EVALUATION OF A MENTAL HEALTH LITERACY EDUCATIONAL INTERVENTION FOR ELEMENTARY TEACHERS

Doctor of Nursing Practice Project
Presented to the Faculty of Sinclair School of Nursing Graduate Studies
University of Missouri

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Nursing Practice
by
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Evaluation of a Mental Health Literacy Educational Intervention for Elementary Teachers

Mental illness is a prevalent concern among children in the United States, as over 16% of children between the ages of two and eight have been diagnosed with a mental health disorder (Centers for Disease Control and Prevention [CDC], 2023a). However, there is an 11-year delay between the onset of symptoms of mental illness and subsequent intervention (National Alliance on Mental Illness [NAMI], 2023). The most prevalent mental health conditions among children ages three to 17 years in the United States are attention-deficit/hyperactivity disorder (ADHD) (9.4%) and anxiety (9.8%) (CDC, 2023a). Suicide ranks as the second most prevalent cause of death among individuals aged 10 to 24, and the rates of suicide in this demographic have witnessed a significant surge of 52.2% between 2000 and 2021 (CDC, 2023b). Mental illness is associated with nearly triple the annual direct medical costs compared to non-psychiatric illnesses (Tkacz & Brady, 2021). Children aged 6 to 17 with mental health concerns are three times more prone to grade repetition, while high school students displaying significant depressive symptoms have a dropout risk of more than double that of their peers (NAMI, 2023).

Recognizing and promptly addressing mental health concerns in children and adolescents is of utmost importance. Although teachers are in a prime position to identify concerns, refer students for further evaluation, and improve student outcomes, many lack the knowledge, skills, and confidence to do so effectively (O’Farrell et al., 2023). This underscores the significance of mental health literacy (MHL), a concept first established by Jorm et al. (1997) that encompasses the knowledge and attitudes necessary for recognizing, treating, and preventing mental disorders.

Project PICOT/Purpose Statement and Objective

The purpose of this quality improvement (QI) project was to implement and evaluate the efficacy of an MHL intervention provided to teachers. Project objectives relate to the following PICOT question: In teachers of school-aged children (P), how does the implementation of an MHL educational intervention focused on symptoms of pediatric mental illness and local help-seeking options (I) compared with no education (C) affect MHL and psychiatric evaluation referrals to the Bridge Program, a local school-based psychiatry clinic, (O) from pre-intervention (T1) to one-month post-intervention (T2)? The primary objectives of this project are:

- A 10% increase in teachers’ overall score on the Mental Health Literacy and Capacity Survey for Educators (MHLCSE).
- A 10% increase in teachers’ overall score on the Gatekeeper Behavior Scale (GBS).
- A 5% increase in the utilization of the Bridge Program referral process.

Review of Literature

An extensive literature search revealed three themes: barriers to recognition and treatment of pediatric mental illness, tools to assess MHL, and benefits of interventions to improve the MHL of teachers. O'Farrell et al. (2023) determined that a lack of teacher training inhibits identifying mental health issues. Johnson et al. (2023) noted that adults face challenges in recognizing mental health problems in younger children, particularly when gender deviates from stereotypical expressions of diagnoses. Moreover, experienced teachers were less likely to identify mental health concerns in children and were more likely to exhibit stigmatizing attitudes, underscoring the importance of administering education interventions to all staff (Johnson et al., 2023). Insufficient training in recognizing and supporting children with mental health concerns, particularly in primary schools, negatively impacts support within educational settings (Maclean & Law, 2022; Mansfield et al., 2021).

MHL interventions have significantly improved stigma, help-seeking attitudes, and confidence in supporting students (Liao et al., 2023; Ohrt et al., 2020; Yamaguchi et al., 2020).
Salazar de Pablo et al. (2020) found significant improvements in both MHL ($g = 0.685, p < .001$) and stigma ($g = 0.177, p = .006$). Multiple studies have demonstrated the effectiveness of training programs, showing that these programs lead to substantial improvements in overall knowledge ($p < .0001$ to $p < .001$), attitudes/stigma ($p < .0001$ to $p < .01$), MHL ($p < .001$), intention to help ($p < .001$ to $p < .008$), and confidence to help ($p < .000$ to $p < .01$) (Imran et al., 2022; Kutcher et al., 2015; Kutcher et al., 2016; Nguyen et al., 2020; Tay et al., 2019; Ueda et al., 2021; Wei et al., 2021). Educator training enhances referral patterns, leading to earlier identification and decreased risk of self-harm among students (Baxter et al., 2022). The importance of ongoing interventions is evident as teacher MHL tends to decline over time, emphasizing the need for continuous efforts in this area (Liao et al., 2023).

This project will employ the MHLCSE (Appendix C) and the GBS (Appendix D) as robust measurement tools to assess the influence of an MHL educational intervention on teachers’ MHL (Albright et al., 2016; Fortier et al., 2017). Fortier et al. (2017) created the MHLCSE to measure teachers’ MHL and comfort regarding MHL topics in children, while Mansfield et al. (2021) confirmed its internal consistency ($p < 0.001$). Albright et al. (2016) developed and validated the GBS, showing high internal consistency ($a = 0.93$), criterion-related validity ($r = .26$ to $r = .28, p < .01$), construct validity ($p < .01, d = −1.02$), and convergent validity ($r = .43, p < .01$).

**Methods**

This QI project utilized a longitudinal pretest-posttest design to evaluate the effects of an MHL educational intervention provided to elementary teachers on both MHL and the recognition of mental health concerns as well as how this education affected the rate of student referral to treatment. To evaluate the efficacy of this educational intervention, participants were asked to complete the MHLCSE and GBS at two time points: pre-intervention (T1) and one-month post-intervention (T2). Participants were asked how many students they have recommended for referral to the Bridge Program during the current school year at T1 and T2. This QI project was conducted at two elementary schools in Columbia, Missouri. The target population for this project was a purposive convenience sample of elementary teachers at Blue Ridge Elementary School (BRE) and Cedar Ridge Elementary School (CRE) in Columbia, Missouri. Inclusion criteria consisted of teachers currently employed at BRE or CRE. Exclusion criteria consisted of substitute teachers, individuals employed by a different school, and individuals who were not present during the MHL presentation.

The investigator provided a 20-minute MHL presentation to teachers at BRE on January 24, 2024, and CRE School on February 7, 2024. The presentation included information about the symptoms of pediatric mental illness in elementary students and information on how to recommend these students for referral to the Bridge Program, a free school-based psychiatry resource for students enrolled in Boone County schools. Attendance at this presentation was documented. The survey with the MHLCSE, GBS, and questions regarding Bridge Program utilization were administered at T1 and T2.

Calculations for sample size were based on the recommendations from G*Power (Faul et al., 2007). To detect an effect size of Cohen’s $d = 0.5$ with 80% power ($\alpha = .05$, two-tailed), G*Power suggests that 34 participants would be needed in a paired samples $t$-test (Faul et al., 2007). Of the 36 teachers, 21 completed surveys at both T1 and T2 that consisted of the MHLCSE, GBS, and questions regarding Bridge Program utilization. Demographic information collected included: age, age category, race, ethnicity, gender, school of employment, grade level
of teaching, years of teaching experience, education level, and whether the individual is currently or has ever been a caregiver for a child.

Descriptive statistics were utilized to provide an overview of the project sample. Ordinal data collected from the MHLCSE and GBS Likert scales at T1 and T2 were analyzed using the Wilcoxon signed-rank test. Nominal data was analyzed using the chi-squared test and McNemar’s test, while ratio level data was analyzed using the paired t-test. A Cohen’s d was used to determine effect size with the paired t-test with values of small (.2), moderate (.5), and large (.8). The Vargha and Delaney (A) determined the effect size of the Wilcoxon-signed rank test with values of small (.56), medium (.64), and large (.71). IBM SPSS version 29 (Chicago, IL) was used for statistical analysis. Statistical significance was defined as $p \leq .05$.

Results

Of the 44 classroom teachers employed at BRE and CRE, 36 teachers consented to participate in this QI project and completed the survey at T1. Of these 36 teachers, 34 participants attended the MHL intervention and 21 completed the survey at T2. Only the 21 subjects who attended the MHL presentation and completed both surveys at T1 and T2 were included in the analysis. The age range of the 21 teachers was 22 to 54 years, with a mean age of 33.4 years ($SD = 9.7$) and a predominant age category of 25 to 34 (38.1%, $n = 8$). The predominant race was Caucasian (95.2%, $n = 20$), and the ethnicity was predominately non-Hispanic (90.5%, $n = 19$). The sample was 90.5% female ($n = 19$) and 9.5% male ($n = 2$). The teachers were predominantly employed by CRE (57.1%, $n = 12$), in addition to nine teachers from BRE (42.9%). The predominate grade level for the teachers was first grade (23.8%, $n = 5$) followed by kindergarten (19%, $n = 4$), with second grade, third grade, fourth grade, and fifth grade having an equal distribution of teachers (14.3%, $n = 3$). The education level of the teachers was predominately a master’s degree (57.1%, $n = 12$), followed by a bachelor’s degree (38.1%, $n = 8$) and a professional degree (4.8%, $n = 1$). Participants indicated their years of teaching experience, ranging from 0 to 31 with a mean experience of 10.2 years ($SD = 8.8$). Participants predominately have never been the primary caregiver for a child (57.1%, $n = 12$), with eight participants reporting that they are currently the primary caregiver for a child (38.1%) and one participant reporting that they have previously been the primary caregiver for a child, but the child is no longer living in their household (4.8%).

Mental Health Literacy and Capacity Survey for Educators (MHLCSE)

When evaluating the MHLCSE, the Wilcoxon-signed rank test was used to determine the effect of the MHL presentation on the MHL of teachers, specifically their perceived levels of awareness, knowledge, and comfort. Of the 13 variables on the MHLCSE, the analysis yielded 11 variables demonstrating a large statistically significant increase in median scores ($p < .05, A = .71$ to $A = .88$) with the other two variables demonstrating a moderate statistically significant increase in median scores ($p < .05, A = .67$ to $A = .69$). The variables with the largest increase in median scores were “awareness of local mental health community services” ($p < .001, A = .88$), “awareness of steps necessary to access mental health community services” ($p < .001, A = .88$), “awareness of types of treatment available” ($p < .001, A = .86$), and “knowledge of appropriate actions to support students” ($p < .001, A = .86$). A paired samples $t$-test was used to assess the total MHLCSE score, and the analysis revealed a very large, statistically significant increase in mean scores between T1 ($M = 42.4, SD = 10.3$) and T2 ($M = 52.6, SD = 9.1$) ($p < .001, d = 1.6$).

Gatekeeper Behavior Scale (GBS)

When evaluating the GBS, the Wilcoxon-signed rank test was used to determine the effect of the MHL presentation on the MHL of teachers, specifically their perceived levels of
preparedness, likelihood of intervening, and self-efficacy. Of the 11 variables on the GBS, the analysis yielded four variables demonstrating a large statistically significant increase in median scores \((p < .05, A = .71 \text{ to } .74)\) and four variables demonstrating a moderate statistically significant increase \((p < .05, A = .60 \text{ to } .62)\). The variables with the highest increase in median scores were “preparedness to discuss concerns with student” \((p = .005, A = .74)\), “confident I know where to refer” \((p = .004, A = .74)\), “preparedness to recognize physical appearance in student” \((p = .008, A = .71)\), and “preparedness to recommend mental health services to student” \((p = .008, A = .71)\). A paired samples \(t\)-test was used to assess the total GBS score at T1 and T2. The analysis revealed a moderate to large, statistically significant increase in scores between T1 \((M = 71.4, SD = 17.7)\) and T2 \((M = 79.4, SD = 12.8)\) \((p = .004, d = .7)\).

**Utilization of Bridge Program Referral Process**

When evaluating the utilization of the Bridge Program referral process, a paired samples \(t\)-test was used to assess the number of students recommended for referral to the Bridge Program at T1 and T2. In addition, a McNemar’s test was utilized to evaluate the effect of the presentation on the subject’s help-seeking behavior of recommending a student for referral to the Bridge Program. While not statistically significant, there was a mean increase in reported service utilization between T1 \((M = 0.52, SD = 1.1)\) and T2 \((M = 0.76, SD = 1.6)\) \((p = .06, d = .4)\) as well as a mean increase in the number of teachers who recommended a student for referral between T1 \(n = 5\) and T2 \(n = 6\) \((p = 1.00)\). Teachers who recommended a student for referral to the Bridge Program were more likely to be Caucasian (100%, \(n = 6\)), female (83.3%, \(n = 5\)), and have master’s level education (80%, \(n = 5\)).

**Conclusions**

The purpose of the QI project was to implement and evaluate the efficacy of an MHL intervention provided to teachers. The primary project objective of a 10% increase in teachers’ overall scores on the MHLCSE was met with a 24.1% increase in total scores for the participants. The secondary objective of a 10% increase in teachers’ overall score on the GBS was met with an 11.2% increase in total scores. The final project objective of a 5% increase in the utilization of the Bridge Program referral process was met with a 45.5% increase in the number of students recommended for referral to the Bridge Program and a 20% increase in the number of teachers who utilized the Bridge Program referral process. These results suggest that MHL education provides substantial benefits to elementary school teachers and their students.

**Recommendations**

Recommendations have been proposed to stakeholders concerning the importance of enhancing MHL among elementary school teachers. It is suggested that the MHL presentation be provided to teachers annually at the beginning of each school year when teachers and nurse case managers have lighter workloads to ensure sustained effectiveness. Additionally, the presentation should be updated regularly to reflect changes in the Bridge Program referral process or evidence-based diagnostic and treatment recommendations. Furthermore, it is reasonable to extend MHL education to secondary school teachers by adapting the presentation accordingly.

**Strengths and Limitations**

Strengths of this QI project include the statistical and clinical significance exhibited for the project objectives. The project demonstrated a large statistically significant increase in 15 variables from the MHLCSE and GBS, a very large statistically significant increase in MHLCSE total scores, and a moderate to large statistically significant increase in GBS total scores. Limitations of the project include a short project time interval, use of purposive convenience sampling, a smaller than anticipated sample size, and susceptibility to nonresponse bias.
References


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https://doi.org/10.1002/wps.20436


https://doi.org/10.1111/eip.13037

Appendix A: D1 Form

DNP Residential Project Committee
Appointment Request

Student’s Name: Jessica Popielarz
Student’s Number: 14204226
Date Submitted: 6/14/2023

I request that the faculty members listed below be appointed to serve as my Residential Project committee.

Dr. Nancy Birtley
Name of Chair*

Dr. Tammy Rood
Member*

Dr. Ryan Kavalier
Member*

Member*

Signature of Student
*Please type or print

Nancy M. Birtley,
DNP, APRN, PMHCNS-BC,
PMHNP-BC
Digitally signed by Nancy M.
Birtley, DNP, APRN, PMHCNS-BC,
PMHNP-BC
Date: 2023.06.12 10:25:35 -05'00'

Dr. Tammy Rood
Signature, Chair of Committee
Digitally signed by Dr. Tammy
Rood
Date: 2023.06.14 13:11:59
-05'00'

Dr. Tammy Rood
Signature, Member

Dr. Ryan Kavalier
Signature, Member

Miriam D. Butler,
DNP, NP-C, FNP-BC
Digitally signed by Miriam D.
Butler, DNP, NP-C, FNP-BC
Date: 2023.06.24 18:15:37 -05'00'

Signature of Director of DNP
Program, School of Nursing

To be completed during the semester enrolled in:
N9080 Section 1 DNP Residency Project

SON Approved 7/20/22
o:\teach\dnp_forms\dop d1 form.docx
Appendix B: D3 Form

Approval of DNP Residency Project Proposal and the Institutional Review Board Protocol

<table>
<thead>
<tr>
<th>Candidate’s name:</th>
<th>Popielarz, Jessica</th>
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</thead>
<tbody>
<tr>
<td>Mizzou ID number:</td>
<td>14204226</td>
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Project Title: Evaluation of a Mental Health Literacy Educational Intervention for Elementary Teachers

<table>
<thead>
<tr>
<th>Signatures of review members</th>
<th>Acceptable</th>
<th>Unacceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nancy M. Birtley, DNP, APRN, PMHCNS-BC, PMHNP-BC</td>
<td>√</td>
<td>□</td>
</tr>
<tr>
<td>Dr. Tammy Rood</td>
<td>√</td>
<td>□</td>
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<tr>
<td>Dr. Ryan Kavalier</td>
<td>□</td>
<td>□</td>
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<tr>
<td>Director, DNP Program in Nursing</td>
<td></td>
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</tbody>
</table>

The clinical project is: □ □

The Program Committee has explained the decision regarding the acceptability of my project proposal.

Student Signature: Jessica Popielarz | Date: 10/10/2023

Director, DNP Program in Nursing: Miriam D. Butler, DNP, NP-C, FNP-BC | Date: 2023.11.02 19:44:46 -05:00

SON Approved 7/2010
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Appendix C: Mental Health Literacy and Capacity Survey for Educators

Table 1. Survey items related to the areas of awareness, knowledge and comfort.

<table>
<thead>
<tr>
<th>Target area</th>
<th>Items surveyed</th>
<th>5-point Likert scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>1. The range of mental health issues that children and youth experience during the school years. 2. The risk factors and causes of student mental health issues. 3. The types of treatments available to help students with mental health issues (e.g. counselling). 4. The local community services for treating students with mental health issues (e.g. do you know who to call?). 5. The steps necessary to access local community services for mental health issues.</td>
<td>‘How would you rate your awareness of each of the following’ ranging from not at all aware to very aware.</td>
</tr>
<tr>
<td>Knowledge</td>
<td>1. About the signs and symptoms of student mental health issues. 2. About appropriate actions to take to support student mental health at school. 3. About legislation related to mental health issues (confidentiality, consent to treatment, etc.). 4. About school system services and resources for helping students with mental health issues</td>
<td>Participants were asked: ‘How would you rate your knowledge of each of the following’ ranging from not knowledgeable to very knowledgeable.</td>
</tr>
<tr>
<td>Comfort</td>
<td>1. Talking with students about mental health. 2. Talking with parents about their child’s mental health. 3. Providing support to students with mental health issues. 4. Accessing school and system services for students with mental health issues.</td>
<td>Participants were asked: ‘How would you rate your knowledge of each of the following’ ranging from not comfortable to very comfortable.</td>
</tr>
</tbody>
</table>
## Appendix D: Gatekeeper Behavior Scale

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Number</th>
<th>Item</th>
<th>Response Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparedness</td>
<td>How would you rate your preparedness to:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Prep 1    | Recognize when a student's behavior is a sign of psychological distress | 1 = Very low  
2 = Low  
3 = Medium  
4 = High  
5 = Very high |
| Prep 2    | Recognize when a student's physical appearance is a sign of psychological distress | |
| Prep 3    | Discuss with a student your concern about the signs of psychological distress they are exhibiting | |
| Prep 4    | Motivate students exhibiting signs of psychological distress to seek help | |
| Prep 5    | Recommend mental health support services (such as the counseling center) to a student exhibiting signs of psychological distress | |
| Likelihood | How likely are you to discuss your concerns with a student exhibiting signs of psychological distress? | 1 = Very unlikely  
2 = Unlikely  
3 = Likely  
4 = Very likely |
| Like 6    | How likely are you to recommend mental health/ support services (such as the counseling center) to a student exhibiting signs of psychological distress? | |
| Self-Efficacy | Please rate how much you agree/disagree with the following statements: | |
| Effi 6    | I feel confident in my ability to discuss my concern with a student exhibiting signs of psychological distress | 1 = Strongly disagree  
2 = Disagree  
3 = Agree  
4 = Strongly agree |
| Effi 9    | I feel confident in my ability to recommend mental health support services to a student exhibiting signs of psychological distress | |
| Effi 10   | I feel confident that I know where to refer a student for mental health support | |
| Effi 11   | I feel confident in my ability to help a suicidal student seek help | |