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The Sustained Effectiveness of a Mental Health Literacy Intervention:

A Romanian Adolescent Sample at 2- and 12-Months Follow-Up

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Abstract

Background: Mental health literacy is a health literacy-derived concept that gained attention especially in the developed countries, while in the developing countries it is still under-researched. The present study aims to evaluate the effectiveness of a mental health literacy intervention on improving mental health knowledge, attitudes towards mental health, attitudes towards help-seeking, and decreasing perceived stress in a Romanian adolescent sample and its maintenance effect.

Methods: We recruited 490 adolescents (ninth-graders with a mean age of 15.56, SD = .76) and assigned them to the intervention (N = 367) or the control group (N = 124). For the intervention group, we evaluated participants' mental health knowledge, attitudes towards mental health, attitudes towards help-seeking and perceived stress at post-intervention, 2- and 12-months follow-up.

Results: Our findings show increased and sustained MH knowledge and attitudes towards mental health in the intervention group at 2- and 12-months evaluation and mixed results regarding help-seeking and perceived stress.

Implications: Our findings show promising results on the effectiveness of a school-based mental health literacy intervention in improving mental health knowledge and attitudes towards mental health in a Romanian adolescent sample.

Key words: Adolescents' attitudes; intervention; mental health; school mental health literacy (MHL) effectiveness

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1. Introduction

Mental health literacy (MHL) is presented by Kutcher, Wei, and Coniglio (2016) as arising from health literacy which is known for its implications on undesirable health results. The construct refers to mental health and mental illness knowledge, understanding mental illnesses and their treatment, decreased stigma towards individuals suffering from a mental illness, and better help-seeking strategies (Kutcher, Bagnell & Wei, 2015). Mental health knowledge represents an individual's information on how to obtain and maintain good mental health while understanding mental illnesses refers to identifying possible signs of a mental disorder and understanding how treatments work. Mental illness-related stigma refers to negative and socially discriminative attitudes towards mental disorders, which could impact help-seeking strategies. The last component of MHL, help-seeking, is knowing where, when, and how to seek assistance for a mental health problem. These four components of MHL can promote better management abilities for mental illnesses.

One of the essential aspects that would improve MHL interventions' effectiveness is the age of the targeted population. Kessler, Berglund, Demler et al. (2005) emphasize the need to address these programs to child and adolescent populations since the first onset of most mental disorders occurs during these critical periods. On the same note, a recent epidemiological meta-analysis has shown that higher rates of mental disorders onset mark adolescence, 62.5% of all mental disorders onset occurring by age 25, with half of all mental illnesses occurring before age 18 (Solmi et al., 2022). Furthermore, according to Barican et al. (2022), in high-income countries the prevalence of mental illness is 12.7% for the 4-18 age group, with only 44.2% of them seeking professional assistance for their condition. Given the state of mental health in adolescence, World Health Organization (2022) recognizes the need to prioritize promoting school-based MHL programs to meet the requirements for a better mental health in youth.

In the prior two decades, there has been an increasing interest in improving MHL in children (Bale, Grové & Costello, 2020; Brooks et al., 2021; Riebschleger et al., 2017), adolescents (Kutcher, Bagnell & Wei, 2015; Kutcher, Wei & Morgan, 2015; Perry et al., 2014; Skre et al., 2013), and adults (Jorm et al., 1997; Kutcher et al., 2016; Yeap & Low, 2009; Wright et al., 2006). Also, extensive research has shown a strong relationship between mental health knowledge, stigma, and help-seeking strategies. Recently, Fung et al. (2021) stated that only 11% of the participants correctly identified mental health problems, which was linked to reluctance toward specialized help-seeking. Concerning possible links between stigma and help-seeking, a meta-analysis from 2018 (Schnyder et al., 2017) showed that the four types of stigma related to mental illness are interconnected, with high rates predicting fewer help-seeking intentions and behaviors. Additionally, results show high stigma was associated with a reduced perceived professional need for help and more tendencies toward self-help.

However, although most interventions proved efficient in enhancing MHL, not all interventions included the four facets of the MHL definition, leaving out stigma and help-seeking strategies. Furthermore, previous literature reviews showed inconsistencies regarding the optimal intervention duration, methodological issues, and lack of a follow-up period (Nobre et al., 2021; Wei et al., 2015).

As stated before, the learning environment of schools represents a reasonable basis for enhancing knowledge about mental health (Conley & Durlak, 2017), which means school-based MHL interventions own a solid potential to create a link between mental health specialists and students. According to Kutcher et al. (2016), they provide a promising opportunity for enhancing MHL for several reasons: (a) they are cost-effective; (b) they are usually implemented by classroom teachers; (c) information is presented in a familiar learning setting; (d) are adapted to the requirements of school curricula; (e) could improve both students' and teachers' MHL. Although these aspects seem positive, in their systematic review, Ma, Anderson, and Burn (2022), found that school-based interventions are effective in enhancing knowledge about mental

health and mental illness, and reducing stigma, but these effects may be limited by the lack of re-evaluations at follow-up.

The 2022 WHO report on mental health states that 82% of the people experiencing a mental disorder live in low- and middle-income countries, where stigma also seems to be higher. Thus, although the need for a better understanding of mental health might be vital, knowledge and understanding of mental health problems are somewhat limited in developing countries. Research has shown that mental health literacy programs are frequently implemented in higher-income countries, while low- and middle-income countries lack the necessary resources to improve this component of health through MHL programs (Sweileh, 2021). According to Ganasen et al. (2008), developing countries are also more prone to higher mental illness prevalence rates paired with fewer resources, MHL being a critical component of public health. Nevertheless, as Mubbashar and Farooq (2001) assert, there are some promising interventions in the developing countries which proved to be an important step in encouraging more determined interventions from healthcare specialists and government representatives.

These limitations begin to be addressed by some recent interventions that took place in developing countries. For example, one study (Ravindran et al., 2018) examined the effectiveness of an adolescent mental health curriculum in a developing country and obtained promising results. They found that the program significantly improved students' mental health knowledge and attitudes toward mental illness. Another interesting development is that adolescents also rated lower in perceived stress after the intervention.

Mojtabai (2010) found a relationship between mental illness stigma and help-seeking behaviors in the European population, stressing the need for more specialized MHL programs. In line with these results, Wittchen et al. (2011) concluded that only one-third of the Europeans with a mental disorder received aid for their condition and the overall mental health burden is higher than predicted. Similarly, in Romania, the status of MHL is low, and individuals are reticent to professional help-seeking for mental health. For example, one study regarding mental illness stigma found that Romanian students had more difficulties identifying depression and schizophrenia than their non-Romanian peers and did not see depression as a mental illness (Popescu et al., 2017).

In another Romanian context, Beldie et al. (2012) concluded that the lack of consistency in applying MHL interventions and misinformation regarding mental illness in developing countries represent a decisive prerequisite for current levels of stigma towards mental health problems. Similarly, other data suggest that the level of stigma toward mental illness in Romanian adolescents is high, as they frequently associate mental illness with the word *crazy*, sadness and fear, while holding strong preconceptions regarding their treatment (Macsinga, 2011).

Despite the need for a better-informed population, to our knowledge, there is no application of an evidence-based MHL intervention targeting adolescents in Romania. Therefore, in order to cover some of the gaps we identified regarding MHL in Romania, this paper presents the implementation of a Canadian school-based MHL intervention.

Overview of the present studies

Relying on these premises, the main purposes of these two studies were to evaluate the intervention and maintenance effects of an intervention aimed to increase adolescents' mental health literacy. More precisely, for study one, we aimed to evaluate the effectiveness of a mental health intervention on students' reported mental health knowledge, attitudes towards mental health, help seeking attitudes, utility of seeking help and perceived stress by comparing the results of the group who attended 6-sessions training (intervention) and the control group (waiting list). The aim of study two was to assess the maintenance effect by comparing the results of the intervention group on three different time points: post intervention, follow-up at 2 months after intervention, and follow up at 1 year of the intervention.

Study 1

The following hypotheses were examined:

H1 (baseline comparisons): There will be no differences between the intervention group and control group at T1 (pre-intervention) on all dimensions of mental health literacy and perceived stress.

H2: Participants from intervention group will report increased mental health knowledge, increased positive attitudes towards mental health, increased help seeking attitudes, increased help seeking utility and decreased perceived stress compared to control group on T2 (post-intervention).

2. Method

2.1. Participants

A total of 490 students in 9th grade participated at T1 (pre-intervention) at this study, with a mean age of 15.56 (*SD* = .76). The sample of control group consists of 124 participants (40% males), while the sample of the intervention group consists of 367 participants (55% females).

A total of 411 participants participated At T2 (post-intervention) measurement, after 6 to 8 weeks. The sample of control group consists of 95 participants (36% males), while the sample of the intervention group consists of 316 participants (55% females). The retention rate was 65%.

2.2. Procedure

Intervention

The Guide is an adolescent-targeted MHL resource developed by mental health and education specialists and consists of six modules organized by the following themes structured as lesson plans: two modules refer to stigma reduction (*The Stigma of Mental Illness* and *Experiences of Mental Illness and the Importance of Family Communication*); one module addresses the understanding of brain function and mental health (*Understanding Mental Health and Mental Illness*); one module provides information about mental illnesses and their treatment (*Information on Specific Mental Illnesses*); and two modules present information about how to maintain a good mental health and how, when and where to seek help (*Seeking Help and Finding Support* and *The importance of Positive Mental Health*). The Guide is meant to be used in schools by usual classroom teachers and school counselors after participating in a training session provided by a mental health specialist. In this case, the training was held in Romania by Dr. Stan Kutcher, one of the specialists with a considerable contribution to creating the Guide. For more details, the Guide resources can be accessed online at https://mentalhealthliteracy.org/.

Recruitment process. Four teachers and school counselors volunteered to implement the Guide after participating in a two-day training session held by Dr. Stan Kutcher, one of the main contributors to the Guide and its resources. Participants were recruited from three urban high schools in the northeastern region of Romania. The six modules of the intervention were implemented by school teachers and school counselors with a duration ranging from six to eight weeks. Data were collected at two times for the both groups (pre- and post-intervention).

To provide anonymity for the survey, we used five predesigned linking questions to match participants' pre-, and post-intervention. These include the pet's name, the month of birth, shoe size, and phone number's last two digits. We excluded unmatched surveys from the data analysis.

2.3. Measures

Socio-demographics questions

Questions regarding the participants' gender, age, education, and area of living were included in this section.

Previous studies investigated the psychometric properties of MHL instruments and showed there is no consensus regarding the evaluation of MHL (Wei et al., 2015). To assess the

differences between the intervention group and the control group, we used the structured questionnaires recommended by some authors who participated in the field testing of the Guide.

Mental Health Knowledge and Attitudes Scale (MHKAS) (Kutcher & Wei, 2013)

A Romanian version of MHKAS was used to evaluate adolescents' mental health literacy. This scale is comprised of 30 items derived from the six modules of the Guide and organized in six dimensions: mental health knowledge, attitudes toward mental illness, help seeking, and attitudes toward help-seeking. Thirty items comprised the mental health knowledge. Participants used true/false/don't know choices to respond to each statement. Correct answers were coded with 1, while incorrect ones were coded with 0. Higher scores indicate higher MH knowledge. Scores were computed. For control group, at T1, the internal consistency for this measure was .44 and at T2 was .46. For intervention group, at T1, the internal consistency for this measure was .65 and at T2 was .75.

Attitudes toward mental illness is a 12-item scale measuring mental illness related stigma on a 7-point Likert scale. Created especially for students, the scale assesses participants' personal stigma, intentional behaviors, and knowledge of the causes and remedies of mental illness. The computed score ranges from 12 to 84, with higher ratings indicating more positive views and less stigma related to mental illness. Scores were computed. For control group, the internal consistency for this measure is .69 for T1, and .75 at T2. For intervention group, at T1, the internal consistency for this measure was .70 and at T2 was .69.

Help seeking. This scale evaluates *actual help-seeking* behaviors (six items), the extent to which participants sought *support* in the family and/or community (absent need for support, intentional and actual seek for support), and perception of *utility of help-seeking* (3 items). For control group, the internal consistency for this measure is .73 for T1, and .58 at T2. For intervention group, at T1, the internal consistency for this measure was .58 and at T2 was .66.

Attitudes toward help-seeking. This measure evaluates participants' attitudes regarding getting assistance for a mental health issue. The 10 statements are answered by participants on a scale from 1 to 7. The computed scores may reach a maximum of 70, with higher scores signifying better attitudes toward seeking assistance for a mental health issue. For control group, the internal consistency for this measure is .83 for T1, and .66 at T2. For intervention group, at T1, the internal consistency for this measure was .84 and at T2 was .87.

Perceived Stress Scale (Cohen, Kamarck & Mermelstein, 1983). This 10-item self-report scale assesses perceived stress. Participants evaluate how uncontrollable, overloading and unpredictable they perceived life events. Computed scores may range from 0 to 40 after recoding the 4 reversed items. Higher scores show higher rates of perceived stress. For control group, the internal consistency for this measure is .72 for T1, and .77 T2. For intervention group, at T1, the internal consistency for this measure was .72 and at T2 was .62.

3. Results

Baseline comparisons

Before proceeding to the comparisons between intervention and control group on T2 (post-intervention), independent *t* test was first undertaken to examine baseline differences on outcome variables (adolescents reported mental health knowledge, attitudes towards mental health, help seeking behavior, help seeking utility and perceived stress). There were no differences between adolescents' level of mental health knowledge, attitudes towards mental health, help seeking behavior, utility of help seeking and perceived stress by group appartenance, all $p > .05$ (see Table 1). Thus, participants from the two samples were similar in terms all mental health literacy dimensions and perceived stress' level.

Table 1. Pre-intervention tests between intervention group and control group on mental health literacy

	Groups					
Mental health dimensions	Intervention group M *(SD)*	N	Control group M *(SD)*	N	t *(df)*	p
Mental health knowledge	12.85 *(3.15)*	367	12.71 *(3.91)*	124	.412 *(261.03)*	.68
Attitudes towards mental health	51.04 *(10.68)*	367	51.84 *(10.49)*	124	.718 *(489)*	.47
Help seeking attitudes	51.25 *(9.62)*	357	52.07 *(10.08)*	123	.795 *(478)*	.42
Help seeking utility	16.01 *(4.55)*	353	15.89 *(4.27)*	122	-.238 *(473)*	.81
Perceived stress	19.25 *(6.12)*	363	19.48 *(6.16)*	124	.360 *(485)*	.71

Independent *t* test was used to test whatever participants from intervention group reported increased mental health knowledge, increased positive attitudes towards mental health, increased help seeking attitudes, increased help seeking utility and decreased perceived stress after attending the intervention sessions (T2, post-intervention) compared to the participants assigned to the control group. Results depicted in Table 2 show that participants assigned to intervention group reported increased mental health knowledge ($M_i = 12.85$; $SD_i = 3.15$; M*)*, and increased positive attitudes towards mental health. We also found that participants from intervention group reported decreased help seeking attitudes compared to control group. Related to the last two dimensions mental health literacy, we found no differences between the levels of help seeking utility and perceived stress reported by the participants from intervention group compared to the control group participants. The effect size of the intervention on mental health literacy dimensions and perceived stress were computed using Cohen's d. According to Cohen (1992) proposal for interpretation of the d values both effects, the effect for mental health knowledge (*d* = .369) and the effect for attitudes towards mental health (*d* =.0261) are small.

Table 2. Post-intervention tests between intervention group and control group on mental health literacy

	Groups					
Mental health dimensions	Intervention group M *(SD)*	N	Control group M *(SD)*	N	t *(df)*	p
Mental health knowledge	13.34 *(4.74)*	316	11.85 *(3.16)*	95	-3.32 *(232.03)*	.001
Attitudes towards mental health	54.02 *(10.74)*	316	51.18 *(11.00)*	95	-2.24 *(409)*	.025
Help seeking attitudes	48.10 *(11.62)*	310	51.58 *(11.32)*	95	2.56 *(403)*	.011
Help seeking utility	14.97 *(4.52)*	302	15.81 *(4.02)*	94	1.60 *(394)*	.110
Perceived stress	18.74 *(6.31)*	312	19.40 *(6.27)*	95	.88 *(405)*	.375

Pretest and posttest evaluation. A paired-samples t-test was conducted to compare mental health knowledge before (pre-) and after the intervention (post-). There was a significant but weak difference in mental health knowledge scores before intervention and after intervention conditions. These results suggest that mental health knowledge significantly improved over baseline scores. Specifically, our results suggest that adolescents who took part in the intervention have better mental health knowledge.

Regarding attitudes toward mental illness, there was a significant but weak difference in attitude scores before intervention and after intervention conditions. These results suggest that attitudes toward mental illness significantly improved over baseline scores. Specifically, our results suggest that adolescents who took part in the intervention have slightly better attitudes toward mental illness.

Table 1. *Paired-sample t-tests for change in knowledge, stigma, help-seeking and perceived stress from pretest and posttest*

Variable	Pre-test		Post-test				Cohen's d
	M	SD	M	SD	t	p	
Mental health Knowledge	12.894	3.645	13.871	4.834	-2.711	.007	.220
Attitudes toward mental illness	51.266	11.321	55.009	11.061	-4.625	.000	.334
Attitudes toward help-seeking	51.545	9.033	49.669	12.127	2.347	.020	.175
Utility of help-seeking	15.907	4.601	15.448	4.440	1.307	.193	
Perceived stress	19.476	6.254	18.668	6.625	1.887	.061	

Paired-sample t-tests show that attitudes toward help-seeking significantly and slightly decreased after intervention compared to pre-intervention. These results suggest that attitudes toward help-seeking marginally decreased after participating in the intervention.

We did not find any significant change in adolescents' perception about utility of help-seeking and perceived stress after intervention.

Pretest and follow-up (a) (2 months) evaluation.

A paired-samples t-test was conducted to compare mental health knowledge before (pre-) and after two months (follow-up). There was a significant but weak difference in mental health knowledge scores before intervention and two months after intervention. These results suggest that mental health knowledge remained higher at the two-month follow-up compared to baseline. Specifically, our results suggest that adolescents who took part in the intervention have better mental health knowledge 2 months after intervention.

Table 2. *Paired-sample t-tests for change in knowledge, stigma, help-seeking and perceived stress from pretest and follow-up a (2-month evaluation)*

Variable	Pre-test		2 months follow-up				Cohen's d
	M	SD	M	SD	t	p	
Mental health Knowledge	13.014	3.066	14.600	4.206	-3.025	.003	.430
Attitudes toward mental illness	50.700	10.807	55.685	12.397	-3.972	.000	.428

Attitudes toward help-seeking	50.942	7.918	51.710	10.222	-.789	.433	
Utility of help-seeking	16.117	4.608	16.029	4.308	.159	.874	
Perceived stress	20.342	5.274	18.185	6.286	2.850	.006	.371

Regarding attitudes toward mental illness, there was a significant but also weak difference in attitude scores before intervention and two months after intervention. These results suggest that improved attitudes toward mental illness continue at two months after intervention. Paired-sample t-tests show that perceived stress significantly and slightly decreased two-months after intervention compared to pre-intervention. These results suggest that adolescents who participated in the intervention have lower perceived stress at two months evaluation compared to baseline.

We did not find any significant positive change in adolescents' attitudes toward help-seeking and utility of help-seeking two months after intervention.

Pretest and follow-up (b) (12 months) evaluation.

A paired-samples t-test was conducted to compare mental health knowledge before (pre-) and after twelve months (follow-up). There was a significant but weak difference in mental health knowledge scores before intervention and two months after intervention. These results suggest that mental health knowledge remained higher at the twelve-month follow-up compared to baseline. Specifically, our results suggest that adolescents who took part in the intervention have better mental health knowledge twelve months after intervention.

Table 3. *Paired-sample t-tests for change in knowledge, stigma, help-seeking and perceived stress for pretest and follow-up b (12-month evaluation)*

Variable	Pre-test		12 months follow-up				
	M	*SD*	*M*	*SD*	*t*	*p*	*Cohen's d*
Mental health Knowledge	12.580	3.274	14.308	4.282	-3.856	<.001	.453
Attitudes toward mental illness	51.827	10.076	56.950	11.067	-4.304	<.001	.484
Attitudes toward help-seeking	52.102	8.711	53.076	9.899	-.761	.449	
Utility of help-seeking	16.455	3.960	15.924	4.056	.849	.389	
Perceived stress	18.462	5.774	18.875	6.252	-.618	.538	

Regarding attitudes toward mental illness, there was a significant but also weak difference in attitude scores before intervention and twelve months after intervention. These results suggest that improved attitudes toward mental illness are sustained at twelve months after intervention.

We did not find any significant differences in adolescents' attitudes toward help-seeking, utility of help-seeking and perceived stress between baseline and twelve months after intervention.

Table 4.
Paired-sample t-tests for change in knowledge, stigma, help-seeking and perceived stress from posttest and follow-up a (2-month evaluation)

Variable	Post-test	2 months follow-

	up						Cohen's d
	M	**SD**	**M**	**SD**	**t**	**p**	
Mental health Knowledge	14.362	4.904	14.507	4.164	-.253	.801	
Attitudes toward mental illness	53.058	9.622	55.884	12.375	-2.498	.015	.254
Attitudes toward help-seeking	53.637	12.690	51.507	10.154	1.459	.149	
Utility of help-seeking	15.014	4.773	16.161	4.348	-1.847	.069	
Perceived stress	20.289	5.876	18.130	6.315	2.614	.008	.353

Two months after exposure to the Guide, students showed significant improvements in attitudes toward mental illness between post-test evaluations and two months after intervention.

Two months after exposure to the Guide, students showed significant decreases perceived stress between post-test evaluations and two months after intervention.

Paired-samples t-tests showed no differences between post-test and follow-up at 2 months in participants' mental health knowledge, attitudes toward help-seeking, and utility of help-seeking.

Table 5.
Paired-sample t-tests for change in knowledge, stigma, help-seeking and perceived stress from posttest and follow-up b (12-month evaluation)

Variable	Post-test		12 months follow-up				Cohen's d
	M	**SD**	**M**	**SD**	**t**	**p**	
Mental health Knowledge	12.897	3.933	14.166	4.262	-2.559	.012	.309
Attitudes toward mental illness	55.423	10.436	56.512	10.994	-.861	.392	
Attitudes toward help-seeking	48.141	10.512	52.423	10.455	-3.298	.001	.408
Utility of help-seeking	15.894	4.200	15.763	3.925	.239	.811	
Perceived stress	17.025	6.530	19.038	6.211	-2.921	.005	.315

Twelve months after exposure to the Guide, students showed significant improvements in mental health knowledge between post-test evaluations and twelve months follow-up.

Twelve months after exposure to the Guide, students showed significant improvements in positive attitudes toward help-seeking between post-test evaluations and twelve months after intervention.

Twelve months after exposure to the Guide, students showed significant increases in perceived stress between post-test evaluations and twelve months after intervention.

Paired-samples t-tests showed no differences between post-test and follow-up at 12 months in participants' positive attitudes toward mental illness, and utility of help-seeking.

4. Discussion

Mental health knowledge.

Our results show better mental health knowledge at posttest for the intervention group, compared to the control group. This pattern of results is consistent with the previous literature investigating the positive effects of the same intervention on mental health knowledge (Kutcher et al., 2015; Milin et al., 2016), the results being similar to those reported in developing countries too (Ravindran et al., 2018). These results are also in line with other reports on different interventions (Mumbauer-Pisano & Barden, 2020; Ojio et al., 2015)

Attitudes toward mental illness

Our intervention group reported better attitudes toward mental illness compared to the control group at posttest. These results are in line with previous research examining the same intervention on Canadian (Kutcher et al., 2015; McLuckie et al., 2014; Milin et al., 2016) and Nicaraguan Ravindran et al., 2018) populations. Similar reports were found when testing other interventions (Mumbauer-Pisano & Barden, 2020).

Help-seeking: attitudes and utility

We found no significant differences in utility of help seeking between intervention and control groups at post-intervention. These results are consistent with Ravindran and colleagues' (2018) work that showed no changes in help-seeking between the control and intervention group at posttest, and Lindow et al. (2020) who found no differences in intent to seek help after their intervention.

However, some of our results show that though there were no significant differences in attitudes towards help-seeking between control and intervention groups at baseline, at posttest participants in the intervention group displayed decreased attitudes. These results are disputable considering previous research. Whereas past researchers found no differences in help-seeking after implementing a MHL intervention (Lindow et al., 2020; Ravindran et al., 2018), or reported better help-seeking strategies at posttest (Kelly et al., 2007; Mumbauer-Pisano & Barden, 2020), our findings are somewhat counterintuitive.

Our results may be explained by stigma related to mental illness. For example, in their sample, Attygalle and colleagues (2017) found that adolescents would seek informal assistance for a mental health disorder, while specialized treatment might be beneficial for general health issues. This suggests that the stigma surrounding mental health may prevent youth from seeking help.

Perceived stress

We found no significant differences in perceived stress after the intervention, compared to the control group. Few studies in literature address stress outcomes and MHL. Although evaluating different coping strategies, and not perceived stress, Maia de Carvalho and Vale-Dias (2021) found that the most consistently linked coping to MHL is emotional support. It is probable that due to moderate stigma, when talking openly about mental health, adolescents feel rather uncomfortable. The new and abundant information about mental health might maintain perceived stress at similar levels as those in the control group.

Study 2

For study two we used the same method described in study 1. The objective of this study is to assess the differences in pre- (time 1), post- (time 2), and follow-up (time 3) for intervention groups. Thus, the following hypotheses were examined:

H1. Participants will report increased mental health knowledge, increased attitudes toward mental illness, increased help-seeking attitudes and utility, and decreased stress at posttest and follow-up compared to baseline.

We conducted a series of paired-sample *t* tests to determine the significance of observed scores between pre- and post-, post- and follow-up times for the mental health knowledge, stigma, help-seeking, and perceived stress total scores.

Mental health knowledge

Mean comparisons we conducted between baseline and posttest evaluations show significant, but small increase in mental health knowledge for the intervention group. These findings are somewhat in line with the results reported by Ravindran and colleagues (2018) who recorded moderate effects for this variable between baseline and post-evaluation. The beneficial improvement of the Guide on mental health knowledge is also consistent with other previous findings on Canadian adolescents, although size effects for this measure were higher (McLuckie et al., 2014; Kutcher et al., 2015; Milin et al., 2016).

The observed improvements are sustained in time, with significant positive changes in mental health knowledge between baseline and the first group evaluations at 2 months follow-up. These results are consistent with previous findings of McLuckie and colleagues (2014) who reported maintained improvements in mental health knowledge at 2 months follow-up. We also found sustained improvement between baseline and the second group at 12 months evaluations, which is in line with the results reported by Economou et al. (2012). On the same note, Perry et al. (2014) also found that their intervention was effective in maintaining mental health knowledge at 6 months follow-up, but these results were lower than those obtained at posttest. Additionally, we were surprised to find significant differences in knowledge between posttest and follow-up in the group we evaluated 12 months after the intervention. On this matter, Ahmad et al. (2020) recently reported no changes in knowledge before and after their intervention, but found significant positive improvements at follow-up for one of the assessed groups. Similar to our results regarding follow-up at 2 months, the delayed group in their study registered higher knowledge scores in all three tested points. This suggests some of the participants who scored significantly higher at posttest and fallow-up may need more time to incorporate the knowledge on mental health.

Attitudes towards mental illness.

We obtained significant, but small size effects in attitudes toward mental illness between baseline and posttest in the intervention group, and these changes are maintained at 2- and 12-month follow-ups. These results come in line with previous reports on The Guide that showed comparable improvements and size effects for attitudes towards mental illness at posttest and 2-month follow-up (McLuckie et al., 2014). Also, our observed improvements at 12-month follow-up resemble the results reported by Economou et al. (2012) on lower schizophrenia-related stigma 12 months after their targeted intervention. In addition, the significant results in increasing stigma immediately after using the same intervention are similar to other previously reported results at posttest (Kutcher et al., 2015; Milin et al., 2016) and 2-month follow-up (Kutcher et al., 2015).

Help-seeking: attitudes and utility

Help-seeking attitudes significantly, but marginally increased from pretest to posttest. which comes in line with previous studies, where size effects were higher (Taylor-Rodgers, 2014). Our findings also highlight no sustained changes in help-seeking attitudes at 2- and 12-month follow-up. Also, there were no changes in help-seeking utility in either of the post-intervention evaluations. These results are consistent with Ravindran and colleagues' (2018) work that also showed no changes in help-seeking.

While other researchers found an increase in help-seeking behavior immediately after intervention and at 3-month follow-up, when assessing help-seeking intentions, they observed no differences (Lindow et al., 2020). In our sample we assessed attitudes towards help-seeking, which might be rather intentional than behavioral, and this could explain our findings. Other reports show that students are prone to answer socially desirable to seeking help for their peers, leading to higher help-seeking rates after intervention (Ojio et al., 2015), but these findings also assess intentional tendencies. Additionally, these results may be explained by some other patterns

previously presented in the literature. For example, in their analysis, Renwick et al. (2022) found that adolescents in low- and middle-income countries are prone to regard professional help for mental health issues as less effective than alternative treatments, half of the surveyed youths considering self-help strategies are better treatments. On a similar note, Thai and colleagues (2020) found that adolescents prefer the help from family and friends to specialized treatment. In support of this, Mansbach-Kleinfeld and colleagues (2010) reported that less than half of the surveyed adolescents sought help from a mental health professional, even though they felt the need to do so. These claims might suggest that adolescents have rather low trust in professional help-seeking for mental health.

Perceived stress

The results we obtained on perceived stress are mixed. Firstly, the means for our sample on perceived stress significantly decreased between baseline and follow-up at 2 months. The decrease was small, which is in line with previous findings using the Guide, where they reported slightly lower means at posttest (Ravindran et al., 2018). Since we did not find any differences between baseline and posttest evaluations of perceived stress, differences at follow-up may be due other factors we did not consider in the present paper. Secondly, for one group, our comparisons showed increased perceived stress between posttest and follow-up at 12 months. Since mean scores at follow-up are similar to mean scores at preintervention, it is possible that other factors are implicated in the observed differences. Although some of these results come in line with previous reports where the researchers did not find any differences in stress at posttest and 6 months follow-up (Perry et al., 2014), we suggest more research is needed to better assess the intervention's impact on stress.

To our knowledge, there is no mental health literacy intervention conducted for adolescents in Romania, which makes it difficult to compare our results to other culturally similar samples.

5. Conclusions

The purpose of this study was to gain a better understanding of whether a school-based MHL intervention is effective in enhancing mental health knowledge, attitudes towards mental illness, attitudes towards help-seeking, utility of help-seeking, and decreasing perceived stress for adolescents in a developing country.

Judging from the information we gathered by now, this is the first study in literature to investigate the effectiveness of the presented school-based intervention (The Guide) using a twelve-month follow-up. Another contribution of the present study is that it takes into consideration two of the needs stated in previous studies investigating this school-based intervention (Kutcher et al., 2015); namely, we included help-seeking measures and a 12-month post-evaluation. Our studies show promising results on the effectiveness of implementing a school-based MHL intervention in enhancing mental health knowledge and attitudes towards mental illness (decreasing stigma). However, the results presented concerning help-seeking attitudes and utility and perceived stress are mixed and need more attention in the future. Even so, the results we found in enhanced attitudes at 2- and 12-month follow-ups fill some previous gaps in evaluating stigma since most studies used shorter post-evaluations for this measure, which made it difficult to assess the longevity of the observed effects.

Moreover, there is no data assessing perceived stress in the previously published Canadian papers evaluating The Guide (Kutcher et al., 2015; McLuckie et al., 2014; Milin et al., 2016), hence these findings bring new information about the intervention's implication on this measure. In addition, our results showed lower mean scores in mental health knowledge and higher mean scores in stigma compared to other reports using the same measures at baseline (Kutcher et al., 2015). Thus, although the generality of the current study must be established in future research, we suggest the present study provides preliminary support for the intervention's

effectiveness in enhancing mental health knowledge and mental health attitudes even in less literate populations.

6. Limitations and future directions

Certain limitations of this study could be addressed in future research. First, our sample was rather small and consisted only of ninth graders derived from three high-schools in north-eastern Romania, so generalizability should be treated cautiously. Second, all our measures are self-reports and some of them are more prone to the social desirability bias (for example, attitudes towards mental illness measure). Third, although we had a control group, we could not evaluate them at either of our follow-up points. Fourth, in the intervention group, some of the participants only participated in follow-up at 2 months, while the others participated in follow-up at 12 months, so differences between these two time points were difficult to track.

To summarize, future research should address larger samples, use various stigma measures for better understanding, and better investigate MHL interventions' implications on stress. Additionally, future research should consider the randomization and collecting data from both groups at different time points in order to better asses the effects of time on the interventions' effectiveness. Given the fading tendency of results in time, further research examining the effect of booster sessions between post-intervention and various follow-up points may shed light on their effectiveness in maintaining the results.

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