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NARRATIVE REVIEW

Addressing Mental Health Stigma in Early Adolescence: Middle School Antistigma Interventions

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Abstract

Early adolescence is a crucial period in the development of mental health disorders. Although a significant number of adolescents experience mental health needs, only a third of adolescents with mental health disorders receive treatment; many adolescents cite the stigmatization of mental health disorders as a deterrent to seeking help. Cognitive and social developments in early adolescence make middle school an ideal period to combat stigma. School-based antistigma interventions, however, have historically targeted high school and college students, thus missing a valuable window for intervention. This article reviews existing empirical studies on middle school antistigma interventions, along with examining relevant developmental research and theory. Taken together, the literature points to the significant potential such interventions may hold for shifting middle school students' knowledge and attitudes around mental health disorders. In particular, interventions drawing on active learning approaches that incorporate youth's voices, perspectives, and leadership may be more effective in influencing various aspects of mental health stigma among middle school students. At the same time, there are significant limitations to the current literature. Recommendations for future research are discussed.

Keywords Mental health stigma · Early adolescence · Antistigma interventions · School-based intervention · Middle school

Introduction

The significant biological, psychological, and social changes that characterize adolescence make it a period of unique risk for the development of DSM-5 mental disorders as well as unique potential for intervention. Within a given year, 13.4% of 12- to 15-year olds in the United States meet criteria for a mental disorder, with ADHD and mood disorders being the most common diagnoses at 7.4% and 4.8%, respectively (Merikangas et al. 2010a). Furthermore, the adolescent supplement of the National Comorbidity Survey found that 45.3% of 13- to 14-year olds have already met criteria for a mental disorder at least once in their lifetime (Merikangas et al. 2010b). At 31.4%, anxiety disorders are the most commonly experienced class of disorders for this age bracket, followed by behavior disorders at 18.2%, and mood disorders at 10.5% (Merikangas et al. 2010b). These experiences of mental health disorders and if and how they are addressed can significantly influence lifelong developmental trajectories.

Early adolescence or the middle school years (i.e., 11–13 years old) is a particularly crucial period in the development of mental health disorders; an examination of prevalence in middle childhood compared to adolescence reveals significant increases in early adolescence, a growth that is often credited to the biological, psychological, and social changes of this developmental stage (Costello et al. 2011). Among 11- to 13-year-old youth, the current prevalence of any DSM-5 mental disorder is variable, with estimates ranging from 11.2% (Costello et al. 2003) to 27.4% (Coughlan et al. 2014). Although national longitudinal data on mental health disorders is lacking, data from specific populations supports the surge of mental disorders during early adolescence: for example, among indigenous youth in the United States, 12-month prevalence rates drastically increase from 24.3% at age 11 to 41.7% at age 14 (Whitbeck et al. 2014). Importantly, the average age of onset of all mental disorders is 14, meaning that by the start of high school, half of lifetime cases of mental disorders have already presented (Kessler et al. 2005). Although childhood disorders, such as Separation Anxiety Disorder and ADHD, are on the decline

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by early adolescence, overall prevalence rates of mental disorders climb due to steady increases in anxiety, mood, conduct, and substance use disorders throughout this period (Kessler et al. 2005). Despite the high prevalence of mental disorders in adolescent populations, it is estimated that only 35% of 13- to 14-year old adolescents who meet criteria for a mental disorder receive mental health services (Merikangas et al. 2011).

Although a myriad of factors contribute to the low rate of treatment for mental health disorders, including accessibility of treatment, disorder severity, and type of disorder (with externalizing disorders being treated at a significantly higher rate than internalizing disorders), mental health stigma, or the negative attitudes and beliefs about individuals with mental health disorders, appears to play a central role in adolescents' willingness to engage in mental health services (Merikangas et al. 2011). Consequently, the development and implementation of interventions that effectively target mental health stigma in early adolescence could positively influence adolescent mental health by increasing help-seeking and mental health treatment and by reducing the burden of stigma during this developmental stage. This article will examine the existing literature on middle school antistigma interventions. Strengths and limitations of existing research will be discussed and a developmental lens will be used to inform future directions for research and practice.

Mental Health Stigma in Early Adolescence

Although a range of barriers to receiving mental health care exist, mental health stigma has consistently been found to negatively impact individuals' willingness to seek treatment. In their systematic review of the literature on stigma and help-seeking in adults, Clement et al. (2015) found a small negative association between mental health stigma—in particular self-stigma and stigma of mental health treatment—and help-seeking ($d = -0.27$). Qualitative studies discussed within the review suggested that this negative association can not only be generalized to adolescent populations, but that mental health stigma may actually have increased salience for adolescents due to the magnified importance of social influence during this developmental stage.

Adolescents diagnosed with mental health disorders report experiencing high levels of stigma: 62.5% report moderate to substantial stigma from peers, 46.4% report moderate to substantial stigma from family members, and 34.8% report negative treatment from teachers, counselors, or other school staff (Moses 2010). Comparatively, qualitative research in adult samples uncovers lower levels of perceived stigma: the most commonly cited source of stigma in the adult sample was the general community at 46%, followed by family members at 39%, coworkers, colleagues, and classmates at 36%, mental health caregivers at 28%, employers and supervisors at 24%, and finally friends at 22% (Wahl 1999). Additionally, middle school students consistently cite stigma, both from friends and family members, as a key factor in their willingness to use mental health services (Chandra and Minkovitz 2007; Lindsey et al. 2013).

Importantly, this stigma also varies based on gender and cultural background. For example, 8th grade boys report experiencing higher levels of stigma than their female peers and are significantly less willing to use mental health services due to this higher perceived stigma and fears of parental disapproval (Chandra and Minkovitz 2006). Research also suggests the stigmatization of mental health disorders and mental health service use varies as a function of cultural identity (Yang et al. 2014). For example, quantitative research indicates that mental health stigma may be higher among Asian–American (Han et al. 2017; Masuda et al. 2009), Latinx–American (Calvo 2016; Nash et al. 2017; Vargas et al. 2015), and African–American populations (Masuda et al. 2009, 2012) than among European–Americans, contributing to lower levels of mental health treatment. Qualitative research has provided greater insight into these differences. A qualitative meta-analysis (Yang et al. 2014) explored how unique cultural beliefs may foment low mental health service use, specifically identifying the loss of 'face' as an important cultural deterrent for Asian–Americans and the conflict of help-seeking with Latinx values of working hard and solving problems independently. Among African–American populations, a mistrust of mental health providers due to the historic abuse of African–Americans by the medical profession may lead to a reluctance to seek mental health services (Yang et al. 2014).

Youth can be both the targets of mental health stigma, as well as holding stigmatizing or inconsistent beliefs about mental health themselves (Painter et al. 2017; Wahl et al. 2012). Although many adolescents seem to recognize that mental health stigma is problematic, their beliefs simultaneously contribute to this stigma. Despite recognizing the unfavorable and unfair depiction of mental illness, most early adolescents hold a pessimistic view of mental health disorders, with 64% being unsure or agreeing that those with serious mental illness cannot improve with treatment (Painter et al. 2017). Similarly, while most middle school students reject the idea of avoiding people with mental health disorders, they simultaneously report an increase in separatism (i.e., an unwillingness to interact with people with mental health disorders) as intimacy increases, with 78% being willing to talk with a person with a mental health disorder but only 14% being willing to go on a date with them (Wahl et al. 2012). Additionally, over a third of middle school students believe that students with mental health disorders should not be in regular classes (Wahl et al. 2012). Furthermore, Wahl et al. (2012) found a significant subset of adolescents with outright negative and stigmatizing attitudes;

for instance, 15% of middle school students believed people with mental health disorders are weak and overly sensitive, and 27% would find it embarrassing to be diagnosed with a mental health disorder.

It is possible that a significant portion of this stigma can be attributed to adolescents' low mental health literacy, or knowledge of mental health. Some research in adult samples suggests that lack of mental health literacy directly contributes to mental health stigma, such that lower levels of literacy lead to higher levels of stigma and vice versa (Cheng et al. 2018). This may also be the case for adolescents, whose mental health knowledge tends to be lower than among adults. Even the most basic form of mental health literacy, recognizing disorders as mental health problems, is low in adolescent samples (Coles et al. 2016; Lam 2014; Wright et al. 2005). A survey of Australian youth ages 12–17, found that just over half of respondents identified vignette characters with symptoms of depression and psychosis as having some sort of mental health problem (Wright et al. 2005). These numbers drop lower for rural adolescents in the U.S., where only a quarter identified anxiety and less than half identified depression as mental health problems (Olsson and Kennedy 2010). Being able to correctly identify the specific disorder is even less common. Only 23–40% of youth can correctly identify depression (Coles et al. 2016; Lam 2014; Wright et al. 2005), 17% for psychosis (Wright et al. 2005), and 1% for social anxiety (Coles et al. 2016). Although more limited than research in adult samples, there is preliminary support for that these low levels of mental health literacy contribute to mental health stigma in adolescence (Chandra and Minkovitz 2007; Milin et al. 2016; Wright et al. 2005). Therefore, educating adolescents about mental health may be an effective approach to reducing stigma in adolescent populations.

Cognitive Development in Early Adolescence

Early adolescents may be particularly well-suited to interventions that target stigmatizing beliefs about mental illness, due to the cognitive developments they undergo during this life stage. As youth enter Piaget's final developmental stage, formal operations, in early adolescence, they gain the ability to reason logically about abstract concepts (Piaget and Inhelder 1962). In obtaining formal operations, adolescents can now engage in metacognition, thinking about their own thoughts as well as the thoughts of others. Thus, due to adolescents' newfound ability to reason abstractly, adolescents become increasingly aware of the distinction of the private and public self and begin to appreciate that their thoughts and emotional experiences differ from others' just as others' differ from their own (Davies 2004; Harter 1999). With this revelation, adolescents are now able to comprehend that others may experience thoughts and feelings vastly different from their own; nested within this cognitive development is the ability for adolescents to understand that others may experience mental health disorders even if they do not.

At the same time, this ability to reason abstractly brings with it a spike in self-consciousness, as early adolescents realize that others can think about them, also making them more vulnerable to concerns about stigma (Piaget and Inhelder 1962). In fact, early adolescents overestimate the frequency that others think of them, often leading to an erroneous belief that they are the constant focus of others' attention. This "imaginary audience" (Elkind 1967, 1985) may be especially relevant to mental health stigma. Due to the belief that others are constantly watching them, youth with mental health problems may be less likely to disclose or seek help due to fear of judgment. Similarly, youth may be less likely to support peers with mental health needs for fear of judgment by association.

Nevertheless, early adolescence is also a period of potential with research suggesting that attitudes toward mental health and illness are still changeable at this age. Quick intervention, however, may be necessary, as there is evidence to suggest stigma stabilizes over the course of middle school (Weiss 1985). Early adolescence, then, appears to be the ideal developmental window for interventions targeting mental health stigma. Middle school youth are both cognitively ready for abstract conversations about mental health and illness and still open to changing their attitudes toward these constructs. Moreover, the developmental importance of early adolescence in the onset of mental health disorders and the high levels of stigma during this period make it critical to intervene.

Stigma Interventions in Adolescence and Emerging Adulthood

Antistigma interventions can roughly be divided into two categories: (1) psychoeducation, in which information about mental illness is provided typically in a class-like setting, and (2) contact, in which a group has contact with a person or persons with lived experience of mental illness. Psychoeducation is believed to decrease stigma indirectly through increased mental health literacy, whereas contact interventions pull from social psychology research that suggests that interacting with people from another group increases perceived similarity leading to reduced social exclusion. While antistigma interventions can also vary in the population they target, they are traditionally universal interventions, provided to all students regardless of their personal mental health.

Despite the importance of early adolescence in mental health stigma, few antistigma interventions target this age group. Rather, the majority of school-based antistigma interventions target high school or college students, perhaps

from the erroneous belief that mental health disorders do not occur among younger children or that middle school students are too young to comprehend mental health disorders. High school stigma intervention studies range from those targeting stigma toward all mental health disorders (Del Casale et al. 2013; Giannakopoulos et al. 2012; Hart et al. 2016; Ke et al. 2015; Milin et al. 2016; Rickwood et al. 2004) to those targeting the stigmatization of more specific DSM-5 mental disorders, such as depression (Strunk et al. 2014; Swartz et al. 2010, 2017) and schizophrenia (Schulze et al. 2003). Some interventions have even targeted specific symptoms, particularly suicide and suicidal ideation (Aseltine and DeMartino 2004; Strunk et al. 2014).

Existing reviews of research on school-based antistigma interventions have focused primarily on older adolescence and emerging adulthood. Chen et al. (2016), for instance, exclusively review contact interventions in Canadian high schools. Other reviews (Salerno 2016; Schachter et al. 2008; Wei et al. 2013; Yamaguchi et al. 2011) include educational interventions from elementary school to university, although they are heavily weighted toward high school and college interventions. While some of these reviews discuss how developmental stage may influence when to address stigma, they do not consider how intervention approach may need to vary due to developmental stage. One notable exception is Newcomb-Anjo's (2018) recent review of psychoeducational interventions on depression, which uses a developmental lens to make recommendations for educating primarily high school adolescents about depression. Although these reviews do not specifically address the middle school years, they do emphasize the potential value of antistigma interventions, including the capacity to increase mental health literacy, decrease stigmatizing beliefs, and, to a lesser extent, increase help-seeking behaviors and separatism (Chen et al. 2016; Newcomb-Anjo 2018; Salerno 2016; Schachter et al. 2008; Wei et al. 2013; Yamaguchi et al. 2011). At the same time, many highlight the considerable limitations of antistigma intervention research thus far. While some reviews refrain from making recommendations for practice due to the limitations of the literature, others suggest that curriculum that fosters empathy and social inclusion (Schachter et al. 2008) and is fully integrated into students' existing education (Newcomb-Anjo 2018) may prove more effective.

Stigma Interventions in Middle School

Due to the importance of the middle school years for targeting mental health stigma, there is a need for a greater understanding of effective approaches to antistigma interventions at this unique stage in development. A review of the existing research on middle school antistigma interventions can allow for a greater understanding of how best to combat mental health stigma in early adolescence. To date, only a limited number of studies have been conducted on antistigma interventions in middle school. Specifically, 13 studies have examined the impact of antistigma interventions that occur during middle schools. Four of these studies, however, were not specific to middle school, including elementary school students in their population. One such study (Pitre et al. 2007) will not be further discussed due to its primary focus on elementary school students. The other three studies used samples that were at least half middle school students, and thus were included in this article. These remaining 12 interventions can be divided by into 4 groups by delivery method: incorporated into health class (Desocio et al. 2006; Lauria-Horner et al. 2004; Wahl et al. 2011); incorporated into a core class (Painter et al. 2017; Watson et al. 2004; Weisman et al. 2016; Yang et al. 2018); delivered as a separate educational event (Bulanda et al. 2014; Chisholm et al. 2016; Ventieri et al. 2011); and delivered as a theatrical event (Essler et al. 2006; Wong et al. 2014). Despite few studies having been conducted on middle school antistigma interventions, results of the existing studies are promising and suggest that these programs can increase mental health knowledge and decrease early adolescents' negative attitudes toward those with mental health disorders.

Interventions Incorporated into Health Class

Three of the 12 studies examined antistigma interventions that were incorporated into middle school health classes, presenting mental health within the same space as physical health. Lauria-Horner et al. (2004) examined the most extensive intervention in this review, which consisted of 64 h-long sessions over 16 weeks, as a replacement of the usual health curriculum in a primary school (1st through 7th grades) in Nova Scotia, Canada. The psychoeducational curriculum included four modules on expected emotional development, depression, anxiety, and ADHD delivered by a health teacher. Pre- and post-intervention self-report surveys showed that that students in 4th through 7th grades demonstrated improvements in disorder-specific knowledge, perceived mental health knowledge, and perceived importance of learning about mental health, as well as decreases in separatism. Interestingly, the improvements in separatism were disorder specific: while students were more willing to befriend someone with anxiety or ADHD, there was no increase in willingness to befriend someone with depression (Lauria-Horner et al. 2004).

While less extensive, Desocio et al. (2006) examined the effectiveness of a similar intervention for 5th and 6th graders. The psychoeducational intervention consisted of six weekly sessions taught by the school nurse, which were integrated into regular health class and covered topics including the biological bases of mental health disorders, coping with stress, and common mental health problems in

childhood. Desocio et al. (2006) also observed significant improvements in mental health knowledge and decreases in stigmatizing views of mental health disorders based on pre- and post-intervention surveys.

Finally, Wahl et al. (2011) evaluated a three-session psychoeducational intervention for 7th and 8th graders. The intervention was incorporated as a unit of either students' Health or Physical Education course. Although brief, this intervention demonstrated improvements in mental health knowledge, stigmatizing attitudes, and separatism, all of which remained significant at a 6-week follow-up. Importantly, Wahl et al. (2011) noted that while students were more willing to interact with peers with mental health disorders post-intervention, the majority of students were still unwilling to engage in more intimate relationships, such as friendships and romantic relationships.

Interventions Incorporated into Core Classes

A similar approach to antistigma intervention in middle school is the incorporation of antistigma materials into core classes (i.e., Language Arts, Social Studies, Science, etc.) which was examined in four studies. Weisman et al. (2016) and Watson et al. (2004) both examined the effectiveness of a unit on mental health within a single core class. Weisman et al. (2016) examined the impact of Mental Health Matters (MHM), a 5-class mental health awareness unit integrated into 6th grade English Language Arts which is taught by community members with personal experience with mental health disorders. The unit, which covered information on specific DSM-5 mental disorders, stigma, and a discussion of the instructor's personal experience, resulted in an increase in mental health knowledge and a decrease in stigmatizing beliefs about mental health disorders post-intervention. While the improvements in mental health knowledge were maintained at a 1-year follow-up, decreases in stigma were not (Weisman et al. 2016). Watson et al. (2004) took a similar approach, integrating an 8-class mental health unit, The Science of Mental Illness, into 6th, 7th, and 8th grade science classes across the nation. The curriculum discussed the biological bases of mental health disorders, risk factors, and the efficacy of treatment, but did not include a contact component. Results showed improvements in mental health knowledge, decreases in some stigmatizing attitudes, and increases in willingness to seek mental health services post-intervention (Watson et al. 2004). Neither study, however, demonstrated any changes in separatism.

Similarly, Painter et al. (2017) and Yang et al. (2018) examined the impact of antistigma interventions that were integrated into several of students' core classes. In their randomized controlled trial, Painter et al. (2017) compared the effectiveness of different forms of classroom-based antistigma interventions: the posting of psychoeducational printed materials (flyers and posters), curriculum, contact, all of their possible combinations, and a control group. Although printed materials had no impact on early adolescents' mental health stigma, both contact and curriculum had positive effects, with curriculum being the most impactful intervention by itself, increasing early adolescents' awareness of mental health stigma and action against it, increasing help-seeking intentions, increasing correct identification of mental illness in vignettes, and decreasing separatism. When curriculum and contact were combined, early adolescents also demonstrated increased mental health knowledge and positive attitudes about mental illness. Despite these positive effects, there were no changes in early adolescents' willingness to engage in close relationships with individuals with mental illnesses.

Although utilizing a similar format as the intervention evaluated by Painter et al. (2017), InSciEd Out, the intervention examined by Yang et al. (2018), is the sole targeted intervention discussed in this article. InSciEd Out was delivered at an alternative middle school for students with mental health needs and those at-risk for developing such needs. This targeted psychoeducational intervention consisted of 20 lessons covering topics including the biological and social underpinnings of mental illness, recovery, and resilience. The curriculum also included student-driven mental health research projects, culminating in multimedia presentations. Yang et al. (2018) demonstrated significant improvements in mental health literacy and help-seeking intentions. Although stigmatizing beliefs remained largely unchanged, Yang et al. (2018) attributed this to their sample's exceptionally low levels of stigma at baseline.

Interventions as Separate Educational Events

Brief interventions, such as one-time events have also demonstrated promise in reducing stigma. Chisholm et al. (2016), like Painter et al. (2017), compared two types of 1-day antistigma interventions for British 12- to 13-year old adolescents: psychoeducation alone and psychoeducation plus contact. Surprisingly, the randomized controlled trial demonstrated that while psychoeducation reduced separatism, increased mental health knowledge, and improved emotional outcomes, adding contact to the intervention reversed some of these improvements (Chisholm et al. 2016). At a 6-month follow-up in a subset of the sample, students in the psychoeducation only condition continued to demonstrate higher mental health knowledge than those in the psychoeducation and contact condition, although improvements in separatism and emotional outcomes were not retained (Chisholm et al. 2016).

Ventieri et al. (2011) examined a 2-day psychoeducational intervention for Australian 5th and 6th graders. The isolated intervention was comprised of four parts: a general

introduction to mental illness, causes of mental illness, treatment for mental illness, and mental health stigma. The intervention pulled from relevant past educational interventions and was reviewed by mental health and education professionals. Pre- and post-self-report surveys demonstrated decreases in unkind attitudes and increases in benevolent attitudes toward people with mental health disorders, decreased separatism, and increased mental health knowledge. The intervention was not only successful in the short-term, but all improvements also remained significant at a 4-month follow-up.

Unlike the other separate educational events examined, Bulanda et al. (2014) evaluated a 1-h youth-led mental health educational workshop for 6th, 7th, and 8th graders, an intervention unique in its use of older adolescents as facilitators. High school student facilitators provided psychoeducation, shared personal experiences with mental health problems, and led discussions about stigma. Although only an hour in length, the intervention yielded improvements in mental health knowledge and decreases in separatism (Bulanda et al. 2014).

Intervention Through Theatre

The remaining two studies utilized theatre as their medium of interaction with mental health and illness (Essler et al. 2006; Wong et al. 2014). A viewing of a high school troupe's play following the lives of four teenagers and their experiences with mental health disorders found promising results, with 6th, 7th, and 8th graders who viewed the play reporting decreases in separatism and increases in mental health knowledge (Wong et al. 2014). Unfortunately, students also increasingly blamed individuals for their mental health disorders post-performance, an anomaly the authors attributed to the play's emphasis on individuals' ability and responsibility to seek recovery, which may have been misinterpreted as responsibility for causing the illness (Wong et al. 2014). Essler et al. (2006) examined an interactive theatre program, in which a professional theatrical company led a 2-day intervention for 13- to 14-year olds in the UK. The program included a performance, role-plays, and discussions on mental health issues. Although there were statistically significant increases in mental health knowledge 1-month post-intervention, participants' knowledge remained very low, even after the intervention.

Discussion

Early adolescence is both a crucial period in the development of and intervention for mental health disorders. Although a significant number of adolescents experience mental health needs, only a third of adolescents with mental health disorders receive treatment (Chandra and Minkovitz 2007; Lindsey et al. 2013; Merikangas et al. 2011); many adolescents cite the stigmatization of mental health disorders as a deterrent to seeking help (Moses 2010). Cognitive and social developments in early adolescence make middle school an ideal period to combat stigma (Elkind 1967, 1985; Piaget and Inhelder 1962; Weiss 1985). School-based antistigma interventions, however, have historically targeted high school and college students, failing to take advantage of this valuable window for intervention (Chen et al. 2016; Newcomb-Anjo 2018; Salerno 2016; Schachter et al. 2008; Wei et al. 2013; Yamaguchi et al. 2011). Preliminary research on middle school antistigma interventions demonstrates promise in school-based interventions' capacity to decrease mental health stigma and related constructs. At the same time, significant limitations within the existing literature highlight the need for more research to better guide the development of effective antistigma interventions for middle school students.

Overall, middle school antistigma interventions have demonstrated significant increases in mental health knowledge and decreases in stigmatizing beliefs. Following such interventions, middle school students have also reported increased willingness to seek help for mental health needs. Although less common, improvements in separatism were also observed in some interventions. Most studies did not address whether the impact of interventions differed by demographic characteristics; however, both Painter et al. (2017) and Wahl et al. (2011) report that the positive impacts of their antistigma interventions did not differ by gender, race, or ethnicity. Similarly, no group differences are apparent by the four delivery types discussed above (health class, core class, separate event, and theatre). This finding contrasts Newcomb-Anjo's (2018) conclusion that (primarily high school) psychoeducation interventions for depression are more effective when integrated into curriculum. Although it is encouraging that a developmentally appropriate single event could influence attitudes toward mental health among middle school students, further research will be needed to replicate this finding.

More generally, although the research presented in this article is promising, there are many important limitations to these findings. Only four studies contained a control group (Chisholm et al. 2016; Ventieri et al. 2011; Wahl et al. 2012; Weisman et al. 2016), and of these four, one study (Ventieri et al. 2011) did not randomize group assignment. Most of the studies relied on self-reported pre- and post-intervention surveys, with only a few studies (Chisholm et al. 2016; Ventieri et al. 2011; Wahl et al. 2011; Weisman et al. 2016) including any follow-ups to assess whether changes in knowledge or attitudes were maintained over time. Additionally, testing effects may have distorted the results of studies that administered pre- and post-surveys within 1 or 2 weeks of each

other (Bulanda et al. 2014; Ventieri et al. 2011; Wahl et al. 2011; Watson et al. 2004; Weisman et al. 2016), or even on the same day (Wong et al. 2014).

There are also concerns related to the measures utilized to assess mental health stigma. Many of the measures are overly simplistic and fail to capture real-life interactions. For example, the Revised Attribution Questionnaire (r-AQ: Pinto et al. 2012), used by Watson et al. (2004) and Weisman et al. (2016), asks adolescents about their feelings toward a student who "has a mental illness", without providing any further information about the student, implying mental illness is the only relevant identity. Furthermore, the r-AQ and other stigma measures often describe the student with a mental illness as coming in from the outside (i.e. moving to their city, transferring to their school), suggesting that mental illness must be introduced to adolescents' social networks, rather than already existing there. Moreover, the lack of specificity implies that different mental health disorders are interchangeable, an implication that directly contradicts the goal of many of the antistigma interventions to disseminate knowledge about specific mental health disorders. Additionally, four studies did not fully assess separatism, either completely leaving a measure out (Desocio et al. 2006; Essler et al. 2006; Yang et al. 2018) or only including one item that somewhat refers to separatism (Weisman et al. 2016).

A Developmental Approach to Intervention

Due to the limitations of the empirical literature, it is challenging to distinguish which antistigma interventions are most effective at reducing mental health stigma in middle school students. A return to developmental theory, however, may illuminate which approaches will yield the best results. Adolescence is characterized by the increased salience and complexity of peer relationships (Brown 2004). Not only do adolescents spend increasingly more time with peers, but friendships also shift from activity-sharing to the sharing of secrets, worries, and ambitions (Brown 2004). Importantly, this now places peers in a position of power in regards to adolescent mental health and help-seeking. Unsurprisingly, peer influence spikes in adolescence, with adolescents being influenced by close friends, cliques, and even larger peer crowds (Brown and Klute 2006; Prinstein and Dodge 2008). While peer influence begins increasing in early adolescence, there is a delay in the growth of resistance to peer influence, which increases linearly between ages 14 and 18 (Steinberg and Monahan 2007). It is early adolescence, therefore, when youth are most susceptible to peer influences. Although peer influence is often discussed as a negative force (i.e. peer pressure), peer influences can also be positive. Positive peer attachment, for instance, is a significant predictor of prosocial behavior in adolescents (Oldfield et al. 2016). Research has also shown that supportive peers can positively influence treatment adherence in adolescents with diabetes (Bearman and La Greca 2002) and, among adolescents with juvenile idiopathic arthritis, improve perceived ability to manage their illness (Stinson et al. 2016).

From these findings, we can extrapolate that adolescents who encounter peer influence to be accepting and supportive of other adolescents with mental health disorders and see models of this type of prosocial behavior may develop less stigmatizing views of mental health disorders. A re-examination of the above 12 studies supports this theory: although all interventions increased mental health knowledge and most influenced stigmatizing beliefs, for the most part (with the exception of one study, Ventieri et al. 2011) those that incorporated youth voices, perspectives, and/or leadership seemed to impact separatism more strongly. Interventions that thoroughly incorporated youth stories and leadership demonstrated significant changes in separatism (Bulanda et al. 2014; Wong et al. 2014). Most notable is that Bulanda et al. (2014), in which youth played the greatest role in leading the intervention, documented increases in early adolescents' willingness to engage not only in distant social interactions, but also in close relationships with peers with mental health problems.

The six interventions that incorporated youth stories to some extent (Chisholm et al. 2016; Lauria-Horner et al. 2004; Painter et al. 2017; Wahl et al. 2011; Weisman et al. 2016; Yang et al. 2018), but were not youth-led, had weaker effects on separatism. Specifically, these interventions included vignettes or stories about early adolescents with mental health disorders and/or included discussion of adolescents' experience of stigma, but did not give youth a voice to express these stories, as was the case with Bulanda et al. (2014) study. Although some effects on separatism were observed, these interventions seemed less impactful in this domain, leading to decreases in separatism only for more distant forms of social contact (Painter et al. 2017; Wahl et al. 2011), only for certain disorders (Lauria-Horner et al. 2004), or only temporarily (Chisholm et al. 2016). Unfortunately, Yang et al. (2018) did not directly assess separatism, although themes from teacher interviews suggested higher peer acceptance of mental health diagnoses following the intervention.

Four interventions (Desocio et al. 2006; Essler et al. 2006; Ventieri et al. 2011; Watson et al. 2004) did not incorporate youth voices in any way (no vignettes about adolescents with mental health disorders, no discussion of adolescent perspectives on mental health, no contact with youth living with mental health problems, and the program was not facilitated by peers). Although Desocio et al. (2006) and Essler et al. (2006) did not assess separatism, Watson et al. (2004) failed to detect decreases in separatism. Surprisingly, Ventieri et al. (2011) did demonstrate decreases in separatism despite not incorporating youth stories or leadership. This may be due to

Ventieri et al. (2011) implementing an interactive intervention that was defined by its use of active learning, allowing students to more effectively engage with and retain the material presented. This is consistent with education research which suggests active learning techniques, such as project-based learning, can improve student outcomes (Condliffe 2017).

Despite the limited number of studies, research and theory provide support for youth-led interventions' increased capacity to positively impact early adolescents' separatism in addition to their mental health knowledge and stigmatizing beliefs. This hypothesis is further supported by the effectiveness of peer-led interventions in other domains of health promotion, including tobacco, alcohol, and cannabis use (MacArthur et al. 2016). More generally, existing studies indicate the capacity of antistigma interventions to influence early adolescents' knowledge and attitudes toward mental health disorders. It is also encouraging that even single-event interventions may be able to influence mental health stigma among middle school students, particularly when they use active learning strategies that incorporate youth voice and youth leadership.

Future Directions

At noted above, the literature as it currently stands has significant limitations. Further research is required in order to better understand the impact of middle school antistigma interventions as well as the specific ingredients that lead to such interventions' success. Given the inadequacy of current measures of stigma, the development of new approaches to the measurement of stigmatizing attitudes toward mental health disorders for adolescents is recommended. For example, the Mental Help Seeking Attitudes Scale, or MHSAS (Hammer et al. 2018) was recently validated in adult populations and purports to have higher construct validity than previous stigma measures. Since the MHSAS only focuses on the stigmatization of seeking psychological help, however, the improvement of existing measures of other components of mental health stigma or the development of new measures will be necessary in order to more broadly assess the impact of antistigma interventions on adolescents' beliefs about mental health and illness.

Additionally, longitudinal randomized control trials of antistigma interventions using such measures are necessary to ascertain the effectiveness of interventions in both the short- and long-term. Furthermore, research should examine whether reductions in mental health stigma actually foment improvements in help-seeking and help-giving behaviors in adolescents. Thus, studies ideally would measure not just willingness to seek help, but actual use of mental health services. Ultimately, it will be important to investigate whether antistigma interventions can allow for earlier access to treatment. Future studies could also more broadly examine how such interventions influence school climate and peer relationships.

There is also a need for a greater understanding of the mechanisms of change in antistigma interventions. All of the studies discussed in this article focused simply on impacts of change scores, rather than exploring mechanisms of change and investigating potential active ingredients within the interventions. More sophisticated modeling of processes of change using longitudinal datasets would also provide insight into the active ingredients within interventions, as well as how changes in knowledge and attitudes may, in turn, influence behavior. Although there is some preliminary support that youth-led approaches may be more successful for early adolescents, direct comparisons of youth-led and adult-led antistigma interventions are necessary to support or disconfirm the hypothesis. Similarly, side-by-side comparisons can examine the most effective method of delivery (integrated into health class or core classes, separate events, theatrical events) of antistigma interventions.

Surprisingly, given the importance of factors including gender and culture in socialization around attitudes toward mental illness (Chandra and Minkovitz 2006; Yang et al. 2014), few of the existing studies addressed how such factors may have influenced impacts (see Painter et al. 2017 and; Wahl et al. 2011 for exceptions). It will be important for future research to address gender and culture both in the development and evaluation of antistigma interventions, as well as considering the possible benefit of developing culturally specific antistigma interventions, especially for marginalized cultures with high levels of mental health stigma. For instance, culturally specific approaches that reconcile cultural values of hard work and independence with the importance of seeking help for mental health needs may prove more impactful for Latinx youth than generic interventions for all students.

Despite the need for more research, the current studies provide initial support for the capacity of antistigma interventions in middle school to influence adolescents' mental health knowledge and stigma. In fact, even the limited existing empirical data, when taken together with developmental research and theory on middle school mental health, indicates that by waiting until high school or college to offer these programs, we may be missing a crucial period for intervention. Addressing mental health stigma earlier may allow youth to access treatment sooner and may limit the impact of the diagnosis on their peer relationships, potentially shortening the duration of their psychological distress and the impact it has on their development. Given the importance of early adolescence in the development of mental health disorders and the promising effects of antistigma interventions, engaging, developmentally-minded, and

ideally youth-empowering programs should be implemented to encourage early adolescent mental health.

Conclusion

In the context of increasing rates of mental illness among adolescents (Merikangas et al. 2010a, b), it is vitally important to identify strategies to increase young people's access to care and support. Unfortunately, research indicates high levels of mental health stigma in early adolescence (Moses 2010), which both poses a barrier to treatment (Chandra and Minkovitz 2007; Lindsey et al. 2013) as well as exacerbating the challenges faced by young people with mental illness. The middle school years mark a key window of opportunity to address mental health stigma, however, as youth in this developmental stage are cognitively capable of engaging in abstract thinking and conversation about mental health and their attitudes towards mental health are still flexible. Despite this potential from a developmental standpoint, there is limited empirical research on interventions targeting mental health stigma at this stage of development. The existing research is encouraging, indicating that even short-term interventions may influence stigma, particularly interventions that draw on active learning approaches and those that incorporate youth voices and perspectives. As the first review paper to focus on antistigma interventions in early adolescence, this work identifies important future directions for the field and calls attention to an understudied yet promising area of research with significant potential to support the mental health needs of young people.

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