



Innovation Article

# Web-based self-mental health screening and emotional mental problem management in incarcerated juvenile

Prasetyo Aji Nugroho <sup>1,2✉</sup>, Somporn Rungreangkulkij <sup>1</sup>

<sup>1</sup> Department of Psychiatric and Mental Health Nursing, Faculty of Nursing, Khon Kaen University, Thailand

<sup>2</sup> Department of Psychiatric and Mental Health Nursing, Faculty of Nursing, Institut Teknologi dan Kesehatan Muhammadiyah Kalimantan Barat, Indonesia

## ARTICLE INFORMATION

Received: February 22, 2023

Revised: May 14, 2023

Accepted: June 05, 2023

## KEYWORDS

Mental Health Screening; Emotional Mental Problem Management; Strength and Difficulties Questionnaire (SDQ)

## CORRESPONDENCE

Phone: +62 5727060696

E-mail: prasetyoaji.nu@kkumail.com

## ABSTRACT

**Background:** In Indonesia, The Strength and Difficulties Questionnaire (SDQ) is a standard for emotional mental problems screening in incarcerated. However, according to the Ministry of Law and Human Rights regarding the Standards of Health and Care Services Based on Information Technology, there is no information about mental health self-screening computerize-based. During incarceration, incarcerated adolescents have more significant emotional mental problems than adolescents in the community. Therefore, the focus of developing mental health screening applications is juvenile incarceration, but not limited to adolescents in the community.

**Purpose:** The study aims to develop an application for the early detection of emotional mental problems in juvenile offenders that can be monitored by staff, and the juveniles can manage their mental health status during incarceration.

**Method:** This study conducted the ADDIE model, namely, Analysis, Design, Development, Implementation, and Evaluation.

**Results:** An application called MyBehave, a web application-based using the computer, has been created, which has a feature of detecting emotional mental problems and management of emotional mental problems through mental health promotion while in incarceration. Users can carry out early detection independently, and the staff can monitor the development activities to improve mental health. The results of trials conducted on juvenile incarcerated found that this application system was more effective than the manual.

**Conclusion:** This application is helpful for health workers in incarceration in conducting early detection of emotional mental problems and promoting mental health for juvenile incarcerated. This application was cost-effective (paperless), easy to access, can store vast amounts of database information, repeat over time, and does not need clinical training.

## INTRODUCTION

Juveniles who are incarcerated have high levels of emotional mental problems. Studies have shown that juvenile offenders' most common emotional mental problems include anger, sadness, mood swings, anxiety symptoms, depression symptoms, behavioral issues (rule-breaking behavior and aggressive behaviors), hostility, peer problems, social problems, inattention, thought issues, and attention problems.<sup>1-4</sup> The consequences of emotional mental problems if juvenile offenders cannot

manage their emotional mental problems can lead to mental illness and mental disorders.<sup>5</sup> In Indonesia, around of children and juveniles suffer from mental disorders is around 233 (0,09%).<sup>6</sup>

Addressing high prevalence rates of emotional mental problems in incarcerated juveniles begins with mental health screening.<sup>7</sup> From the screening activity, International studies showed that mental health screening is a crucial component of effectively conducting the institution-based program that observes mental health, substance use disorders, emotional and behavioral problems, self-

<https://doi.org/10.30595/medisains.v21i2.16950>

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harm, and suicide risks throughout the incarcerated juvenile period.<sup>8</sup> The following multidimensional tools, multiple dimensions or aspects, are the Massachusetts Youth Screening Instrument—2nd Edition (MAYSI-2)<sup>9-13</sup>, The DISC Predictive Scales (DPS)<sup>14</sup>, Global Appraisal of Individual Needs – Short Screener (GAIN-SS)<sup>15,16</sup>, Child and Juveniles Needs and Strengths (CANS)<sup>15</sup>, The Westerman Aboriginal Symptoms Checklist– Youth (WASC-Y)<sup>17</sup>, Strength and Difficulties Questionnaire (SDQ)<sup>18</sup>, Baris Raads Onderzoek/ Basic Protection Board Examination (BARO) and Screening Questionnaire Interview for Juveniles (SQIFA)<sup>7</sup>. Then, the following unidimensional, one measurement or element, is Car, Relax, Alone, Forget, Friends, and Trouble 2.1 (CRAFT 2.1)<sup>9</sup>, Suicidal Ideation Questionnaire (SIQ)<sup>8,16</sup>, Suicidal Behaviors Questionnaire-Revised (SBQ-R)<sup>16</sup>, Juveniles Substance Abuse Subtle Screening Instrument (Juveniles SASSI).<sup>15,19</sup>

In Indonesia, mental health self-screening tools use a paper-based Strengths Difficulties Questionnaire (SDQ), which includes a 25-item self-report covering emotional mental problems such as emotional symptoms, behavior problems, hyperactivity, and peer problems.<sup>6</sup> Mental health self-screening computer-based is not yet available in incarcerated juveniles. According to the Ministry of Law and Human Rights regarding the Standards of Health And Care Services Based On Information Technology, there is no information about mental health self-screening computerize-based.<sup>20</sup> Therefore, the author conducted the innovation in the study setting to develop self-mental health screening. This study aims to develop an application for the early detection of emotional mental problems that staff can monitor, and the juveniles can manage their mental health status during incarceration.

## METHOD

The method used in this study is the ADDIE Model approach to the Analysis, Design, Development, Implementation, and Evaluation of learning materials and activities.<sup>21</sup>

### **Analysis Phase**

This phase identified mental health problems and needs of selected juvenile offenders in incarcerated based on the literature related to those problems and conditions and the situational analysis. A situational analysis was conducted by observing and interviewing juvenile offenders and nurse staff in the setting area. Next, the authors determine the specific goals and the details of how to achieve the goals. Last, develop learning objectives: by the end of this instruction, the juvenile offenders should be able to manage their mental problems.

### **Design Phase**

This phase is the preparation design instruction that focuses on assessment design specified for juvenile offenders incarcerated, selects the form that can be used by juvenile offenders, and creates the instructional design strategies.

### **Development Phase**

This phase shows the instruction design to experts, nurse staff, and juvenile offenders to obtain feedback. After the experts, nurse staff, and juvenile offenders are satisfied with its design; the authors develop the material for the application. Last, conduct a pilot test that involves juvenile offenders and staff nurses as a user of the application.

### **Implementation Phase**

This phase is about transforming the plan into action. First, the author trains the incarcerated staff on materials, and course objectives, use the application, and interprets the results. Second, prepare the juvenile offenders and staff nurse to be familiar with the application, such as how to use the application. Last, organize the environment, such as the location and the device that juvenile offenders and staff nurses use.

### **Evaluation Phase**

This phase evaluates the goals using the instructional design and materials to meet the needs of the juvenile offenders and staff nurse.

## RESULTS

### **Design and Development of the Application**

A web-based mental health screening application has been created called MyBehave. This application is an electronic-based mental health screening using a computer, internet connection, and SDQ as a measuring tool developed by the author. A main menu will appear when the user accesses the website (Figure 1). The user must register and then log in (Figure 2). After logging in, the user will get information about the benefit of adolescent mental health screening (Figure 3). Next, they will fill in the identity data, including age and gender (Figure 4). Before answering the questionnaire, they will read the instructions for filling out the screening tool (Figure 5). Then, the answer to the 25 items of SDQ (Figure 6). After answering the questionnaire, they will obtain the results and Interpretation (Figure 7). Then, they will receive information about mental health promotion related to the results (Figure 8). There are three mental health promotion: anger management, stress management, and strategies to deal with negative peer pressure effectively.

**Trial Result**

The trial was carried out at the Sungai Raya Special Children's Correctional Institution Class II, in West Kalimantan, Indonesia, on November 5, 2021, by eight seven juvenile residents of correctional institutions as users and experts (IT experts and clinical experts). The research results

show that this application is easy to understand, the contents of the application are handy, more effective than paper-based, cost-effective, and easily accessible. They can store large amounts of database information. In addition, this application is proven to be faster in detecting emotional mental problems and monitoring mental health management while incarcerated.



**DISCUSSION**

The essence of this application is the menu for early detection of mental health problems that can be done independently by juvenile offenders and monitored by the staff. A total of 25 items are included in the screening instrument, split into five categories: 1) emotional symptoms (5 items); 2) conduct problems (5 items); 3) hyperactivity/inattention (5 items); 4) peer relationship problems (5 items); 5) prosocial behavior (5 items).

This study involved experts in validating the application's design and materials. The experts were an IT professional, a professor in psychiatric and mental health nursing, a nurse specializing in psychiatric and mental health, and a psychiatrist at mental health hospital. The summary of expert validity was the application more attractive and the sentence material easy to understand for juveniles. Then, the application's content, like pictures and content, has been changed. Therefore, the application is easy to understand and has a program to promote mental health during incarceration.

As a user, the juvenile offenders and staff tried to use the application. After using the application, the juvenile offenders reported that the application was easy to use, the slideshows of this application were easy to understand, and the content was straightforward. Then, the staff reported that the application was easy to use, the slideshows of this application were easy to understand, the content was simple to understand, and the application showed the database of mental health status.

Electronic-based screening makes it easier for staff to detect emotional mental problems, and staff can work optimally.<sup>22</sup> It is also easy for staff to determine interventions for emotional mental problems in juvenile offenders. The previous study found that using electronic-based screening was easy to use, cost-effective tools, and the ability to detect juveniles who exhibit signs of distress indicative of illnesses.<sup>9,11,13,17,18</sup>

The intervention to promote mental health in the MyBehave application focuses on anger management,

stress management, and strategies to deal with negative peer pressure effectively.<sup>23</sup> The author adjusted the activities of three subjects that can be done while incarcerated. Then, the staff nurse can monitor the activities and calculate the activity resume monthly. The staff nurse could evaluate and determine the proper intervention for juveniles incarcerated based on mental health problems if the juvenile offenders did not conduct the activity.<sup>24</sup> The appropriate intervention for juvenile incarcerated can increase self-regulation.<sup>25</sup> Therefore, early detection and intervention are a great combination for improving mental health.

## CONCLUSIONS AND RECOMMENDATION

An application of an early detection system for emotional mental problems in juvenile offenders during incarceration based on an expert system has been created. This application can optimally detect emotional mental problems and promote mental health during incarceration. This application will be disseminated to the Ministry of Law and Rights as a future promotive effort.

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