

# **META-ANALYSIS ON SCHOOL-BASED INTERVENTION TO ENHANCE STUDENT MENTAL HEALTH AND WELLBEING**

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## **Abstract**

The increasing mental health problems, especially on children and adolescence, has prompted WHO to launch the mental health action plan 2013 - 2020. One recommendation is that mental health intervention began in children and implemented through school-based mental health intervention. Effectiveness of the intervention is still doubted by some parties. This meta-analysis study presents of the literature review that has examined the effectivity of school-based intervention to enhance student mental health. This study conducted on 11 research articles that contain 25 experimental studies on the various forms of school-based interventions on mental health and wellbeing. The study included 8242 students. The results showed the hypothesis that school-based interventions have an impact on mental health can be accepted.

**Keywords: meta-analysis, school-based intervention, student mental health, wellbeing**

## **Presenting Author’s biography**



Usmi Karyani. Lecturer on Faculty of Psychology, Universitas Muhammadiyah Surakarta. Currently studying for a PhD program in Clinical Psychology at Faculty of Psychology Universitas Gadjah Mada in Yogyakarta, with an interest in issues of mental health and wellbeing in children and adolescents. In 2005-2011 worked as a community participatory and governance specialist on Decentralized Basic Education Program – USAID Indonesia (DBE - USAID Indonesia). Published several scientific articles on the issue of mental health and wellbeing, including : Wellbeing in child 's perspecti, The Dimensions of Student

Wellbeing, Development Instruments to Measure Student Wellbeing, Prevention of Psychopathology in Children and Adolescent, and Designing Change in School to Promoting Mental Health.

## **INTRODUCTION**

The high economic burden caused by the increase of mental health problems push the WHO launched an action plan in 2013 - 2020. The achievement of a mental wellbeing for all community became the core of the action plan. WHO states that mental health is a fundamental component of the definition of health . Good mental health would enable man to

realize its potential, cope with the stresses of everyday life, work productively and contribute to the community (WHO, 2013).

Mental health is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community (WHO, 2013). The definition of mental health proposed by WHO showed that mental health is viewed positively and not merely the absence of pathology, but also emotional and social wellbeing. By mental health researchers that view known as Dual Factor Model (DFM). The main characteristic of the DFM is the assessment of mental health is done through positive indicators (eg subjective wellbeing) in conjunction with a negative indicator or psychopathology (Suldo & Shaffer, 2008). Several studies have tried to prove DFM, for example conducted by Whitley, Smith, Vaillancourt (2012) who found that students who experience mental health problems in general are having problems with optimization on student function in school. Students experiencing difficulties in academic, had no involvement in school, relationships with peers low and tend to drop out of school. Phillips, et al (2010) found that there is a relationship between wellbeing with alcohol use, and sexual activity on school age. Students with low wellbeing found using alcohol and undergo sexual behavior in the teen years. So it is important to create a school environment to promote student wellbeing. Suldo & Shaffer (2008) found that students who are mentally healthy have academic skills and good social compare with students who have symptom or mental health problems.

The development of mental health in children is an important part of the overall lives of children and wellbeing. When a child has a mental health problem that will have a significant impact to the development of personal, social, economic not only on children but also for family and society Green, Howes, Waters, Maher, and Oberklaid (2005). Therefore efforts to achieve mental health and wellbeing its recommendation began in children and based school.

School-based mental health program divided into three approaches (Clarke & Barry, 2010) That are : (1) universal program, which is aimed at all children, (2) targeted programs aimed at children at risk of mental health problems, and (3) indicated resources programs aimed at children who have shown signs to experiencing mental health problems. WHO (2001) suggested four levels of school-based mental health intervention, namely : (1) The whole school system that involve the entire school community. Are programs that create an environment that promotes mental and emotional wellbeing, and social interaction for all school stakeholders; (2) most of the elements of the school, involving all teachers and students, in the form of education of mental health which includes knowledge, attitudes and behavior; (3) students at risk who require additional assistance from the school, usually cover 20-30 % of the students ; and (4) students in need of mental health interventions in particular, usually refers to around 2-12% of the students in the school. This level of intervention conducted by mental health professionals. Christner & Mannuti (2009) suggests four main levels of mental health interventions, ie: universal, targeted, intensive and crisis. Level universal has three objectives : (1) to build protective factors ( protective ), thereby reducing the level of vulnerability that may occur on the students in the future that require problem solving skills, (2) prevent the emergence of problems that may be experienced by students before the problem arise, and (3) offer a general resource for students at risk of mental health problems. Thus, health promotion at this universal level to reach all of the school community. Promotion of universal level is focused on improving the social and emotional competencies, and reduce the risk factors that can lead to emotional problems, behavioral and learning difficulties. Mental health promotion at this level include bullying prevention, build resilience, and improved troubleshooting capabilities adaptively. Targeted

level, also known as early intervention, for students who are "at risk" to experiencing emotional and behavioral disorders that can not be reached by the intervention of the previous level. At the level of targeted interventions aimed primarily to develop special skills for students in accordance with the level of risk experienced such as poverty, low parental education, family breakdown, and so on. Health promotion activities at this level are usually performed in groups. The next level is the intensive intervention that is designed for students who have experienced emotional or behavioral problem. This Intervention aimed at reducing the severity of the students who have emotional and behavioral problems, and improve the students' ability to learn the appropriate capacity. Crisis intervention level is awarded to students who have specific problems that are relatively heavy, such as suicidal tendencies, the students who experienced a personal crisis such as drug abuse, death of a parent. Crisis intervention and intensive level should be done by those who have a special expertise.

School-based mental health interventions have advantages, including : years of schooling is an important period of emotional development, a safe and comfortable environment is important for children to grow up happy and confident ( Atkinson & Hornby, 2002). Besides that, positive effects of school-based mental health including: (1) capable of lowering the child's mental health problems such as aggression and depression , ( 2) reduce the risk factors for mental health of children, such as impulsivity and anti social behavior, (3) develop the competencies that support mental health such cooperation, resilience, optimism, empathy, and realistic positive self-concept, (4) prevent the occurrence of early sexual behavior in students prevent of abuse of alcohol and drugs, violence and bullying outside the school, (5) increases pro social behavior and reduce student misbehavior ( Weare, 2010). The effectiveness of school-based interventions are also adequately supported by empirical evidence. Some of them indicate that the child health promotion in schools can improve self-control, emotional and social skills, ability to learn and academic achievement , as well as problem-solving skills in a social setting ( Aggleton, Dennison, and Warwick, 2010; Clarke & Barry, 2010; Spotlight, 2012).

The positive impact of school-based interventions are not entirely acceptable. Some of them proposed by Gott (2003 ) describing the criticism that the schools involved in the promotion of mental health of students is the idea attractive, but still need to be explored effect considering that generally the program is integrated in the curriculum to be taught the teacher to make students develop coping strategies and understanding emotion other students while at the same time she also has to get a good academic grades . The same thing was stated by Dawood (2014) who argued that the claim that an effective school -based intervention to address the mental health problems of students is premature.

It can be said that the school-based mental health interventions potential to improve mental health and wellbeing of children and adolescents, but its effectiveness is still doubted by some parties. The purpose of this study is to examine studies on the effects of school-based mental health interventions to improve student's mental health and wellbeing.

## **METHOD**

### **Data collection strategy**

The data used in this study are a research article reviewed (peer -reviewed Articles), published through online media in 2004-2014 , and can be downloaded the entire contents of the article (full text download). Data collection strategies were applied by using a search engine database that is subscribed by [www.ugm.lib.ac.id](http://www.ugm.lib.ac.id). Three database used is T & F

Online , ProQuest and Science Direct . Keywords used to find research articles are a school - based intervention, wellbeing, mental health.

### Inclusion criteria

The inclusion criteria were used to find the articles are:

1. Articles in the form of primary studies using the experimental method , either through random assignment or quasi-experimental .
2. Study puts school-based mental health interventions as a treatment variable, either in the form of promotion, prevention, or curation.
3. The study measured the impact of treatment ( point 2 ) the mental health of the students, in positive terms, such as the absence of pathological symptoms and wellbeing .
4. The article includes statistical information in the form of F or t

### Meta-analysis procedures

Meta-analysis is a quantitative statistical analysis of several separate but similar experiments or studies in order to test the pooled data for statistical significance. Hunter and Schmidt (2004 ) suggested in conducting a meta-analysis there are 11 artifacts were studied. In this analysis only done one artifact, the sampling error ( bare-bone meta - analysis) because not all the information to perform a complete analysis can be obtained (eg. reliability of the instruments used). The procedure as follows:

1. Changing the value F becomes t , d , r
2. Doing bare-bone meta-analysis. This procedure is to make corrections in errors sampling. Including:
  - a. Calculating the average correlation of population ( $\bar{r}$ )
  - b. Calculating the variance  $r_{xy}$  ( $\alpha^2 r$ )
  - c. Calculating the sampling error variance ( $\alpha^2 e$ )
  - d. Calculating the impact of sampling

## RESULTS

At the initial search found 47 articles that match the keywords used . However only 10 articles ( 23.4 % ) met the inclusion criteria, which consists of 25 study.

### The transformation of F value to t,d, and r value

There are 23 studies that produced the value of F and 2 study yielded a value of t . F value is transformed into a value of t. The result of the transformation of the F value as shown in Table 1:

**Tab.1** Tranformation F Value

No.	Name & Year	No. Study	N	F	t	d	r
1	Stratton,C.W., Reid, M,J., & Hammond, M (2004)	1	159	5,15		0,36	0,18
2	Murray,C., & Malmgren., K. (2005).	2	525	1,47		0,11	0,05

*“Toward sustainable healthy lives to promote well-being for all at all ages”*

No.	Name & Year	No. Study	N	F	t	d	r
3	Murray,C., & Malmgren., K. (2005).	3	525	1,47		0,11	0,05
4	Murray,C., & Malmgren., K. (2005).	4	525	1,47		0,11	0,05
5	Keogh,E., Bond, F.w., Faxman, P.E. (2006).	5	209	1,74		0,18	0,09
6	Dobson,K.S., Hopkins,J.A., Fata,L., Scherrer,M., & Allan,L.C. (2010).	6	46	1,82		0,40	0,20
7	Dobson,K.S., Hopkins,J.A., Fata,L., Scherrer,M., & Allan,L.C. (2010).	7	46	1,63		0,38	0,18
8	Haeffel,G.J. (2010)	8	72	1,54		0,29	0,14
9	Dufour, S., Denoncourt,J., Mishara,B. (2011).	9	613	9,37		0,25	0,12
10	Dufour, S., Denoncourt,J., Mishara,B. (2011).	10	613	7,43		0,22	0,11
11	Dufour, S., Denoncourt,J., Mishara,B. (2011).	11	613	5,06		0,18	0,09
12	Dufour, S., Denoncourt,J., Mishara,B. (2011).	12	613	5,43		0,19	0,09
13	Reichl.K.A. & Lawlor, M.S. (2010)	13	146	3,8		0,32	0,16
14	Reichl.K.A. & Lawlor, M.S. (2010)	14	146	2,18		0,24	0,12
15	Reichl.K.A. & Lawlor, M.S.	15	146	0,853		0,15	0,08
16	Reichl.K.A. & Lawlor, M.S.	16	146	10,84		0,54	0,26
17	Reichl.K.A. & Lawlor, M.S.	17	146	7,055		0,44	0,21
18	Reichl.K.A. & Lawlor, M.S.	18	146	64,362		1,33	0,55
19	Cutuli,JJ., Gillham,J.E., Chaplinn,T.M., Reivich,K.J., Seligman,M.E.P., Gallop,R.J., Abenavoli,R.M, & Freres,D.R. (2013)	19	697	2,688		0,12	0,06
20	Cutuli,JJ., Gillham,J.E., Chaplinn,T.M., Reivich,K.J., Seligman,M.E.P., Gallop,R.J., Abenavoli,R.M, & Freres,D.R. (2013)	20	697	2,688		0,12	0,06
21	Stan,C., & Beldean,G. (2014).	21	231		1,14	0,15	0,07
22	Stan,C., & Beldean,G. (2014).	22	231		3,92	0,52	0,25
23	Collins,S., Woolfson,L.M., & Durkin, K.(2014)	23	317	2,132		0,16	0,08
24	Collins,S., Woolfson,L.M., & Durkin, K.(2014)	24	317	2,132		0,16	0,08

No.	Name & Year	No. Study	N	F	t	d	r
25	Collins,S., Woolfson,L.M., & Durkin, K.(2014)	25	317	2,302		0,17	0,08

**The correction of error sampling**

a. The mean correlation was obtained by the following formula

$$\bar{r} = \frac{\sum (N_i r_i)}{\sum N_i}$$

and then get the average correlation of the population, as Table 2

**Tab. 2** Sampling Error Correction

No. of Study	N	Ri	Nixri
1	159	0,18	28,16
2	525	0,05	27,74
3	525	0,05	27,74
4	525	0,05	27,74
5	209	0,09	18,99
6	46	0,20	8,97
7	46	0,18	8,51
8	72	0,14	10,42
9	613	0,12	75,22
10	613	0,11	67,08
11	613	0,09	55,47
12	613	0,09	57,44
13	146	0,16	23,25
14	146	0,12	17,71
15	146	0,08	11,11
16	146	0,26	38,38
17	146	0,21	31,36
18	146	0,55	80,76
19	697	0,06	43,22
20	697	0,06	43,20
21	231	0,07	17,28
22	231	0,25	57,69
23	317	0,08	25,90
24	317	0,08	25,91
25	317	0,08	26,92
Sum	8242		856,1617
<b>Average (r̄)</b>			<b>0,10</b>

b. Variance of  $r_{xy}(\alpha^2r)$  obtained by the following formula :

$$\alpha^2r = \frac{\sum [N_i(r_i - \bar{r})^2]}{\sum N_i}$$

The results of the count, as presented in Table 3 below:

**Tab. 3** Variance

No. of Study	N	Ri	(ri- $\bar{r}$ )	(ri- $\bar{r}$ ) <sup>2</sup>	N(ri- $\bar{r}$ ) <sup>2</sup>
1	159	0,18	0,18	0,03	4,99
2	525	0,05	0,05	0,00	1,47
3	525	0,05	0,05	0,00	1,47
4	525	0,05	0,05	0,00	1,47
5	209	0,09	0,09	0,01	1,73
6	46	0,20	0,20	0,04	1,75
7	46	0,18	0,18	0,03	1,57
8	72	0,14	0,14	0,02	1,51
9	613	0,12	0,12	0,02	9,23
10	613	0,11	0,11	0,01	7,34
11	613	0,09	0,09	0,01	5,02
12	613	0,09	0,09	0,01	5,38
13	146	0,16	0,16	0,03	3,70
14	146	0,12	0,12	0,01	2,15
15	146	0,08	0,08	0,01	0,85
16	146	0,26	0,26	0,07	10,09
17	146	0,21	0,21	0,05	6,73
18	146	0,55	0,55	0,31	44,67
19	697	0,06	0,06	0,00	2,68
20	697	0,06	0,06	0,00	2,68
21	231	0,07	0,07	0,01	1,29
22	231	0,25	0,25	0,06	14,41
23	317	0,08	0,08	0,01	2,12
24	317	0,08	0,08	0,01	2,12
25	317	0,08	0,08	0,01	2,29
Sum	8242				138,6826
<b>Average</b> <b>(<math>\alpha^2r</math>)</b>	329				<b>0,016826</b>

c. Sampling error variance

The numbers can be obtained through the formula:

$$\alpha^2e = \frac{(1 - \bar{r})^2}{(\bar{N} - 1)}$$

Sampling error variance in the study are:

$$\begin{aligned}\alpha^2e &= (1 - 0,10)^2 \\ &= \frac{0,81}{328} \\ &= 0,00247\end{aligned}$$

d. Population correlation variance estimation

Calculated using the formula :

$$\begin{aligned}\alpha^2p &= \alpha^2r - \alpha^2e \\ &= 0,016826 - 0,00247 \\ &= 0,014356\end{aligned}$$

e. Interval confidence

$$\begin{aligned}\check{r} &\pm 1,96 \text{ SD} \\ \check{r} &\pm 1,96 \sqrt{\alpha^2r} \\ \check{r} &\pm 1,96 \times (\sqrt{0,016826}) \\ \check{r} &\pm 1,96 \times 0,129715 \\ &0,10 \pm 0,254241 \\ &-0,154241 < \check{r} < 0,354241\end{aligned}$$

f. The impact of error sampling

$$\begin{aligned}\frac{\alpha^2e}{\alpha^2p} &\times 100\% \\ &= \frac{0,00247}{0,014356} \times 100\% \\ &= 17,20\%\end{aligned}$$

## CONCLUSSION

The data analysis showed that the overall estimate of the population correlation after correction sampling error of 0.10, while the population variance is 0.002, a standard deviation of 0.129. With 95% confidence intervals and receiving limits  $-0.154241 < r < 0.354241$ . Thus the hypothesis that school-based interventions related to the mental health of students can be accepted. Results from this meta-analysis support the literatur review by Aggleton,



Dennison & Warwick (2010), Clarke & Barry (2010) and Weare, (2010) before regarding the positive impact of school-based interventions to children wellbeing and mental health. Also provide optimism for the various recommendations from the WHO about the importance of developing a school-based intervention program to improve the mental health and wellbeing of students.

The estimate of the population correlation is 0.10. It shows that the relationship between school-based interventions to students' mental health is relatively small. This indicates that effects of an intervention in this sample study did not directly affect on students' mental health. Therefore, studies on the effects on mental health interventions using path analysis that can be known effects of direct and indirect

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