728–39. 10.1037/0022-006X.64.4.728.
14. Linehan MM. Cognitive-behavioral treatment of borderline personality disorder. Guilford Press; 1993.
15. Mehlum L, et al. Dialectical behavior therapy for adolescents with repeated suicidal and self-harming behavior: a randomized trial. J Am Acad Child Adolesc Psychiatry. Oct. 2014;53(10):1082–91. 10.1016/j.jaac.2014.07.003.
16. Hollis C, et al. Annual Research Review: Digital health interventions for children and young people with mental health problems – a systematic and meta-review. J Child Psychol Psychiatry Allied Discip. 2017;58(4):474–503. 10.1111/jcpp.12663.
17. Gupta N, Chaudhary R, Gupta M, Ikehara L-H, Zubiar F, Madabushi JS. Play Therapy As Effective Options for School-Age Children With Emotional and Behavioral Problems: A Case Series. Cureus. 2023;15(6). 10.7759/cureus.40093.
18. De Haan E, Duckworth A, Birch D, Jones C. Executive coaching outcome research: The contribution of common factors such as relationship, personality match, and self-efficacy. Consult Psychol J. 2013;65(1):40–57. 10.1037/a0031635.
19. Binder PE, Holgersen H, Moltu C. Staying close and reflexive: An explorative and reflexive approach to qualitative research on psychotherapy. Nord Psychol. 2012;64(2):103–17. 10.1080/19012276.2012.726815.
20. Norcross JC, Wampold BE. A new therapy for each patient: Evidence-based relationships and responsiveness. J Clin Psychol. 2018;74(11):1889–906. 10.1002/jclp.22678.
21. McLeod BD. Relation of the alliance with outcomes in youth psychotherapy: A meta-analysis. Clin Psychol Rev. Jun. 2011;31(4):603–16. 10.1016/J.CPR.2011.02.001.
22. Pradnyadewi IGAAM, Widiasavitri PN. Faktor-faktor Penyebab Alexithymia pada Remaja: Literature Review. J Psikol Perseptual. 2023;8(1):60–79. 10.24176/perseptual.v8i1.9241.
23. Grynberg D, et al. Alexithymia and the processing of emotional facial expressions (EFEs): systematic review, unanswered questions and further perspectives. PLoS ONE. 2012;7(8):e42429. 10.1371/journal.pone.0042429.
24. Coutinho J, Ribeiro E, Hill C, Safran J. Therapists' and clients' experiences of alliance ruptures: A qualitative study, *Psychother. Res.*, vol. 21, no. 5, pp. 525–540, Sep. 2011, 10.1080/10503307.2011.587469

25. Svamo NTØ, Haug SHK, DeMarinis V, Hertzberg U. Adolescents' voices on self-engagement in mental health treatment: a scoping review. Eur Child Adolesc Psychiatry. 2024;33(12):4083–95. 10.1007/s00787-024-02425-7.
26. Granic I, Lobel A, Engels RCME. The benefits of playing video games., *Am. Psychol.*, vol. 69, no. 1, pp. 66–78, Jan. 2014, 10.1037/a0034857
27. Khanna MS, Carper M. Digital Mental Health Interventions for Child and Adolescent Anxiety. Cogn Behav Pract. Feb. 2022;29(1):60–8. 10.1016/J.CBPRA.2021.05.003.
28. Linehan MM. DBT skills training manual. 2nd ed. Guilford Press; 2015.
29. McPherson KE, et al. The association between family and community social capital and health risk behaviours in young people: An integrative review. BMC Public Health. 2013;13(1). 10.1186/1471-2458-13-971.
30. Kulikov VN, et al. A CBT-based mobile intervention as an adjunct treatment for adolescents with symptoms of depression: a virtual randomized controlled feasibility trial. Front Digit Heal. 2023;5. 10.3389/fdgth.2023.1062471.
31. Hong SH, et al. Digital Mental Health Interventions for Adolescents: An Integrative Review Based on the Behavior Change Approach. Children. 2025;12:770. 10.3390/children12060770. no. 6.
32. Sugiyono. *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta,Bandung, 2019.
33. Gall MD. Educational Research: An Introduction. 7th ed. Allyn & Bacon; 2003.
34. Richey RC, Klein JD. Design and development research: Methods, strategies, and issues. Lawrence Erlbaum Associates; 2007.
35. Leung CL, et al. Adolescents as co-designers: adapting human-centered design to develop school-based mental health strategies in northern Ghana. BMC Public Health. 2025;25(1). 10.1186/s12889-025-25012-0.
36. Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, Hoagwood K. Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. Adm Policy Ment Heal Ment Heal Serv Res. 2015;42(5):533–44. 10.1007/s10488-013-0528-y.
37. Sugiyono. Metode Penelitian dan Pengembangan (Research and Development/R&D)tle. Bandung: Alfabeta; 2019.
38. Creswell JW, Plano VL, Clark. Designing and conducting mixed methods research. 3rd ed. SAGE Publications Inc.; 2018.
39. Creswell JW, Creswell JD. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE Publications, 2018. [Online]. Available: https://books.google.com.my/books?id=s4ViswEACAAJ
40. Ponto J. Understanding and Evaluating Survey Research. J Adv Pract Oncol. 2015;6(2):168–71.
41. Bowen DJ, et al. How we design feasibility studies. Am J Prev Med. May 2009;36(5):452–7. 10.1016/j.amepre.2009.02.002.

42. Richey R, Klein J. *Design and Development Research: Methods, Strategies, and Issues*. 2014. 10.4324/9780203826034
43. Braun V, Clarke V. Qualitative Research in Psychology Using thematic analysis in psychology Using thematic analysis in psychology, *Qual. Res. Psychol.*, vol. 3, no. 2, pp. 77–101, 2006, [Online]. Available: http://www.tandfonline.com/action/journalInformation?journalCode=uqrp20%5Cnhttp://www.tandfonline.com/action/journalInformation?journalCode=uqrp20
44. Bowen DJ, et al. How We Design Feasibility Studies. Am J Prev Med. 2009;36(5):452–7. 10.1016/j.amepre.2009.02.002.
45. Topper M, Emmelkamp PMG, Watkins E, Ehring T. Prevention of anxiety disorders and depression by targeting excessive worry and rumination in adolescents and young adults: A randomized controlled trial. Behav Res Ther. 2017;90:123–36. https://doi.org/10.1016/j.brat.2016.12.015.
46. Skivington K et al. A new framework for developing and evaluating complex interventions: Update of Medical Research Council guidance, *BMJ*, vol. 374, no. 2018, 2021. 10.1136/bmj.n2061.
47. O'Cathain A et al. Guidance on how to develop complex interventions to improve health and healthcare, *BMJ Open*, vol. 9, no. 8, pp. 1–9, 2019, 10.1136/bmjopen-2019-029954
48. Sawyer SM, Azzopardi PS, Wickremarathne D, Patton GC. The age of adolescence. Lancet Child Adolesc Heal. 2018;2(3):223–8. 10.1016/S2352-4642(18)30022-1.
49. Halfon S, Bulut P. Mentalization and the growth of symbolic play and affect regulation in psychodynamic therapy for children with behavioral problems. Psychother Res. 2019;29(5):666–78. 10.1080/10503307.2017.1393577.
50. Respati T, Feriandi Y, Frederico R, Nugroho E, Pardosi JF, Withall A. Efficacy of a Mental Health Game-Board Intervention for Adolescents in Remote Areas: Reducing Stigma and Encouraging Peer Engagement. Open Public Health J. 2024;17. https://doi.org/10.2174/0118749445310785240603045859.
51. Gupta N, Chaudhary R, Gupta M, Ikehara L-H, Zubiar F, Madabushi JS. Cureus. Jun. 2023;15(6):e40093. 10.7759/cureus.40093. Play Therapy As Effective Options for School-Age Children With Emotional and Behavioral Problems: A Case Series.
52. Iversen HW, Riley H, Råbu M, Lorem GF. Building and sustaining therapeutic relationships across treatment settings: a qualitative study of how patients navigate the group dynamics of mental healthcare. BMC Psychiatry. 2025;25(1):424. 10.1186/s12888-025-06874-5.
53. Azmi SS, Baidya SM. Exploring the role of individual counselling in adolescent psychological resilience and well-being. Int J Psychol Sci. 2025;7(1):269–72. 10.33545/26648377.2025.v7.i1d.101.
54. Park HS, Becker KD, Chorpita BF. Understanding How and When Therapists Misstep: Navigating Engagement Challenges in Youth Mental Health Services. Res Child Adolesc Psychopathol. 2025;53(5):669–85. 10.1007/s10802-025-01297-y.

55. Fernandes H. Therapeutic Alliance in Cognitive Behavioural Therapy in Child and Adolescent Mental Health-Current Trends and Future Challenges. Front Psychol. 2022;12. 10.3389/fpsyg.2021.610874.
56. Noda S, Shirotsuki K, Nakao M. The effectiveness of intervention with board games: a systematic review. Biopsychosoc Med. 2019;13(1):22. 10.1186/s13030-019-0164-1.
57. Meschke LL, Peter CR, Bartholomae S. Developmentally Appropriate Practice to Promote Healthy Adolescent Development: Integrating Research and Practice. Child Youth Care Forum. 2012;41(1):89–108. 10.1007/s10566-011-9153-7.
58. Campisi SC, Ataullahjan A, Baxter J-AB, Szatmari P, Bhutta ZA. Mental health interventions in adolescence. Curr Opin Psychol. 2022;48:101492. https://doi.org/10.1016/j.copsyc.2022.101492.
59. Opie JE, Vuong A, Welsh ET, Esler TB, Khan UR, Khalil H. Outcomes of Best-Practice Guided Digital Mental Health Interventions for Youth and Young Adults with Emerging Symptoms: Part II. A Systematic Review of User Experience Outcomes. no 2 Springer US. 2024;27. 10.1007/s10567-024-00468-5.
60. Pearson N, Naylor PJ, Ashe MC, Fernandez M, Yoong SL, Wolfenden L. Guidance for conducting feasibility and pilot studies for implementation trials. Pilot Feasibility Stud. 2020;6(1):1–12. 10.1186/s40814-020-00634-w.
61. Connors EH, Janse P, de Jong K, Bickman L. The Use of Feedback in Mental Health Services: Expanding Horizons on Reach and Implementation. Adm Policy Ment Heal Ment Heal Serv Res. 2025;52(1):1–10. 10.1007/s10488-024-01426-7.
62. Sundaram N, et al. Qualitative study of the feasibility and acceptability of implementation, and potential mechanisms of Learning Together for Mental Health, a whole-school intervention aiming to promote mental health and wellbeing in secondary schools. Pilot Feasibility Stud. 2024;10(1). 10.1186/s40814-024-01563-8.
63. Zulkefly NS, Dzeidee Schaff AR, Zaini NA, Mukhtar F, Dahlan R. A pilot randomized control trial on the feasibility, acceptability, and initial effects of a digital-assisted parenting intervention for promoting mental health in Malaysian adolescents. Digit Heal. 2024;10:20552076241249572. 10.1177/20552076241249572.
64. Van Gaalen AEJ, Jaarsma ADC, Georgiadis JR. Medical Students' Perceptions of Play and Learning: Qualitative Study With Focus Groups and Thematic Analysis., *JMIR serious games*, vol. 9, no. 3, p. e25637, Jul. 2021, 10.2196/25637
65. De Jaegere E, van Heeringen K, Emmery P, Mommerency G, Portzky G. Effects of a Serious Game for Adolescent Mental Health on Cognitive Vulnerability: Pilot Usability Study. JMIR Serious Games. 2024;12:e47513. 10.2196/47513.
66. Nilsen P, Bernhardsson S. Context matters in implementation science: a scoping review of determinant frameworks that describe contextual determinants for implementation outcomes. BMC Health Serv Res. Mar. 2019;19(1):189. 10.1186/s12913-019-4015-3.
67. Stulmaker HL, Ray DC. Child-centered play therapy with young children who are anxious: A controlled trial. Child Youth Serv Rev. 2015;57:127–33. https://doi.org/10.1016/j.childyouth.2015.08.005.

68. Sanabria-Mazo JP, et al. The use of games in the classroom to promote mental health knowledge and healthy attitudes in adolescents: a systematic review. Front psychiatry. 2025;16:1622099. 10.3389/fpsyt.2025.1622099.
69. Schleider JL, Dobias ML, Sung JY, Mullarkey MC. Future Directions in Single-Session Youth Mental Health Interventions. J Clin Child Adolesc Psychol. 2020;49(2):264–78. 10.1080/15374416.2019.1683852.
70. McGorry PD, Mei C. Early intervention in youth mental health: progress and future directions., *Evid. Based. Ment. Health*, vol. 21, no. 4, pp. 182–184, Nov. 2018, 10.1136/ebmental-2018-300060
71. Genç U, Coskun A. *From Silence to Dialogue: Boosting Collocated Social Interactions with Technology*. 2024. 10.1145/3679318.3685391
72. Castonguay LG, Beutler LE, editors. Principles of Therapeutic Change That Work. Oxford University Press, Sep. 01, 2005. 10.1093/med:psych/9780195156843.001.0001
73. Wickersham A, Barack T, Cross L, Downs J. Computerized Cognitive Behavioral Therapy for Treatment of Depression and Anxiety in Adolescents: Systematic Review and Meta-analysis. J Med Internet Res. 2022;24(4). https://doi.org/10.2196/29842.
74. Omar HM. Adolescent C o unselling: Nurturing Growth and Resilience Journal of Child & Adolescent Behavior, 12, 7, 2024, 10.4172/2375-4494.1000660
75. Norcross JC, Goldfried MR. *Handbook of psychotherapy integration / edited by John C. Norcross and Marvin R. Goldfried.*, Third edit. New York, NY: Oxford University Press, 2019.
76. Merry SN, Stasiak K, Shepherd M, Frampton C, Fleming T, Lucassen MFG. The effectiveness of SPARX, a computerised self help intervention for adolescents seeking help for depression: Randomised controlled non-inferiority trial. BMJ. 2012;344(7857):1–16. 10.1136/bmj.e2598.
77. David OA, Tomoiagă C. The 3D REThink Life Game, a Game-Based Intervention for Training Emotion Regulation Abilities. J Ration - Emotive Cogn - Behav Ther. 2025;43(2):1–15. 10.1007/s10942-025-00591-4.
78. Kazantzis N, Dobson KS. Therapeutic relationships in cognitive behavioral therapy: Agreement in alliance, client factors, therapist factors, and CBT specific processes. Psychother Res. 2024;34(1):1–3. 10.1080/10503307.2023.2290061.
79. Valkenburg PM, Peter J. Online Communication and Adolescent Well-Being: Testing the Stimulation versus the Displacement Hypothesis, *J. Comput. Commun.*, vol. 12, no. 4, pp. 1169–1182, Jul. 2007, 10.1111/j.1083-6101.2007.00368.x
80. Ciarmoli D, Gennaro A, Lecce F, Reho M, Triberti S. Avatars in Mental Health: Psychotherapists' Attitudes Towards Avatar Technology and Factors Influencing Adoption. Eur J Invest Health Psychol Educ. 2025;15(12):256. 10.3390/ejihpe15120256.
81. Dülsen P, Baumeister H. Internet- and mobile-based anxiety and depression interventions for children and adolescents: efficacy and negative effects - a systematic review and meta-analysis. Eur Child Adolesc Psychiatry. 2025;34(1):101–21. 10.1007/s00787-024-02404-y.

82. Noh D, Park H, Shim MS. Website and Mobile Application-Based Interventions for Adolescents and Young Adults with Depression: A Systematic Review and Meta-Analysis. J Korean Acad Psychiatr Ment Heal Nurs. 2023;32(1):78–91. 10.12934/jkpmhn.2023.32.1.78.
83. Sheppe AH. The Sound of Silence: Engaging the Quiet Adolescent. Psychodyn Psychiatry. 2023;51(2):185–205. 10.1521/pdps.2023.51.2.185.
84. Townsend C, Humpston C, Rogers J, Goodyear V, Lavis A, Michail M. The effectiveness of gaming interventions for depression and anxiety in young people: systematic review and meta-analysis. BJPsych Open. 2022;8(1):e25. 10.1192/bjo.2021.1078.
85. Glass S, Galati A. Advancements and challenges in methodological approaches for game-based health interventions: a scoping review. Front Digit Heal. 2025;7. 10.3389/fdgth.2025.1561422.
86. Bickman L, et al. Implementing a Measurement Feedback System: A Tale of Two Sites. Adm Policy Ment Heal Ment Heal Serv Res. 2016;43(3):410–25. 10.1007/s10488-015-0647-8.
87. Lekamge RB, et al. Systematic Review and Meta-analysis of the Effectiveness of Whole-school Interventions Promoting Mental Health and Preventing Risk Behaviours in Adolescence. J Youth Adolesc. 2025;54(2):271–89. 10.1007/s10964-025-02135-6.
88. Ma KKY, Anderson JK, Burn AM. Review: School-based interventions to improve mental health literacy and reduce mental health stigma – a systematic review. Child Adolesc Mental Health. 2023. 10.1111/camh.12543.
89. Corpus-Espinosa C, Mac Fadden I, M. del Carmen Torrejón-Guirado, and, Lima-Serrano M. Exploring Cultural Adaptations: A Scoping Review on Adolescent Mental Health and Substance Use Prevention Programs, *Prev. Sci.*, vol. 26, no. 2, pp. 204–221, 2025, 10.1007/s11121-025-01779-x
90. Wright M, Reitegger F, Cela H, Papst A, Gasteiger-Klicpera B. Interventions with Digital Tools for Mental Health Promotion among 11–18 Year Olds: A Systematic Review and Meta-Analysis. J Youth Adolesc. 2023;52(4):754–79. 10.1007/s10964-023-01735-4.
91. Company-Córdoba R, Sianes A, Simpson IC, Luesia JF, Ibáñez-Alfonso JA. Randomized controlled trials cognitive interventions in children and adolescents from low-socioeconomic backgrounds: a systematic review. Curr Psychol. 2025;44(5):2958–81. 10.1007/s12144-025-07396-9.
92. Grist R, Croker A, Denne M, Stallard P. Technology Delivered Interventions for Depression and Anxiety in Children and Adolescents: A Systematic Review and Meta-analysis, *Clin. Child Fam. Psychol. Rev.*, vol. 22, no. 2, pp. 147–171, Jun. 2019, 10.1007/S10567-018-0271-8
93. Sharma G, et al. Use of Artificial Intelligence in Adolescents' Mental Health Care: Systematic Scoping Review of Current Applications and Future Directions. JMIR Ment Heal. 2025;12. https://doi.org/10.2196/70438.

Figures

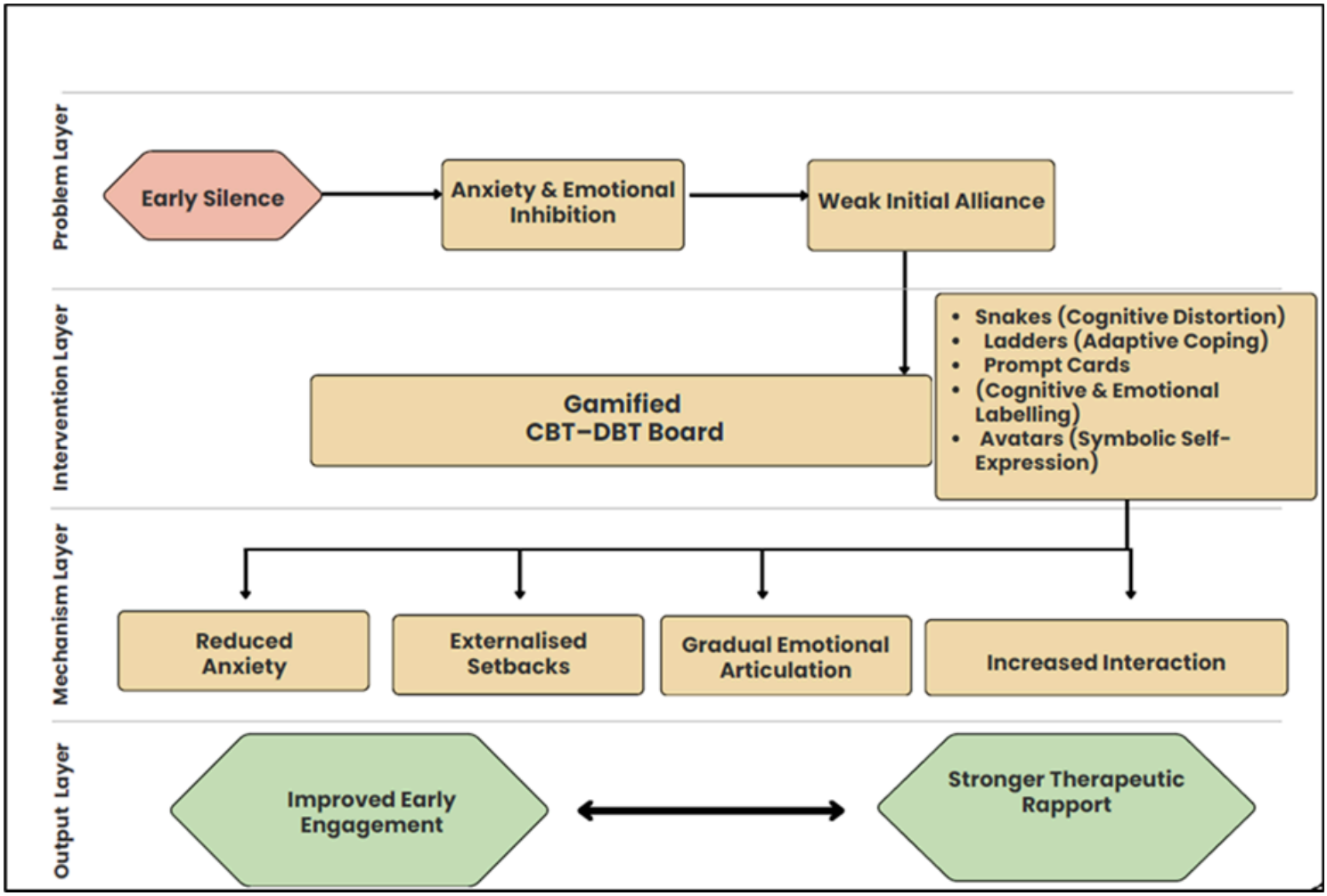


Figure 1

Conceptual Framework of Healing Minds Through Play

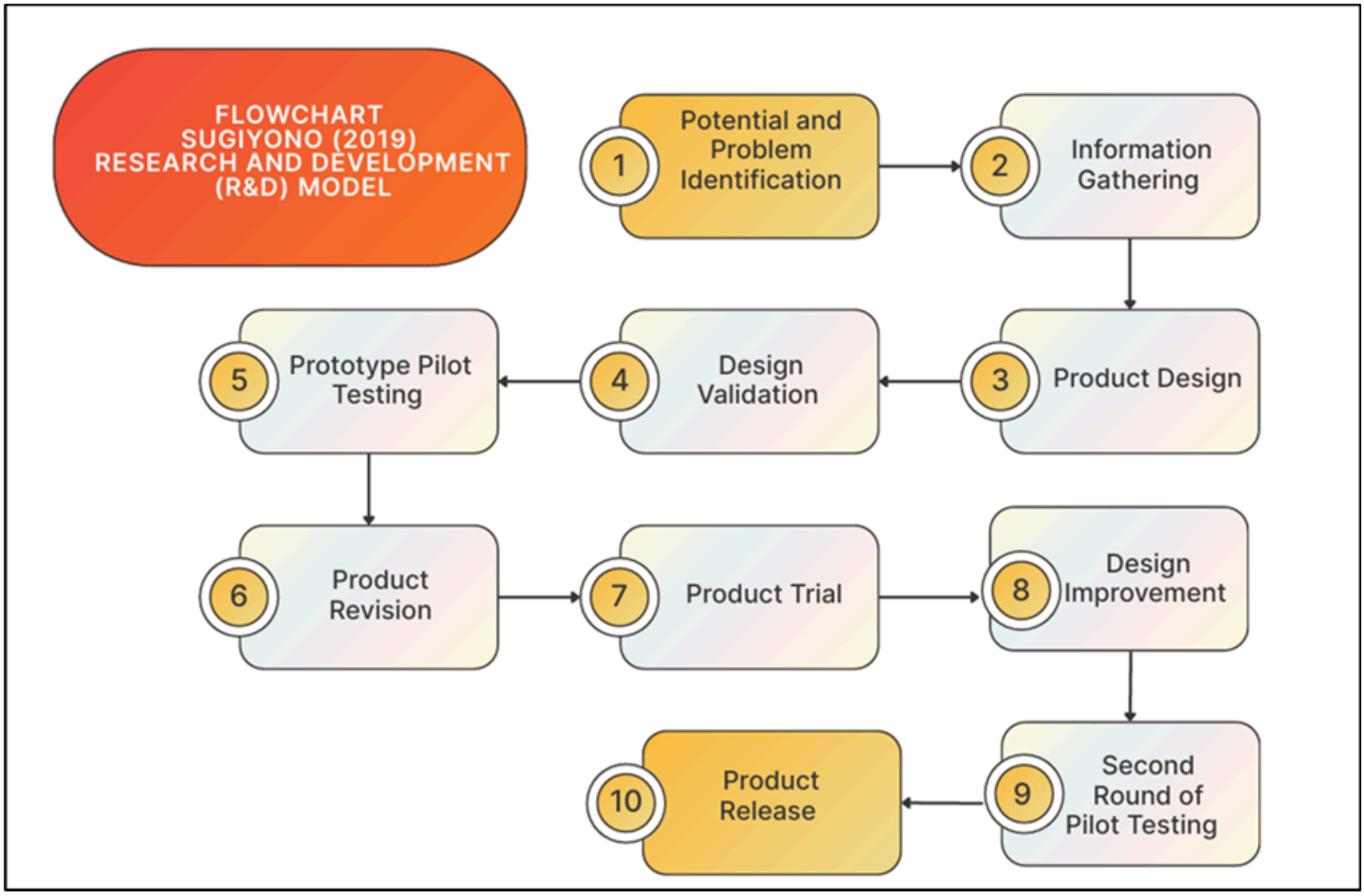


Figure 2

Sugiyono R&D model is a structured approach used to develop and validate educational and psychological tools.

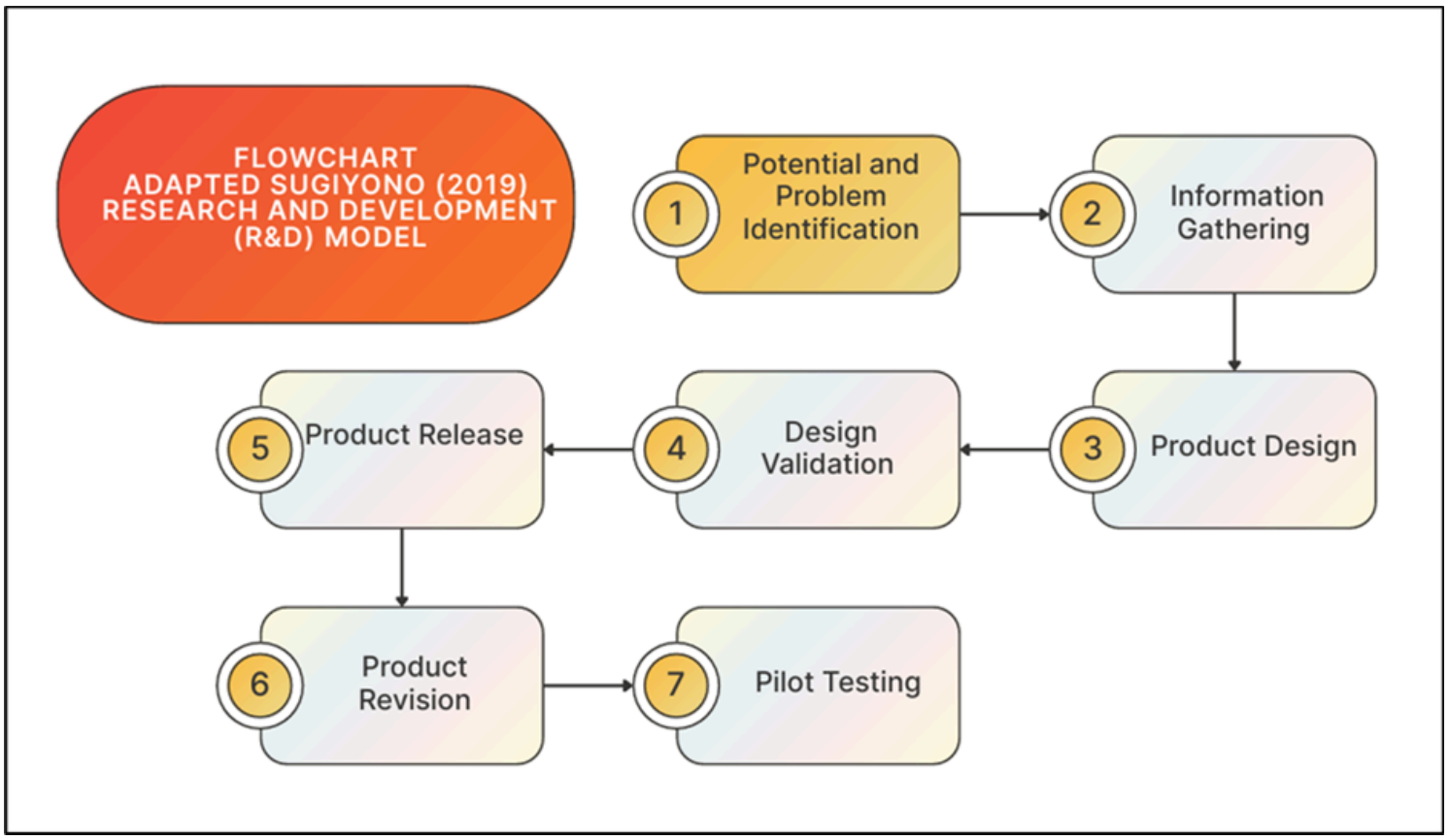


Figure 3

Product development stages adapted from Sugiyono's R&D model for the Healing Minds Through Play prototype

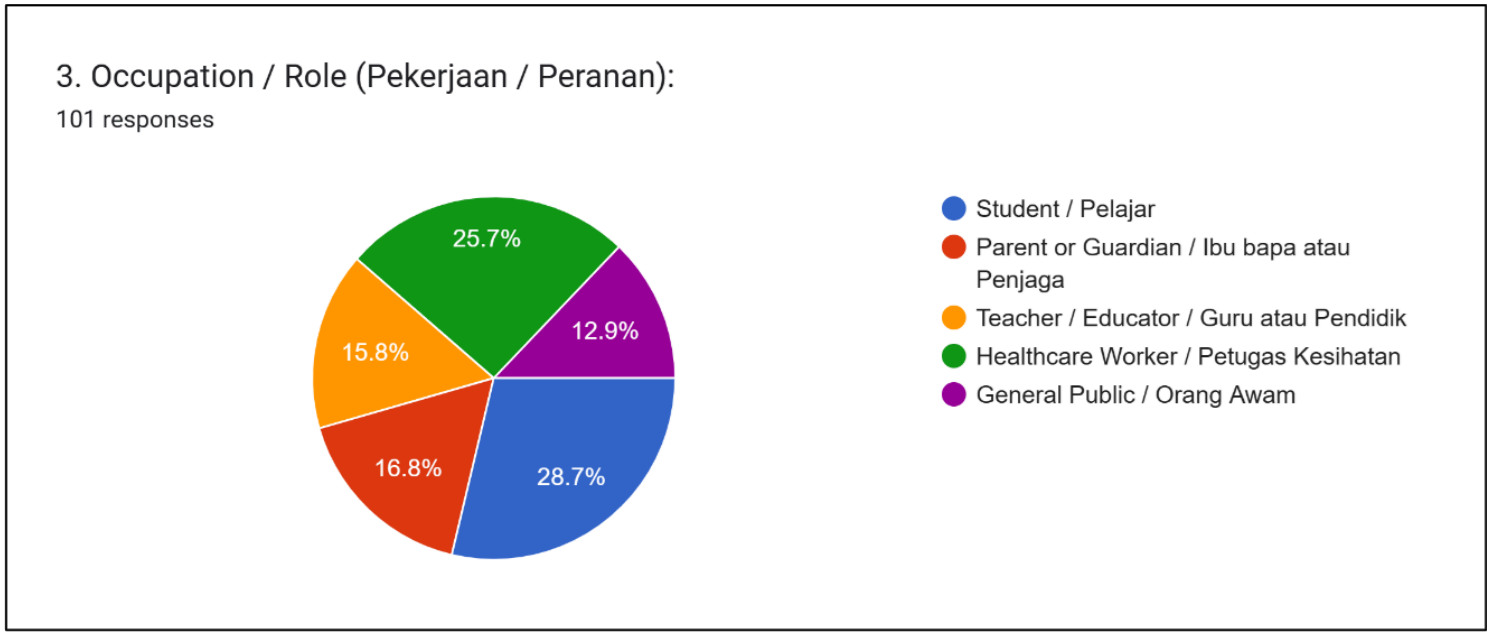


Figure 4

Respondents' occupational background distribution. The chart shows five key groups: students, healthcare workers, parents/guardians, educators, and the general public.

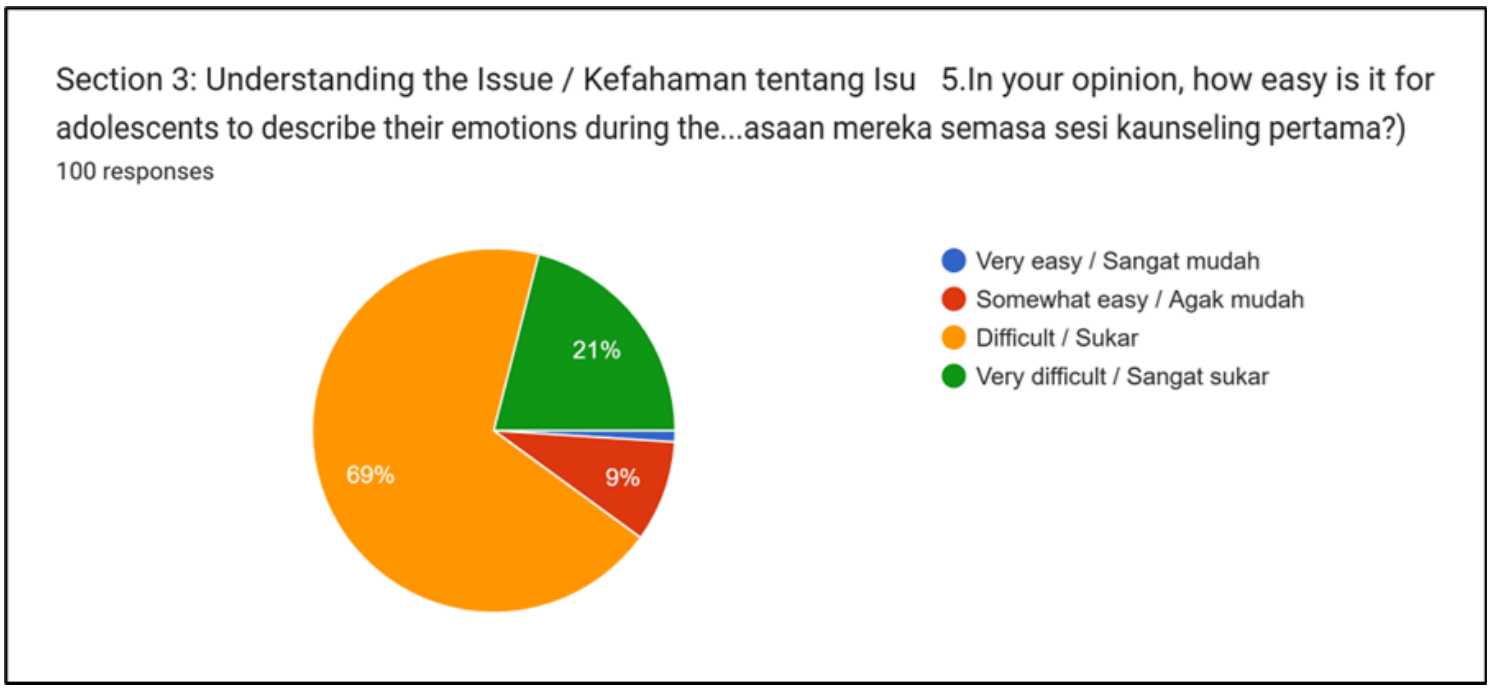


Figure 5

Survey responses on adolescents' ability to express emotions during their first counselling session.

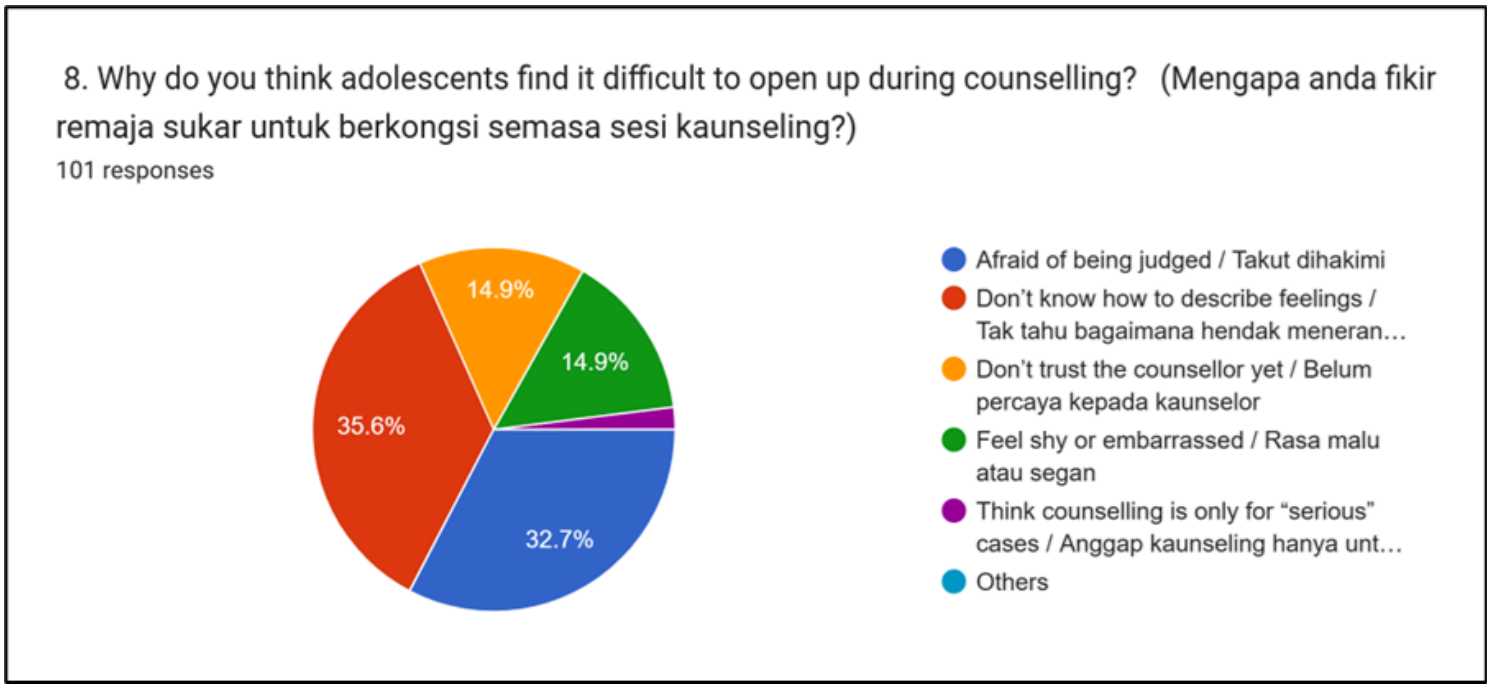


Figure 6

Reasons adolescents struggle to open up during counselling.

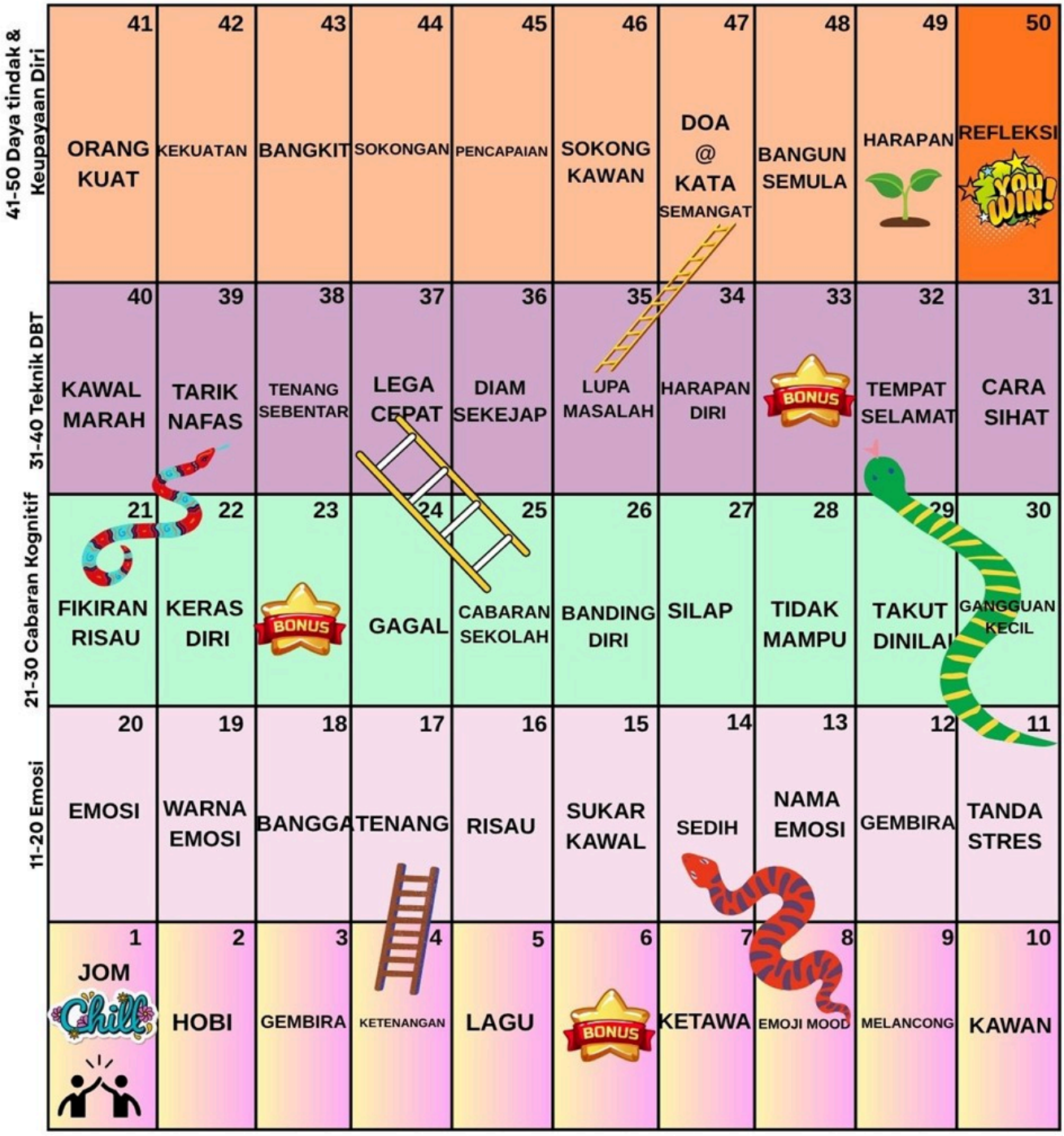


Figure 7

Healing Minds Through Play board game.

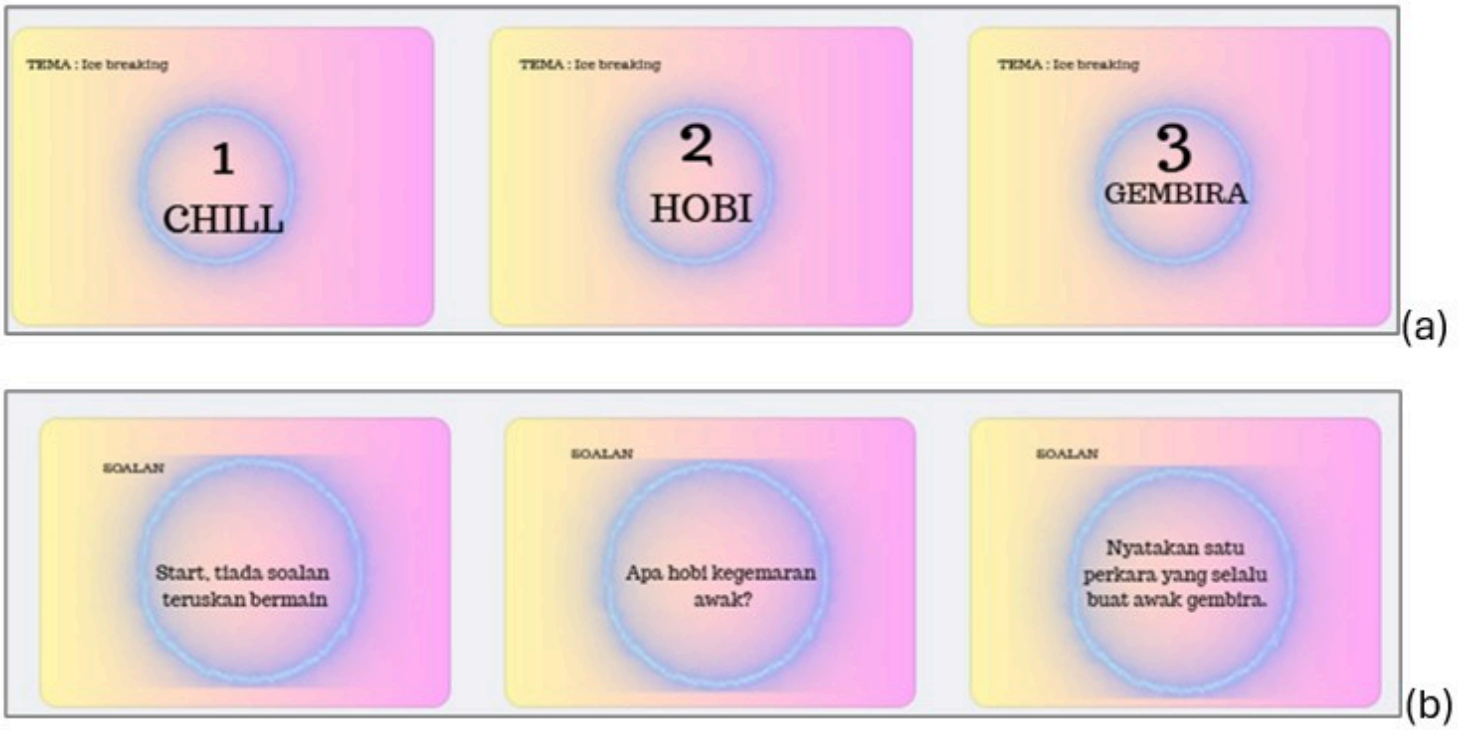


Figure 8

(a) Front view of Prompt Card: (b) Rear view of prompt card

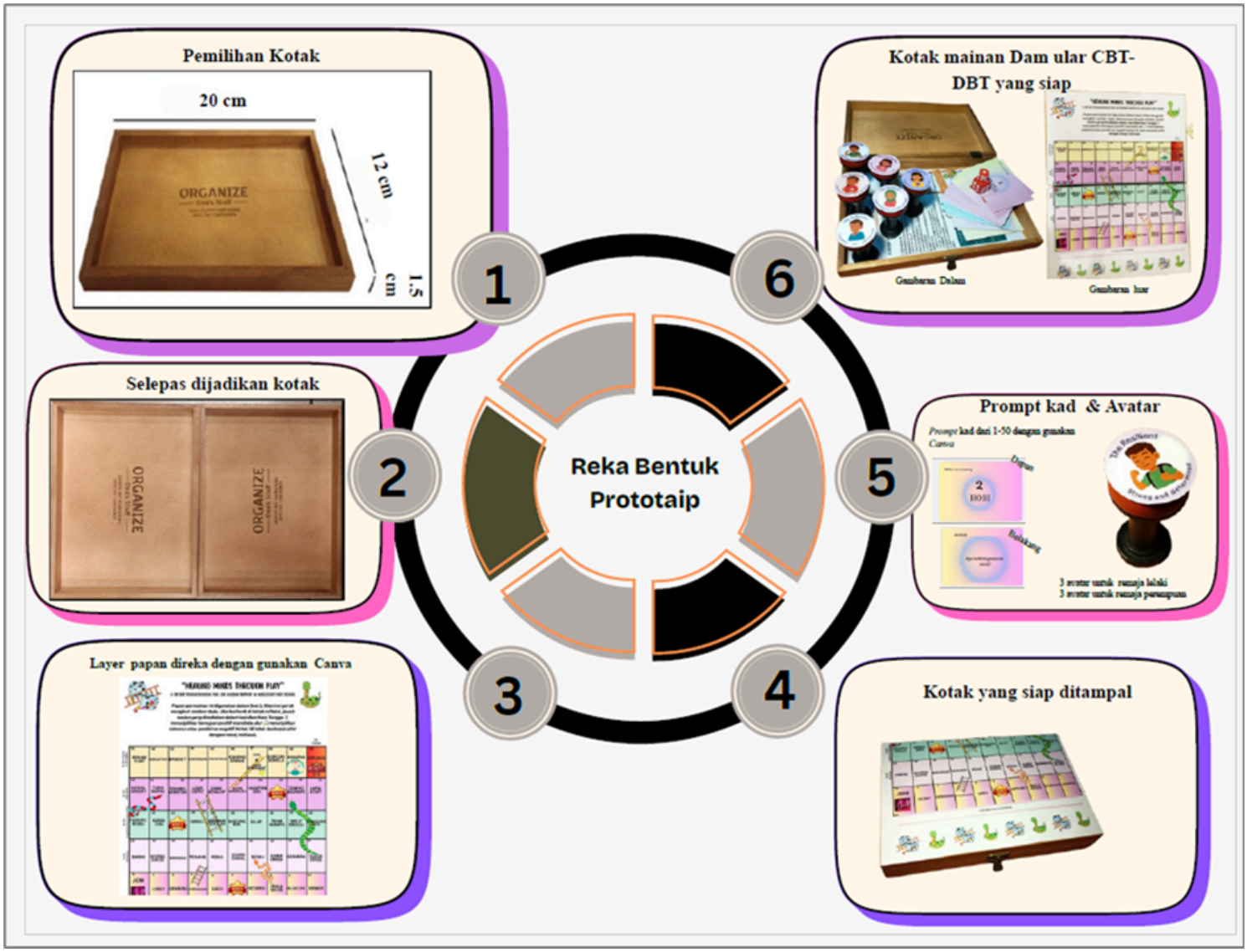


Figure 9

This visual outline the step-by-step development of the CBT–DBT board game prototype.

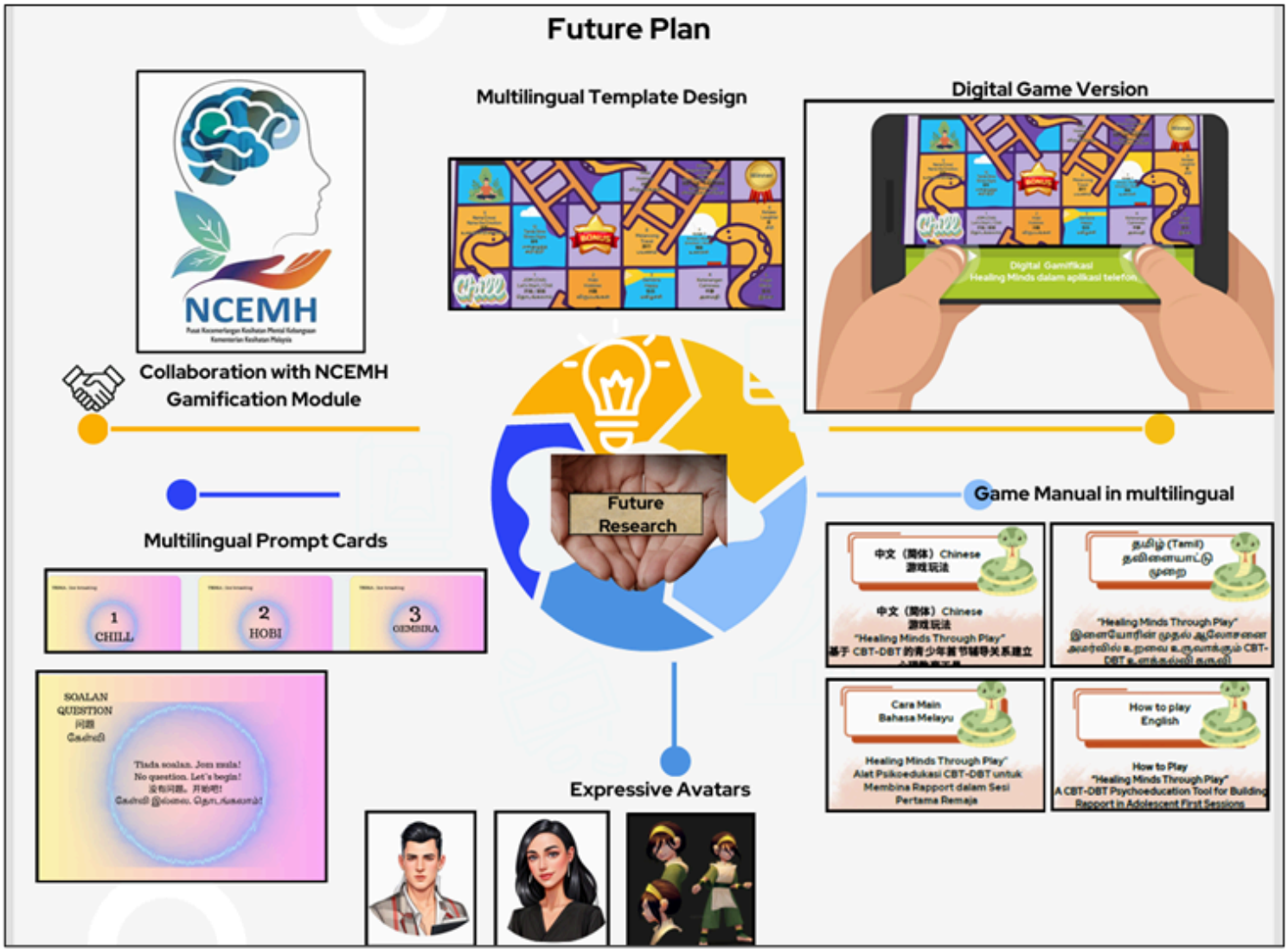


Figure 10

Future development plan for Healing Minds Through Play in collaboration with NCEMH (National Centre of Excellence for Mental Health)

Supplementary Files

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- SupplementaryMaterialS1.docx