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Summary of Ph.D. Thesis

**ADOLESCENT MENTAL HEALTH LITERACY:
IMPLICATIONS ON INTERVENTION PROGRAMS**

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The main goal of the present thesis was to investigate the adolescents' mental health literacy consisting of mental health knowledge and understanding, attitudes towards mental illness (stigma related to mental illness), and help-seeking strategies. In order to reach this goal, we followed several specific objectives: (a) assess the effectiveness of the available school-based mental health literacy programs in increasing mental health knowledge and understanding, decreasing stigma, and improving help-seeking strategies in adolescents (critical literature review 1); (b) culturally adapt a Canadian mental health literacy intervention program (the Canadian Mental Health and High School Curriculum Guide - the Guide) and the measures proposed by the Guide's authors (Kutcher et al., 2016) to a north-eastern Romanian context (study 2); (c) evaluate the level of mental health literacy in an adolescent north-eastern Romanian population (study 3); and (d) assess the effectiveness of a school-based mental health literacy program (the Guide) in improving adolescents' mental health knowledge, attitudes toward mental illness, help-seeking, and perceived stress (study 4).

Theoretical Background

As an integrated component of overall health, poor mental health literacy could affect people on a personal, social, and global scale. Individuals' personal, social, and professional lives might be negatively affected, as well as the global economy if mental health requirements are ignored. In recent years, there has been a rising interest in providing people with the proper skills to achieve and maintain good mental health or manage mental illness. The higher prevalence of mental disorders in adolescence (Barican, 2022; Erskine et al., 2017; Kessler et al., 2007) and their adverse outcomes in adulthood (Copeland et al., 2015) make it a critical period for improving mental health literacy in order to promote better attitudes towards mental illness and improved help-seeking strategies.

Mental health literacy

Mental health literacy is a concept derived from health literacy, previously defined by Nutbeam and colleagues (1993) as one's ability to obtain, understand, and successfully apply health-related information to promote and maintain it. Similarly, mental health knowledge refers to a person's knowledge and beliefs about mental disorders and how they are used to recognize and manage mental illness (Jorm et al., 1997). Recently, the definition was updated by Kutcher,

Wei, and Coniglio (2016) with the importance of knowledge and understanding of how to obtain and maintain a good mental health, understanding mental disorders' treatments, decreasing stigma, and improving help-seeking (when, where and how to seek help).

As asserted by Saraceno and colleagues (2007), mental health in low- and middle-income countries is characterized mainly by a widening gap between needs and resources that includes underfunded mental health services, significant differences in the management of human and financial resources between rural and urban institutions, challenges integrating mental health services into primary-care services, a shortage of mental health professionals, and untrained and inexperienced mental health policymakers. Despite these gaps, little is known about the mental health literacy level in Eastern-European populations, as most studies investigated these aspects in high- or upper-middle-income countries (Renwick et al., 2022). For example, when looking at results from Romania, our country has the most negligible financial investments in mental health care compared to other Eastern European countries (Dlouhy, 2014), and the healthcare system is still characterized by institutionalization (Gutiérrez-Colosía et al., 2019).

Attitudes towards mental health (stigma)

Numerous factors, including a lack of resources, poor mental health literacy, stigma, and discrimination, deter people from seeking treatment for mental health problems. Even when mental health services are available, people typically choose to manage mental discomfort on their own rather than incur the risk of being discriminated against or excluded due to using mental health services. Recent studies have revealed that mental illness stigma is highly prevalent, especially in low- and middle-income countries, with 25 to 85% of the surveyed populace viewing those with a mental illness as aggressive or frightful (Renwick et al., 2022).

According to Goffman (1963), stigma is a degrading characteristic related to conditions aimed at those who are thought to meet the barest minimums of societal norms. Stereotypes, prejudice, and discrimination make up its three main components. Stereotypes stem from the oversimplified traits of a group in society, to which one may or may not adhere, while prejudice is accompanied by emotional responses (usually negative), which give rise to discriminatory conduct.

Corrigan (2004) defined *perceived public stigma* as the unfavorable opinions that others will have about those who belong to a specific group, while *self- or personal stigma* represents the interiorization of these beliefs.

In adolescents, self-stigma is linked to having little control over one's behavior, lack of knowledge about mental disorders, and concerns about particular diagnoses, according to Kaushik and colleagues (2016). In addition to treatment stigma, internalized stigma is the second constant obstacle to getting assistance, according to a systematic analysis by Clement and colleagues (2015). The stigma associated with mental illness in Romania is primarily maintained by the country's mental health policies (Dlouhy, 2014). Furthermore, the gap between mental health experts and those with a mental illness appears to be fostered by the underfunding of the mental health care system, which frequently worsens the stigma.

Help-seeking and mental health literacy

In order to increase awareness and help-seeking in mental health, mental health literacy programs should be implemented, according to the *World Mental Health Report: Transforming Mental Health for All* (WHO, 2022), which claims that low rates of help seeking are caused by a lack of resources, a lack of mental health literacy, and stigma. Additionally, crucial challenges to help-seeking for young people include their inability to obtain mental health services, stigma, issues with confidentiality, lack of accessibility, misinformation about these services, and fear associated with asking for assistance (Gulliver et al., 2010). Youth with mental problems are less likely to seek help than those without this history (Renwick et al., 2022). This assertion is supported by the findings of Mansbach-Kleinfeld and colleagues (2010). Even though they required it, the authors showed that roughly half of the examined adolescents sought out mental health professionals' assistance. Although favorable views regarding asking for assistance are linked to help-seeking behaviors (Have et al., 2010), the majority of assistance reported in research is only intentional (Clement et al., 2015).

When it comes to *professional and non-professional help-seeking*, adolescents in low- and middle-income countries prefer self-help strategies like positive thinking and taking care of one's self-esteem; likewise, alternative treatments like taking vitamins (Renwick et al., 2022) or seeking

help from family and friends were viewed as more effective than seeking professional assistance (Thai, Vu & Bui, 2020).

School-based mental health literacy interventions:

The increasing interest in improving mental health literacy led to a relatively high number of studies assessing the effectiveness of such interventions in enhancing mental health knowledge and understanding, decreasing stigma, and improving help-seeking. Although the body of research enriched in the past two decades, there are few studies incorporating the four components of mental health literacy as they were operationalized in the latest definition, leaving out stigma and help-seeking.

School-based mental health literacy interventions have the potential to create a link between mental health professionals and students in a natural learning environment. In accordance to Kutcher and colleagues (2016), they might prove promising for the following reasons: (a) they are cost-effective because they are usually provided by classroom teachers and do not require additional resources besides the materials; (b) the information is presented in a familiar learning setting; (c) they are created to fit the school curricula; (d) they could improve both students' and teachers' mental health literacy.

Most intervention studies report that mental health literacy is linked to better attitudes towards mental disorders and people suffering from them (Kitchener & Jorm, 2002; Griffiths, Christensen & Jorm, 2008; Perry et al., 2014; Kutcher et al., 2015; Milin et al., 2016) and improved help-seeking strategies (Evans-Lacko, Brohan, Mojtabai & Thornicroft, 2011; Rüsçh, Evans-Lacko, Henderson, Flach & Thornicroft, 2011). Nevertheless, other research shows that while mental health knowledge improved, the stigma remained unchanged (Holzinger & Matschinger, 2009; Kitchener & Jorm, 2002; Schomerus et al., 2012).

In sum, given the body of research available and the heterogeneity of the interventions and measurements regarding mental health literacy, point to some promising lines of research that could lead to a better understanding of how to integrate these interventions in schools in order to increase mental health knowledge, decrease mental illness related stigma and improve help-seeking in adolescents.

General Overview of the Studies

The present thesis consists of one critical review and three empirical studies. In the succeeding paragraphs, we will present the studies' main objectives, their relevance and importance. Figure 1 presents the studies' structure and type.

With this research paper we aim (a) to present the current state of the literature on mental health intervention studies' quality; (b) to culturally adapt an evidence-based mental health literacy intervention and its subsequent measurements on an adolescent Romanian sample; (c) to assess the mental health literacy in an adolescent Romanian sample; and (d) improve mental health literacy in an adolescent Romanian sample.

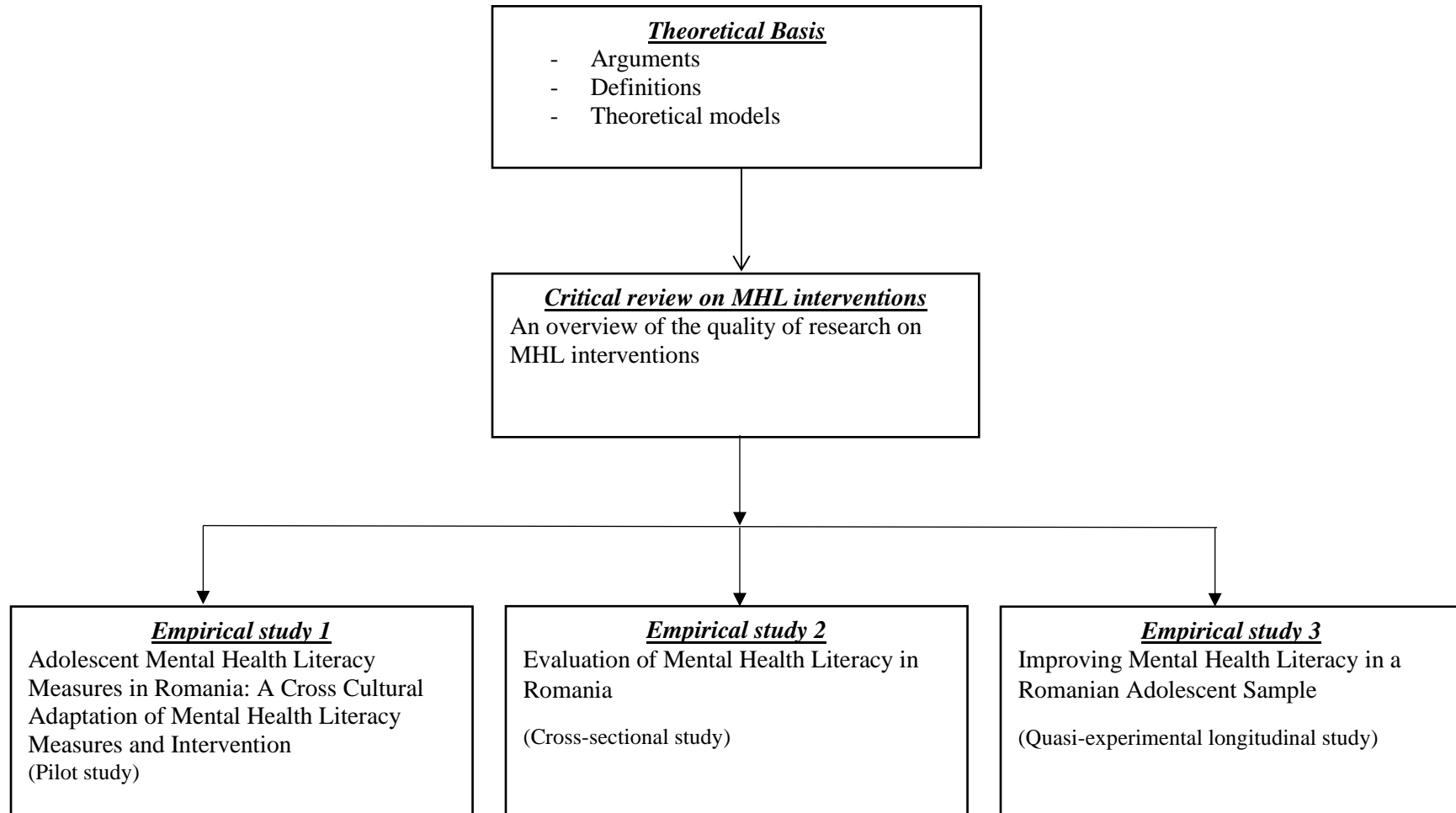
In order to reach these objectives, in the **critical review 1** we aim to use a critical appraisal method to investigate the overall quality of recent literature on school-based mental health literacy programs on their reported effectiveness in improving mental health knowledge, attitudes towards mental illness, and help-seeking. In order to do so, we used the Risk of Bias (ROB) approach for each of the studies included.

In **empirical pilot study 2**, we aim to culturally adapt an evidence-based intervention, the Canadian Mental Health and High School Curriculum Guide (the Guide), created to improve mental health literacy in adolescents. In this process, we will follow the five stages of cultural adaptation of evidence-based interventions (Barrera et al., 2013) for the adaptation of the program, and the guideline recommended by Rojjanasrirat (2010) for the cross-cultural adaptation of health care research.

In **empirical cross-sectional study 3** we aim to address mental health literacy in Romania, by assessing adolescents' mental health knowledge, attitudes towards mental illness, and attitudes towards help-seeking. In order to reach this, we used a series of statistical analyses to address the following research objectives and their subsequent hypotheses: (a) evaluate mental health knowledge state, stigma towards mental illness, and mental health related help-seeking in a sample comprised of 325 (43% male, 56% female) Romanian adolescents; and (b) investigate the associations between mental health knowledge, stigma towards mental illness and mental health related help-seeking using the same sample.

Figure 1.

Studies' structure and type.



Empirical quasi-experimental longitudinal study 4 is comprised of two studies in which we aim to assess (a) the intervention's effectiveness in improving mental health literacy; and (b) the extent to which these results are sustained in time. More specifically, for **study 4.1**, we aim to evaluate the effectiveness of a mental health intervention (The Guide) 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 intervention group (6-sessions training in MHL) with the control group (waiting list). The aim of **study 4.2** is to assess the maintenance effect by comparing the results of the intervention group on three different time points: pre-, post-intervention, and follow-up at 2 months after the intervention, or follow up at 12 months after the intervention. A total of 490 students in ninth 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).

Empirical studies

In the critical literature review (**study 1**) we conducted, we aimed to assess the effectiveness of school-based mental health interventions in improving mental health knowledge, decreasing stigma, and increasing help-seeking. In order to evaluate the overall quality of the research, we used the Risk of Bias (ROB) assessment tool based on six Cochrane ROB domains: random sequence generation, allocation concealment, blinding participants and personnel, blinding of outcome assessment, incomplete outcome data, and selective reporting (Higgins & Green, 2011) and rated studies as low, moderate and high ROB.

The results showed that three of the evaluated studies met the criteria for high ROB, seven for moderate ROB and only one for low ROB. Among most prevalent methodological issues, we encountered were non-random allocation, the lack of baseline evaluations, the lack of control groups, and the lack of follow-up periods. Most studies reported positive results on knowledge acquisition. Nonetheless, studies reporting positive results on stigma were classified as moderate ROB studies, and some of the studies showed a decrease of the intervention's effectiveness in time. Regarding help-seeking, only four studies reported positive results, but these studies either had no control group, or there were significant differences in participants' baseline characteristics.

The overall low- to moderate quality of research on the effectiveness of mental health literacy programs showed that more homogeneity in choosing the components of the interventions and better validated measures are needed for such interventions.

In empirical **study 2** we aimed to culturally adapt a school-based mental health literacy intervention and assess the psychometric properties of its measures on a North-eastern Romanian adolescent population.

For the adaptation of the manualized intervention (the Guide) we used the guidelines provided by Barrera, Castro, Strycker, and Toobert (2013) regarding the cultural adaptation of evidence-based interventions. After three bilingual speakers translated the materials, they were presented in a two-day training (held by one of the authors of the Guide) to mental health professionals and school counselors; post-training we assessed its usability, implementation difficulties, overall satisfaction and suggestions for improvement of the intervention. No major revisions were made to the intervention.

For the cultural adaptation of the measures, we used Sousa and Rojjanasrirat's (2010) guideline for cross-cultural adaptation in health care research. Two bilingual speakers translated the measures to Romanian, while a blinded non-specialist back-translated them. Items were randomly verified by one of the measures' authors for accuracy. Finally, we asked the participants in the training to make improvements. Furthermore, we assessed the construct validity and internal consistency of the scales.

The results showed adequate and acceptable psychometric properties, comparable to previous literature reports. Our reports showed acceptable to good reliability, with internal consistency coefficients ranging from $\alpha=.68$ to $\alpha=.82$. However, the *mental health knowledge* and *help-seeking* measures showed mixed results for factor number with several low communality values. Since we did not find any literature on the adaptation of these measures, we recommend these issues to be undertaken into future larger scale studies.

Since previous research showed inadequate evaluation of mental health literacy components with questionable psychometric properties (Kutcher et al., 2016), our results present a promising pathway to adequately evaluate the newly added components (stigma and help-seeking) in an Eastern European population. Furthermore, our encouraging results could represent

a possibility to adapt the measures on a larger scale to the Romanian context, which could cover the need for validated measures on non-Western adolescent populations.

Our aim in empirical **study 3** was to assess the level of mental health literacy in an adolescent Romanian sample. In order to pursue this aim, we followed two objectives: (a) to evaluate mental health knowledge levels, attitudes towards mental illness and help-seeking related to mental health; and (b) to investigate the link between mental health knowledge, attitudes towards mental illness and mental health related help-seeking in a Romanian adolescent sample.

We used a sample comprised of 319 ninth graders (44% males, 56% females) from two urban high-school from the North-Eastern region of Romania. Results showed relatively low *mental health knowledge* among adolescents, with 85-93% of our sample having low levels of knowledge about specific mental disorders (AHD, anxiety). Half of the participants associate normal negative emotions and daily stress with mental illness and only 4% registered scores of 24 out of the maximum of 30. *Attitudes towards mental illness* are also low, as 29% to 58% of the adolescents think people suffering from a mental illness are too sick to work or are responsible for their mental illness, do not make enough effort to get better and are responsible for most violent crimes. *Social distance* is most prominent in romantic relationships and towards teachers, 38% of the adolescents saying they would not accept to be taught by a teacher suffering from a mental illness. *Help-seeking* is also rather low and most students would not seek *professional help* for a mental illness (84-91%), nor from a school counselor or teacher (88%). Adolescents in our sample prefer the help from a friend (33%), a parent (31%) or a sibling (23%). Moreover, although *intentional help-seeking* is comparable for general and mental health problems, *actual help-seeking* is higher for a general health problem (27%), than for a mental health problem (9.8%).

Our findings also showed significant, but small associations between mental health knowledge, attitudes towards mental illness ($r_s = .27$) and help-seeking ($r = .23$), but no significant correlations between help-seeking and attitudes towards mental illness. These results are in line with previous reports. We found no differences between female and male participants regarding mental health knowledge and attitudes towards mental illness, which could be explained by the overall lack of knowledge in our sample. However, male participants sought less help than female participants, which could be a result of gender roles (Ellis et al., 2013) and differences in the maturation process.

Empirical **study 4** is composed of two studies in which we aimed to assess the effectiveness of a school-based mental health literacy intervention in improving mental health knowledge, attitudes towards mental illness and mental health related help-seeking. More specifically, in study 4.1. we aimed to assess 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 4.2. was to assess the sustained effect of the intervention by comparing the results of the intervention group on three different time points: post intervention (T2), follow-up at 2 months after intervention (T3a), and follow up at 12 months after the intervention (T3b).

We used data collected from 490 adolescents (ninth graders 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%.

The school-based intervention (The Guide) consisted of six modules implemented in six to eight weeks by school counselors and teachers. Two modules address stigma reduction, one module presents the understanding of brain function and mental health, one module provides information about maintaining a good mental health, one module provides information about specific mental illnesses and their treatment and two modules present information about positive mental health and help-seeking.

For study 4.1. we used independent *t*-tests for comparisons between the control and intervention groups. Our results showed no differences in baseline comparisons between the intervention and the control group at pre-intervention (T1) on all components of mental health literacy. Participants assigned to intervention group reported significantly increased mental health knowledge and increased positive attitudes towards mental health at post-intervention, with small effect sizes. Results also showed decreased help-seeking attitudes for the intervention group and no differences in help-seeking utility and perceived stress between the intervention and control group.

For the assessment of sustainability effects in study 4.2, paired sample *t*-tests showed maintained effects in mental health knowledge and attitudes towards mental illness at post-test (T2), follow-up at two months (T3a), and follow-up at 12 months (T3b), with small effect sizes. We also reported decreased attitudes towards help-seeking at post-test (T2). There were no changes in help-seeking utility and no sustained changes in attitudes towards help-seeking at T3a and T3b.

The aim of this study was to examine the effectiveness of a school-based MHL intervention in improving mental health knowledge, attitudes about mental illness, attitudes toward seeking help, the usefulness of seeking help, and reducing perceived stress among adolescents in a developing country.

According to the data we have so far acquired, this is the first research in the body of literature to examine the effectiveness of a school-based intervention (The Guide) employing a 12-month follow-up. The fact that the current study incorporated help-seeking measures and a 12-month post-evaluation addresses two needs identified in prior studies (Kutcher et al., 2015), which is another addition of the study. Our research indicates that implementing a school-based MHL intervention is successful in improving mental health knowledge and attitudes regarding mental illness (decreasing stigma). However, the findings on help-seeking attitudes, help-seeking utility, and perceived stress are conflicting and require further investigation in the future. However, given that most research utilized shorter post-evaluations for this measure, which made it challenging to assess the endurance of the reported benefits, the results we obtained in improved attitudes at 2- and 12-month follow-ups address some existing gaps in evaluating stigma.

Methodological, Clinical Implications and Implications for Policymaking

The present thesis was designed to include all four recently added components of mental health literacy in order to investigate the effectiveness of a school-based intervention (The Guide) in improving mental health knowledge and understanding, attitudes towards mental illness, and help-seeking. To reach this goal, we started with a literature review of the available evidence on this topic. Then, we continued with the adaptation of a Canadian intervention and its measures, the investigation of the mental health status of a Romanian adolescent sample, and assessing the effectiveness of the previously mentioned intervention program.

The present studies were designed to cover some of the previous gaps reported in the literature on mental health literacy research. In reaching the aim of this thesis, we translated and adapted a Canadian school-based mental health literacy intervention (The Guide) and the measures proposed by the authors of the program following the recommendations we found in international literature for research in health care. To our knowledge, there is no other adaptation of a school-based mental health literacy intervention or its measures on the Romanian adolescent population. Moreover, the extended length of the intervention could provide promising evidence for the feasibility of implementing such an intervention on a larger scale. Another methodological implication of the present thesis is that it provided comparable results to the previously reported findings from the Canadian application of the same intervention. Additionally, our thesis brought more data on the intervention's effectiveness in improving help-seeking and perceived stress, as these data were not available in previous studies. Furthermore, in study 4, we covered the gaps identified in the critical review of the literature regarding the lack of a control group and follow-up evaluations in most intervention studies included. Last but not least, the methodological approach of this thesis contributes some novel insights into the transfer of a well-established evidence-based intervention from developed to developing countries, considering the paucity of research on mental health literacy in low- and middle-income countries.

From a clinical and psychoeducational perspective, the present thesis showed that evidence-based mental health literacy interventions could provide promising ways to meet the financial difficulties encountered in low- and middle-income countries with regard to mental health care, and they proved cost-effective. Likewise, these curricula adapted interventions could contribute to the overall gain in mental health by improving mental health knowledge and understanding and attitudes towards mental illness in both teachers and students. By increasing mental health awareness through these interventions, we could also promote adolescents' access to mental health care and cover some of the difficulties regarding the lack of mental health services in developing countries.

The current thesis offers evidence that collaborations between the health care and educational sectors may exist and could prove successful. With the assistance of school counselors and regular classroom instructors, we effectively deployed a resource created by mental health specialists to improve mental health literacy in schools. Additionally, the current thesis

demonstrated through studies 4.1 and 4.2 how our small-scale use of mental health literacy programs on a sample of adolescents had a positive effect on their knowledge and understanding of mental health and improved attitudes towards mental illness. Therefore, integrating the intervention into the curriculum might offer a potential route to mental health treatment when implemented in general adolescent populations. Moreover, the Guide's translated contents are freely usable with the authors' consent, making it a low-cost effort to improve mental health in schools that may be replicated nationally by integrating mental health literacy into the current educational system.

Final Conclusions

On the whole, the goal of the present thesis was to test the effectiveness of a school-based mental health literacy intervention in a developing country. To accomplish this, we first reviewed the literature to find the best practices, adapted a school-based Canadian MHL intervention and some MHL measures, and investigated the MHL state in a small Romanian sample. Finally, we investigated the intervention's effectiveness in enhancing mental health knowledge, attitudes toward mental illness, help-seeking, and perceived stress.

Since data on mental health literacy in low- and middle-income countries is limited, and even more so in Romania, the present thesis represents a promising initiation on the effectiveness of evidence-based mental health literacy interventions aimed at improving mental health knowledge and understanding, improving attitudes towards mental illness and increasing help-seeking related to mental health.

Finally, we consider it essential to emphasize a few crucial stages for the practical and meaningful implementation of mental health literacy interventions in low- and middle-income countries. Thus, mental health literacy promoters should (a) promote school-based interventions as they are cost-effective; (b) use control groups for comparison when evaluating an intervention's effectiveness; (c) constantly adapt mental health literacy interventions to current research; and (d) given the changes that occur in adolescence, mental health literacy promoters should also gather information from adolescents to properly adapt the school-based interventions to their needs.

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