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School Mental Health

ORIGINAL PAPER

The Impact of School Mental Health on Student and School-Level Academic Outcomes: Current Status of the Research and Future Directions

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Abstract This manuscript summarizes areas of school mental health (SMH) research relevant to the interplay between students' academic and social–emotional outcomes. After advancing a multidimensional conceptualization of academic success at the levels of individual students and schools, we summarize observational and intervention studies that connect students' mental health to their academic achievement, with acknowledgment of the bidirectional relationship. Then, current and future directions of SMH research are discussed, including (a) the impact of SMH health initiatives and services on schools' achievement, (b) the need to address the mental health of historically neglected subgroups of students, and (c) interdisciplinary collaborations necessary to support enhanced outcomes. Based on the findings from these literature integrations, we conclude with recommendations and implications for research and practice.

Keywords Student success · Impact of school mental health prevention and intervention · Research directions

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Introduction

In this paper, we establish students' mental health and academic outcomes as different domains of functioning that are interrelated. Despite most educators' primary focus on academic learning and indicators of achievement, attention to student mental health is warranted in part because (a) mental health (particularly externalizing problems) affects academic outcomes, (b) academic achievement affects mental health (particularly internalizing problems), and (c) in so far as the mission of schools involves developing competent citizens, a dual focus on mental health and academic outcomes is warranted given their separability. Summaries of such literature set the stage for current and future directions in school mental health (SMH) research, which begin with increasing attention to school-level indicators of academic success. Then, we draw attention to student subgroups (e.g., students with chronic physical health conditions, high-achieving students in rigorous curricula) who may not receive adequate attention from educational and mental health professionals. Last, we describe the need to document how SMH professionals can work collaboratively with related disciplines, and partner with additional resources in communities, to optimize access to and positive outcomes of SMH services.

Historical Focus of School Mental Health Prevention and Intervention Research

SMH research is differentiated from the larger literature in child clinical and prevention science by many features beyond the intervention setting. In relation to the impact of SMH on academic success (as defined in the next section),

the mere examination of student academic outcomes as an indicator of youth functioning differentiates SMH research from clinic-based research. Most early research examined the impact of SMH services on *individual students'* achievement outcomes in the context of controlled efficacy trials (Hoagwood & Johnson, 2003). Students were targeted for inclusion in these studies because they were at-risk on a particular factor, such as disruptive behaviors or school dropout risk. As such, services were focused on secondary (selective) prevention. Research followed that examined the impact of school-wide SMH primary (universal) prevention programs on *groups of students'* academic outcomes, particularly in terms of schools that are at-risk (e.g., high poverty, community violence or crime). For example, the school-wide positive behavior support (PBS) movement involves a three-tiered approach to prevention and intervention that promotes prosocial behavior for the school population as a whole (Sailor, Dunlap, Sugai, & Horner, 2009).

In recent years, there has been increasing emphasis on the effectiveness research that involves the implementation of evidence-based interventions by school personnel under less controlled, "real-world" conditions. In particular, there is growing acknowledgment of the substantial impact of organizational variables (e.g., school climate and culture) on achievement and behavioral outcomes (Doll, Spies, & Champion, 2012; Hoagwood & Johnson, 2003). Further, these organizational variables must be incorporated in any plans to implement prevention and intervention activities in schools (Forman et al., 2013). Last, schools are faced with growing accountabilities that require schools to ensure all students demonstrate proficiencies in key grades and subject areas, paying particular attention to students representing certain subgroups of the student body who are historically underperforming. Research on the contributions of SMH to school-level success is of increasing importance.

Defining Success

Student success can be defined at the level of individual students, and at the aggregate level with regard to the performance of a particular school (or district). The outcomes, or domains of functioning, that constitute student success can entail a narrow focus on academic skills and performance, or be defined broadly to include attention to students' social–emotional health. The latter is illustrated by Roeser, Eccles, and Sameroff's (2000) seminal definition of adolescents' psychosocial functioning in the school context, which posits the relevance of two interconnected domains: social–emotional functioning (including mental health) and school functioning (i.e., academic enablers and

skills). It should be noted that the concepts of social–emotional and school functioning overlap to a certain degree, especially in the case of some disorders (e.g., attention-deficit/hyperactivity disorder, autism) whose key features are influenced, at least in part, by learning processes. However, as defined in the next sections, we view these two areas as separate but overlapping concepts.

Student-Level Indicators of Social–Emotional Functioning

Social–emotional health includes both psychological and behavioral indicators (Roeser et al., 2000). Most indicators within the psychological domain have focused on symptoms of distress (i.e., psychopathology). Modern definitions of psychological well-being recognize that although an absence of symptoms is desirable, the presence of positive emotions is optimal and constitutes thriving (Howell, Keyes, & Passmore, 2013). Common indicators of distress include the frequency or severity of internalizing or externalizing problems, as reported by students, parents, and/or teachers. Indicators of well-being include students' global appraisals of quality of life (i.e., subjective well-being, often indexed by life satisfaction) or frequency of specific positive dimensions such as positive affect, purpose, and self-acceptance. Behavioral indicators of social–emotional functioning assess peer relationships, including social competence (e.g., social skills, adaptive relationships) and problems (e.g., victimization, affiliation with deviant peer groups).

Student-Level Indicators of Academic Functioning

Doll et al. (2012) assert that the definition of student success in school has evolved from a focus on dropout, to actual completion of school, to indicators of engagement that predict eventual school completion. As such, defining academic success may include behaviors and attitudes that serve as academic enablers, in addition to skills assessed by tests and course grades. The latter dimension has been prioritized in SMH research (Becker, Brandt, Shephan, & Chorpita, 2013), and standardized achievement tests are currently "clearly viewed as the gold standard" within the field of education (Kutash, Duchnowski, & Green, 2011, p. 206). However, improvements in behavioral and affective forms of engagement reflect removal of barriers to learning, including negative student behaviors (e.g., violating school rules) and attitudes (e.g., dislike of school). Improved student engagement, which increases access to instruction, enhances students' ability to acquire the academic skills by which schools are ultimately evaluated. Academic competence thus entails knowledge and skills,

Table 1 Indicators of academic success

	Skill (knowledge in specific areas)	Behavior (behavioral engagement)	Attitudes (affective engagement)
Individual student-level outcomes			
Proximal	Curriculum-based measurement, e.g., of reading fluency	Direct observation of student on-task behavior during instruction	*Current* perceptions of: Academic self-efficacy Achievement orientation Belonging/connectedness
Distal	Norm-referenced tests of broad skills in math, reading, etc. Course grades, including GPA Informants' global ratings of academic competence	School attendance and truancy ODRs and suspensions Global ratings of academic enablers, such as attention to task and active class participation	*General* or *global* perceptions of: School climate/safety Support from teachers, administrators, peers School satisfaction
School-level outcomes			
Annual performance indicators	Performance on state-wide tests, including % proficient overall and across subgroups Learning growth among all students, subgroups, and in specific classrooms Post-secondary preparation, including performance on examinations relevant to college admission, and credits earned in accelerated courses (e.g., AP, IB, dual enrollment)	Graduation and school completion rates Total ODRs, suspensions, fights, and firearm incidences for school overall and across subgroups School attendance and truancy rates Participation rates in accelerated courses, such as AP and IB	Aggregate perceptions of school climate (safety, caring) Aggregate perceptions of school effectiveness

GPA grade point average, *ODR* office discipline referral, *AP* Advanced Placement, *IB* International Baccalaureate

behavior conducive to learning, and positive attitudes and values.

Student-level indicators of academic competence can be further conceptualized as proximal versus distal. Proximal measures reflect performance of specific skills and classroom behaviors typically over a short time period (e.g., day or week) or student attitudes that reflect perceptions of one's current abilities, motivation, or attachment at school. Alternatively, distal indicators measure global performance over longer periods of time, as reflected in end-of-course grades, skills demonstrated on state-wide accountability tests, or school records of accumulated attendance or office discipline referrals (ODRs). Other distal behavioral indicators include global ratings of academic enablers (DiPerna, Volpe, & Elliott, 2002), which include sustained attention to tasks or instruction, compliance with classroom rules and expectations, and active participation in instructional interactions or activities. In contrast to proximal attitudes pertinent to self-oriented constructs (i.e., academic self-efficacy; sense of belonging, attachment, or connectedness to one's school; motivation for learning or other aspects of achievement orientation), which may fluctuate with personal experiences, attitudes classified as distal may reflect other-oriented attitudes (e.g., school

climate perceptions) that may be slower to change in accordance with systemic interventions. However, a given attitude may be classified as either proximal or distal as a function of how assessed in a particular study, and depend specifically on the time frame over which students are prompted to reflect when providing responses.

As summarized in Table 1, academic indicators at the individual student level may be categorized into one of six cells: (a) proximal skill (e.g., curriculum-based measurement of reading fluency), (b) proximal behavior (e.g., direct observation of student on-task behavior during classroom instruction), (c) proximal attitude (e.g., self-efficacy perceptions), (d) distal skill (e.g., standardized achievement test focused on broad reading or math skills), (e) distal behavior (e.g., teacher rating of academic enablers), and (f) distal attitude (e.g., perceptions of school safety). The specific academic indicator that is most relevant for an individual student may vary as a function of grade level as well as the type and focus of SMH prevention or intervention activity. For example, proximal skill indicators may be most relevant for students in early elementary school grades who are struggling with basic reading and math skills. Alternatively, distal behavior measures may be preferred for older students who have

difficulties demonstrating their knowledge and understanding on a consistent basis presumably due to mental health or behavioral challenges. In many cases, combinations of measures across cells may be warranted to assess intervention impact on multiple indicators of academic functioning.

School-Level Indicators of Academic Success

New school accountability systems and requirements associated with the enactment of The No Child Left Behind Act of 2001 (NCLB; Pub. L. 107-110) have increased the focus on school-level, as well as district-level, outcomes. Hence, schools, districts, and in turn SMH are increasingly held accountable for contributing to broader outcomes as captured by a number of school-level performance indicators that mostly emphasize *skills*. Every public school and district in the USA is assessed for adequate yearly progress (AYP). The ultimate AYP accountability measure of school-level success is the proportion of students who meet a certain standard on predetermined state or province year-end diagnostic tests (Ross & Scott, 2012). School success, as such, is defined as the proportion of students in the school who achieved a certain level of the standard. For example, schools in Ohio need 80 % of students to reach "proficient" in key areas such as third-grade reading level.

Other school-level performance indicators involve the assessment of proficiency levels across identified subgroups of the student population, including those defined by race/ethnicity, limited English proficiency, economic status, gender, and disability. Significant gaps and disproportionalities in group-level performance on achievement tests serve as additional performance indicators for which schools and districts are held accountable, and help ensure "no child is left behind." Schools are also increasingly accountable for demonstrating learning growth among all students, especially among those who are gifted and/or talented, or at-risk due to disability status or low achievement. Teachers in some states are assessed (and rewarded) based on the demonstrated learning growth among students in their individual classrooms.

Aside from documentation of growth in skills, important *behavioral* indicators of school-level success include school completion, or the earning of a degree and the mastery of skills necessary for employability. Measures might include four (and sometimes five)-year graduation rates (Doll et al., 2012). Other school-level academic behaviors include the assessment of active engagement in school, as reflected by time spent in engaged learning activities as measured by daily attendance and/or truancy rates.

Regarding academic *attitudes* relevant at the school level, systems are increasingly measuring indicators related to a caring school climate, such as perceived school support, bullying incidences, and overall emotional and physical safety (see Guerra-Lopez & Toker, 2012). Some of these trends are tied to policy language in NCLB requiring the identification of Persistently Dangerous Schools (PDS). States are required to label unsafe schools PDS based on the data such as the number of fights at the school or the times firearms are brought to school.

Other school-level performance indicators of skills and behaviors have emerged within different states to document students' preparation for post-secondary education. Such indicators include performance on college admission tests, involvement in dual enrollment courses which earn high school and college credits simultaneously, participation and performance in Advanced Placement (AP) courses, and the number of honors diplomas awarded.

In the end, school performance on these indicators (summarized in Table 1) is continuously assessed and monitored, and schools are given annual report cards that reflect the number of indicators "met" in a given period of time. In turn, schools and districts are rewarded and punished (often with more or less funding) based on their progress toward meeting goals on various performance indicators and their state- or province-appointed grades (Guerra-Lopez & Toker, 2012). Schools also may be permanently closed or restructured if performance on these indicators is lagging. Given the pressures and consequences associated with these school-level success indicators, SMH initiatives are increasingly held accountable for supporting schools in achieving state-specific goals, in addition to documenting progress on student-level indicators among specific individual and groups of students served through SMH.

Connections Between Student Mental Health and Academic Success

A growing literature establishes links between academic success (in individual students and in a given school) and students' social–emotional functioning. Evidence for the inter-relatedness of students' adjustment in these two domains comes from observational studies of naturally existing relationships between constructs, and intervention studies that show changes in one area, such as academic outcomes, follow changes in another, such as social–emotional functioning. Both bodies of literature illustrate the relevance of student mental health to schools.

Correlations Between Student Mental Health and Academic Achievement

Abundant evidence supports the co-occurrence of risk across psychological, social, and academic domains, such

that students with problems in one area tend to simultaneously show problems in the other areas, whereas well-adjusted children are defined by positive social and academic competence and minimal problems in terms of externalizing or internalizing symptoms (Valdez, Lambert, & Ialongo, 2011). Beyond such person-centered approaches to understanding associations between these domains, in the last decade, advances in developmental psychopathology have illustrated the across-time associations between student functioning in the academic, psychological, and social domains. In these variable-centered approaches, researchers have analyzed multiple waves of data using nested structural models that control for baseline levels of functioning and concurrent associations between domains, and isolate cross-domain paths from one time point to the next. Such cross-lagged panel models have demonstrated *developmental cascades*, in which early difficulties in one domain (typically externalizing forms of psychopathology) have far-reaching and large effects in undermining another domain, such as academic competence.

For example, Masten et al. (2005) illustrated that externalizing symptoms in the upper elementary school years predicted worse distal academic skills in high school, which persisted into late adolescence and, in turn, predicted more internalizing symptoms in early adulthood. Such adjustment erosion was replicated in a younger sample assessed at five time points from ages 6–12, with academic competence defined as distal behaviors (Moilanen, Shaw, & Maxwell, 2010). Moilanen et al. found that early externalizing behavior (e.g., at age 6) predicted worse academic competence (i.e., less on-task, attentive, and diligent classroom behavior) which, in turn, predicted more internalizing behavior (age 10) as well as externalizing symptoms (ages 11 and 12). Both studies found these pathways were robust after controlling for shared risk factors, namely student cognitive ability, family SES, and parenting quality.

Subsequent research on developmental cascades included social adjustment. In addition to worse academic outcomes, early externalizing problems also predicted worse social functioning in terms of diminished competence (i.e., social skills; Burt & Roisman, 2010) and additional social problems (i.e., peer victimization; van Lier, Vitaro, Barker, Brendgen, Tremblay, & Boivin, 2012). The cascading effect of initial externalizing symptoms to internalizing problems later in youth occurred via reduced academic and social competence at time points in between (Burt & Roisman, 2010; Obradovic, Burt, & Masten, 2010). The consistent finding that early behavior problems set the stage for later challenges in both academic and social competence is often referred to as a dual failure model of consequences. Early symptoms and forms of externalizing behaviors also predict more frequent and severe forms later

in youth, in part due to spiraling negative effects on intermediary social (van Lier et al., 2012) and academic (Defoe, Farrington, & Loeber, 2013) functioning.

This body of longitudinal research does not indicate a causal effect of dimensionally assessed internalizing symptoms on academic outcomes, after baseline levels of social–emotional functioning are considered. Contradictory findings have been limited to studies that did not control for initial levels of academic performance. Instead, internalizing problems appear, in part, to be a direct (Defoe et al., 2013) and indirect result of externalizing problems via the cascading effect of the latter on social and academic competence (van Lier et al., 2012). Although anxious and depressive symptoms have appeared unlikely to exert a unique influence on academic skills in general samples, students with clinical levels of internalizing problems in elementary school (Duchesne, Vitaro, Larose, & Tremblay, 2008) or high school (Fergusson & Woodward, 2002) have been less likely to complete high school or seek post-secondary education.

Relative to the literature on the influence of psychopathology on students' achievement, less is known about the predictive role of psychological well-being. One exception involves a two-wave longitudinal study in which middle school students' mental health was examined using indicators of both psychopathology (internalizing and externalizing symptoms) and subjective well-being (Suldo, Thalji, & Ferron, 2011). Controlling for initial levels of academic skills, higher subjective well-being predicted better distal academic skills (GPA) the following year, above and beyond the negative effect of externalizing symptoms. Further, the students most at-risk for deterioration in GPA were those with the combination of low subjective well-being and elevated psychopathology, underscoring the need to attend to both wellness and problems.

Evidence SMH Interventions Improve Academic Outcomes

Despite the primary academic goals of the intervention setting, most SMH interventions are examined only in relation to impact on social–emotional outcomes. Case in point, a review of the 64 evaluations of school-based mental health interventions published between 1990 and 2006 that used strong designs found that only 24 studies (37.5 %) examined intervention impact on any academic outcome, most commonly distal indicators of skills or behavior, such as attendance (Hoagwood, Olin, Kerker, Kratochwill, Crowe, & Saka, 2007). Most of these studies were universal programs designed to prevent externalizing behaviors in young children. Fifteen of the 24 interventions (62.5 %) evidenced positive, but modest, effects on academic outcomes; most of

these interventions were complex, intensive, and multiple components (i.e., involved students, teachers, and parents). This review revealed a dearth of interventions targeting either adolescents or youth with internalizing mental health problems.

More recently published evaluations of SMH services ranging from preventive to therapeutic further illustrate that improvements in social–emotional functioning are often linked to student-level academic gains. Supporting the efficacy of traditional student-focused SMH services, a meta-analysis of 83 studies that examined the effectiveness of psychotherapeutic interventions in relation to control groups (using random assignment) found positive effects that were significantly different from 0 across a range of academic outcomes (Baskin, Slaten, Sorenson, Glover-Russell, & Merson, 2010). Effects were small on distal indicators of behavior ($d = 0.26$) and skills ($d = 0.36$), whereas the medium effect on proximal attitudes (e.g., academic self-efficacy, $d = 0.59$) was similar to effects on mental health ($d = 0.50$). Similarly, Vidair et al. (2014) reviewed 23 studies of SMH intervention (published 2006–2012) that targeted both mental health and academic outcomes and found 91 % demonstrated some significant between-group differences in academic outcome. Finally, Becker et al.'s (2013) examination of the clinical treatment literature found that only 14.5 % of the 592 youth mental health intervention studies (conducted in schools and community settings) published between 1966 and 2011 included at least one educational outcome measure. In those studies, 83.3 % of intervention groups outperformed a comparison group on an academic outcome. When effectiveness was defined as statistically significant superior performance, this high success rate was observed similarly across indicators of academic skills and behavior.

Secondary preventative interventions with strong support for improving academic outcomes include those that improve externalizing behavior, which is fortunate given the developmental cascades phenomena which underscore the importance of reducing behavior problems. For example, First Steps to Success is associated with gains in distal skills (i.e., teacher-rated academic competence) and proximal behavior (i.e., academic engaged time; Sumi et al., 2013; Walker et al., 2009) and sometimes even proximal skills (i.e., Walker et al., 2009), but not in distal skills as indicated by norm-referenced achievement tests (Sumi et al., 2013). Other multicomponent interventions that target behavioral improvements in students with attention-deficit/hyperactivity disorder (ADHD) through combining SMH with home-based services have yielded positive effects on distal skills and proximal behavior (Pfiffner, Villodas, Kaiser, Rooney, & McBurnett, 2013) and some indicators of proximal skills (DuPaul, Kern, Gormley, & Volpe, 2011).

The body of literature on the effectiveness of universal prevention programs, specifically social–emotional learning (SEL) curricula, contains examples of positive effects in academic domains in addition to the anticipated effects on social–emotional competencies, positive social behavior, and psychological functioning. A meta-analysis of 213 studies that examined outcomes of universal SEL programs in multiple domains including academic performance found that the 35 studies that assessed distal skills yielded a significant, positive effect of SEL interventions on both standardized tests of reading and math skills ($ES = 0.27$) and course grades ($ES = 0.33$), effect sizes similar in magnitude to the average effect sizes of educational interventions (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). The eight studies that examined the long-term academic outcomes found the positive effects persisted ($ES = 0.32$) an average of 150 weeks later. Some SEL programs also improve later academic outcomes by interrupting the developmental cascade associated with early externalizing problems. For example, the 4Rs Program (Reading, Writing, Respect, and Resolution) has found that elementary school students with elevated aggressive behavior at baseline were particularly likely to manifest gains in distal skills and behavior (Jones, Brown, Hoglund, & Aber, 2010), and later improvements in the social domain as well as in attention problems (Jones, Brown, & Aber, 2011). Findings from such studies provide promising evidence for the ability of universal mental health interventions to disrupt the deleterious developmental trajectory of students with externalizing problems, and illustrate how positive changes in one domain can impact other outcomes. It is also notable that the classroom climate target of many SEL programs (e.g., RULER; Hagelskamp, Brackett, Rivers, & Salovey, 2013) is consistent with calls to proactively promote student mental health at the universal level through improving the emotional quality of the learning ecology (Doll et al., 2012).

Less is known about SMH in relation to its contribution to school-level performance indicators. Most of the relevant research has focused on the impact of school-wide PBS. For instance, Simonsen et al. (2012) conducted a longitudinal analysis of data from over 1,000 Illinois schools implementing PBS, with significant variation in implementation among schools. Over a 7-year period, PBS schools evidenced improvements in levels of achievement in reading, as well as reductions in ODRs. Schools implementing PBS with fidelity also incurred increased levels of proficiency in math, in addition to the anticipated reductions in distal behavior indicators, namely ODRs and out-of-school suspensions. Likewise, Horner et al. (2009) documented positive effects on state-wide tests, including improvements over time in the proportion of third-grade students deemed proficient on the state reading standard

among schools implementing PBS, and higher proficiency rates among treatment schools compared to control schools. Findings also indicated improvements in school-level mean levels of distal attitudes (i.e., students' sense of safety) and behavior (i.e., reduced ODRs).

Additionally, some research points to the impact of PBS and related SMH approaches on improving organizational structure, as well as influencing teacher-related outcomes such as teacher stress and efficacy (Ball & Anderson-Butcher, in press; Bradshaw, Koth, Bevans, Ialongo, & Leaf, 2008). Few studies, however, have assessed broader school-level indicators, such as those related to achievement of students in certain subgroups for whom schools are held accountable. In an exception, Duchnowski and Kutash (2011) examined school reform activities and their impact on students with emotional disturbances involved in special education programs at schools. Secondary schools who were highly engaged in school reform activities inclusive of school-community partnership agendas had students with emotional disabilities who obtained significantly higher math achievement scores, were engaged in more inclusive learning environments, and were more likely to access mental health services offered by community practitioners. Duchnowski and Kutash (2011) called for more rigorous, intentional SMH designs and research that can demonstrate contributions to broader school-level performance indicators.

Bidirectional Relationship Between Academic and Social–Emotional Outcomes

Although findings from the aforementioned studies document that students' mental health has a direct impact on academic outcomes, this relationship is not unidirectional. For example, Schwartz, Gorman, Duong and Nakamoto (2008) reported that elementary school students' GPA was negatively correlated with depressive symptoms concurrently and 1 year later. Academic achievement also moderated the relationship between social and psychological outcomes such that as GPA at baseline increased, the relationship between number of friends at baseline and depressive symptoms a year later decreased and was non-significant for those students with the highest GPAs. Evidence that early academic ability predicts facets of mental health includes Welsh, Nix, Blair, Bierman and Nelson's (2010) finding that emergent numeracy skills predicted end-of-year executive functioning (i.e., attentional control) among 164 Head Start students. As such, early academic functioning may impact social and psychological domains in a manner similar to the developmental cascades described by Masten et al. (2005).

Academic failure can be a critical initiation point for both proximal and distal deviant pathways. Proximally, academic failure has been demonstrated to interact with negative cognitions to predict depressive symptomatology (Hilsman & Garber, 1995). Distally, academic difficulties have been shown to predict poorer mental health, lower SES, greater deviant behavior, and incarceration (Chen & Kaplan, 2003; Sum, Khatiwada, & McLaughlin, 2009).

Taken together, the literature base indicates that the relationship between academic and mental health functioning is bidirectional, and changes in one domain can predict changes in the other. Such data indicate the importance of the continual monitoring of mental health amidst the ever-evolving academic demands placed on students, as such changes may have mental health consequences for students. Similarly, interventions targeting both academic and mental health goals may be more effective and efficient relative to stand-alone programs.

Current and Future Directions of SMH Research Foci

The growing empirical support for the positive academic outcomes associated with SMH prevention and intervention programs provides SMH professionals with data to reference when advocating for the value of relevant resource expenditures. Researchers can further strengthen the rationale for SMH services by attending to (a) school-level indicators of academic success, (b) subgroups of students in need of additional SMH supports, and (c) how SMH professionals can work collaboratively to optimize access to and positive outcomes of SMH services.

Assess, Demonstrate, and Communicate Impact of SMH Services on School-Level Success
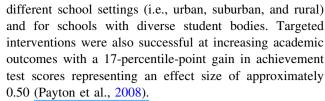
The preceding literature emphasizes positive effects of SMH on student-level outcomes, because those indicators have been included more often in research studies. We expect that SMH services also help ensure (a) school success with meeting AYP, (b) growth among all students and reductions in disparities and disproportionalities among at-risk subgroups, (c) completion of high school and increased engagement along the way, (d) preparation for post-secondary education, and (e) school-level safety, climate, and affect. However, evidence of such positive outcomes is lacking because potential indicators of school-level success are rarely examined.

Evidence of positive student-level academic outcomes also contributes to the accountability provisions of NCLB, which are considered across all students within the school. As such, each student's academic proficiency should also

be viewed as a contribution to the school community as a whole. The aforementioned literature established that students with mental health problems underperform academically (Burt & Roisman, 2010; Moilanen et al., 2010). Approximately half of the students meeting diagnostic criteria for a mental health disorder will not receive treatment for such (Merikangas et al., 2010). Mental health services are vital to helping students gain access to instructional opportunities; removal of barriers to learning serves to improve students' academic proficiency and aid the school in making AYP. Later, we discuss specific subgroups of at-risk students whose mental health warrants particular attention. Beyond these groups with elevated risk for social and emotional challenges, subgroups of students who have fallen behind academically in core subject areas are also highly relevant. The supplemental supports put in place for students identified as a grade level or more behind in reading, math, etc., are predominantly academic in nature. But given the bidirectional relationship between academic and social–emotional functioning, SMH strategies may also be beneficial. Research is needed on the specific impact of SMH on the students that schools are not serving well academically but for whom they are accountable (e.g., value added). Educators may be more supportive of SMH initiatives in their building pending evidence that such services help schools with their accountability standards under NCLB.

In sum, in the effort to meet school-wide annual performance indicators, SMH interventions become important tools that can be implemented by schools. Key findings from the intervention literature reviewed earlier demonstrate the utility of SMH interventions at improving academic outcomes. Those studies whose outcome indicators include state-wide accountability tests facilitate translation of findings into terms more easily grasped by administrative stakeholders. For example, Fleming, Haggerty, Catalano, Harachi, Mazza, and Gruman (2005) found that students with higher scores on social and behavioral characteristics targeted by SEL programs (e.g., social and problem-solving skills and positive school environment) scored higher on the Washington Assessment of Student Learning (WASL). Conversely, higher levels of substance use, attention problems, depression, and antisocial behavior were associated with lower WASL scores. The aforementioned meta-analysis of school-based universal interventions found that students who have participated in an SEL program experienced an 11-percentile-point advantage in achievement scores relative to students who did not receive such programming (Durlak et al., 2011). Similarly, in a 2008 report on the academic and social impact of SEL programs for school-aged children based on 317 studies ($N = 324,303$), Payton and colleagues reported that universal programs benefited students of different ages, across different school settings (i.e., urban, suburban, and rural) and for schools with diverse student bodies. Targeted interventions were also successful at increasing academic outcomes with a 17-percentile-point gain in achievement test scores representing an effect size of approximately 0.50 (Payton et al., 2008).

The results of this literature highlight the role of SMH interventions, specifically school-wide programs, as mechanisms for improving student academic outcomes and subsequently helping schools meet their federal and state accountability standards. There are numerous effective SMH programs available that have a relatively high return-on-investment and have demonstrated improvement on academic achievement (for review see Greenberg, Domitrovich, & Bumbarger, 2000; Vidair et al., 2014). When applied within a comprehensive system of support [American Academy of Pediatrics (AAP), 2004] in line with a public health model of service delivery, such prevention and intervention programs should improve the social–emotional functioning of all students in a given school. In turn, the school should see improved engagement and ultimately higher proficiency on high-stakes tests and increased graduation rates.

Address the Mental Health Needs of Subgroups of Students Historically Neglected

Beyond a school's average performance, individual students' outcomes still matter, and schools can be reprimanded for not serving all students in an effective manner with minimal disparities between groups. Further, outcomes valuable to a student or family may differ from the accountability focus of administrators and legislators. Thus, it is important to address the specific needs of subgroups of students who are at higher than average risk for compromised mental health functioning and/or whose emotional needs may be underserved in schools.

Students with Pediatric Health Issues

Approximately 1 in 6 children and adolescents have a chronic physical health condition such as asthma, diabetes, or epilepsy (van der Lee, Mokkink, Grootenhuis, Heymans, & Offringa, 2007). These students may be at elevated risk for emotional/behavioral difficulties (Pinquart & Shen, 2011a) as well as for compromised academic achievement and social functioning (Pinquart & Teubert, 2012). For each outcome type, risk level varies as a function of health condition and student demographic feature (e.g., age, gender). For example, Pinquart and Teubert's meta-analysis of 954 studies ($N = 104,867$) found children with cerebral palsy, spina bifida, and sickle cell disease demonstrated the greatest academic impairment. Pinquart and Shen (2011a) found internalizing disorder symptoms

were most prominent for students with chronic fatigue syndrome, whereas elevated risk for externalizing disorder problems was found for youth (particularly boys) with epilepsy, migraine/tension headache, visual impairment, hearing impairment, and spina bifida. Due to the elevated risk for, and negative outcomes associated with, depression (Pinquart & Shen, 2011b), systematic screening for depression and suicidal ideation may be warranted for adolescents with chronic physical illness (Greydanus, Patel, & Pratt, 2010). On the basis of their meta-analytic findings, Pinquart and Shen (2011a) recommended that all students with chronic physical health conditions should be regularly screened for psychological distress throughout development.

Students with Internalizing Disorders

A nationally representative study of 10,000 adolescents (ages 13–18) found that approximately 14 and 32 % had a mood or anxiety disorder, respectively, at some point during youth (Merikangas et al., 2010). Whereas 45–60 % of youth with behavior disorders received clinical services, only 18 and 38 % of youth with an anxiety disorder or any mood disorder, respectively, received any mental health treatment for their diagnosis (Merikangas, et al., 2011). Merikangas et al. (2011) found that youth with internalizing disorders are even underrepresented in SMH care, which is particularly unfortunate given that a recent meta-analysis of 63 studies ($N = 15,211$) supports that both depression and anxiety disorders can be treated in schools effectively using cognitive–behavioral interventions traditionally delivered in clinical or research settings (Mychailyszyn, Brodman, Read, & Kendall, 2012). Future research should target the classroom (e.g., Doll et al., 2012) or school (e.g., Herman, Reinke, Parkin, Traylor, & Agarwal, 2009) as a primary intervention setting, and discern effective strategies to identify those students who would benefit for more intensive, student-focused intervention. Asking teachers to nominate which of their students demonstrate the most symptoms of anxiety or depression has indicated low to moderate sensitivity (Auger, 2004). Although school-wide screening may catch more symptomatic students, feasibility is compromised by concerns related to cost, privacy, stigma, and adequate resources for further assessment and treatment (Center for Mental Health in Schools, 2005).

Sexual Minority Students

Lesbian, gay, bisexual, and transgender (LGBT) students are at increased risk for school-based verbal and physical victimization, lack of school support, peer rejection, low self-esteem, depression, suicide, substance use, and school dropout relative to heterosexual peers (Robinson & Espelage, 2011). Many studies have treated LGBT students as a homogeneous population when such characterization may

not be warranted. For instance, Russell, Seif, and Truong's (2001) analysis of the National Longitudinal Study of Adolescent Health ($N > 11,000$ adolescents in the USA) indicated differential academic and social impacts on LGB students based on the student gender and sexual orientation (e.g., relative to heterosexual students, lower GPAs among bisexual but not homosexual students; homosexual females, but not males, perceived less social support from peers and adults). Supports for LGBT students that have been found effective at improving outcomes include the implementation of a gay-straight alliance (GSA) within the school, supportive faculty members, inclusive curriculums, and a comprehensive anti-bullying program within the school (Kosciw, Palmer, Kull & Greytak, 2013; Murphy, 2012). In line with Kosciw et al.'s finding that supportive faculty members emerged as the strongest predictor of positive outcomes for LGBT students, future research to develop interventions targeting teachers' support of LGBT students may be of primary importance,

Students who are Racial and Ethnic Minorities

The increased risk for mental health disorders faced by racial and ethnic minority children has been attributed to environmental stressors, overt and covert discrimination, social risk factors, parental expectations, and problem perception and issues surrounding cultural identity (Anderson & Mayes, 2010). Although children who are racial or ethnic minorities are less likely to receive clinic-based services relative to their Caucasian peers (Cook, Barry & Busch, 2012), Cummings, Ponce, and Mays (2010) found no differences between racial and ethnic groups in school-based mental health services over a 1-year period. The equal utilization of mental health services is likely due to the removal of many treatment barriers including transportation, stigma, and fee (AAP, 2004). Research regarding SMH interventions for racial and ethnic minority students indicates a gap in the literature on effective treatments. Huey and Polo's (2008) review of evidence-based treatments found a lack of well-established interventions for minority youth, but several probably efficacious and possibly efficacious treatments for a range of mental health difficulties (e.g., ADHD, depression, substance use). Notable given the higher poverty rates among many minority groups, Farahmand, Grant, Polo, Duffy, and Dubois' (2011) review of research with low-income, urban youth found promising effects of SMH programs that focused on internalizing symptoms or social–emotional competence, but uncovered a much smaller overall positive effect size of SMH interventions than had been suggested previously (i.e., Rones & Hoagwood, 2000), and negative effects of programs for externalizing problems. Future research should investigate the
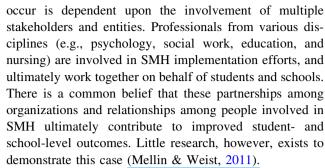
academic outcomes of ethnic minority students participating in universal or targeted SMH interventions, and develop efficacious targeted interventions for economically disadvantaged students.

High-Achieving Populations in Accelerated and Rigorous Curricula

Little attention has been directed toward the social–emotional experiences of students with acceptable or high levels of achievement, following an assumption that the absence of distress is sufficient. This disease model is contrasted with the goals of positive psychology, which include fostering excellence, including intellectual ability and exceptional academic performance, as well as institutions (e.g., educational contexts) associated with optimal outcomes (Seligman & Csikszentmihalyi, 2000). One relevant (and growing) population is high school students pursuing accelerated coursework, such as AP and International Baccalaureate (IB) courses. Supporting the mental health of high-achieving students is consistent with building the intellectual capital vital to our society and also warranted by consistent findings that students in AP and IB have significantly higher level of general stress than their peers in general education (Suldo & Shaunessy-Dedrick, 2013). The effect of stress in high-achieving students is understudied. Suldo et al.'s (2009) preliminary research identified inverse links between IB students' mental health and academic stressors and found that IB students appeared particularly sensitive to manifesting adverse psychological and academic outcomes as stressors increased. Despite the elevated stress, AP and IB students, on average, report similar or better psychological outcomes compared with their peers in general education, and attain exceptionally high academic outcomes across indicators of skills, behavior, and attitudes (Suldo & Shaunessy-Dedrick, 2013). Further study of this group affords a unique opportunity to discover protective and promotive factors, such as adaptive strategies for coping with academic stressors (Suldo, Shaunessy, Michalowski, & Shaffer, 2008) that may inform the development of mental health supports and further foster academic excellence.

Interdisciplinary Investments in Supporting Student and School-Level Outcomes

The impact of SMH initiatives on student- and school-level outcomes is often dependent upon the partnerships among the various stakeholders. More research is needed to explore the collective contributions of interprofessional collaboration and school–family–community partnerships on student outcomes. More specifically, the extent to which the dual outcomes of academic learning and mental health

occur is dependent upon the involvement of multiple stakeholders and entities. Professionals from various disciplines (e.g., psychology, social work, education, and nursing) are involved in SMH implementation efforts, and ultimately work together on behalf of students and schools. There is a common belief that these partnerships among organizations and relationships among people involved in SMH ultimately contribute to improved student- and school-level outcomes. Little research, however, exists to demonstrate this case (Mellin & Weist, 2011).

Some research has documented initial outcomes related to partnership agendas. For instance, Ellis et al. (2012) used growth curve models to estimate improvements among 1,165 schools involved in the national Safe Schools/Healthy Students Initiative (SS/HS), a federal grantee program focused on promoting school safety, student health and well-being, and academic achievement. Indicators of partnership functioning were among the significant predictors of stakeholders' perceptions of initiative impact on school-wide substance use prevention. Derzon et al.'s (2012) study of student-level outcomes associated with SS/HS implementation by 57 grantees suggested that student perceptions of violence risk were in part affected by variability between grantees in partnership variables, such as number of partners involved in the initiative and valuing of partners' contributions.

There is also some support for the value of coordination of mental health services in schools. For instance, Puddy, Roberts, Vernberg, and Hambrick (2012) retrospectively examined 1 year of case records for students with serious emotional disturbances who received comprehensive school-based interventions. They systematically coded service coordination activities by type (e.g., status update and sharing of information) and frequency, and level of overall progress updates/communications. Findings indicated that the frequency and quality of service coordination predicted improved adaptive functioning and reduced disruptive behaviors.

In general, there has been an increased prioritization of comprehensive SMH and school reform strategies to support student outcomes. Some of these approaches include Comer School Development Program (Cook, Murphy, & Hunt, 2000), Coordinated School Health Programs promoted by the Centers for Disease Control and Prevention, Adelman and Taylor's (1999) interconnected system framework, full service and community schools (Dryfoos, 1994), and the Community Collaboration Model (Anderson-Butcher et al., 2008). All approaches embed some element of school–family–community partnership and system engineering that includes a focused pathway on SMH.

SMH research has begun to detail challenges related to school–family–community partnerships and interdisciplinary

practice in support of student- and school-level outcomes. Challenges such as turf, different theoretical approaches and language discourse, working in teams, and relationships have been found (Mellin & Weist, 2011; Rones & Hoagwood, 2000). Despite these barriers, findings from focus groups suggest that collaboration results in improved social capital and professional support, improved access and service delivery consistency, and the addition of resources for schools. More research is needed to fully ascertain the added value of partnerships and levels of collaboration on student- and school-level outcomes.

Implications for Research and Practice

One of the most pressing issues in connecting SMH research to what is valued by schools pertains to the basic issue of determining how to define student success. We advanced a framework for defining academic success broadly in order to encourage researchers to consider attitudes, behaviors, and skills that may reflect success within a given student and at the school level. The potential impact of SMH prevention/intervention strategies on student success can and should be assessed in multiple ways. Findings from intervention outcome studies and meta-analyses indicate that there may be a continuum of effects with the strongest impact on academic attitudes and behaviors (proximal followed by distal), then for proximal skill indices (although assessed in very few studies), and weakest for distal skill measures. For example, the greatest impact of the First Steps to Success program was found for proximal (i.e., academic engaged time) and distal (i.e., teacher ratings of behavior and social skills) measures of academic-related behaviors (Walker et al., 2009). In the subsequent effectiveness trial of First Steps to Success (Sumi et al., 2013), small but statistically significant improvements were found for CBM oral reading fluency (i.e., proximal skill measure) but not for performance on a norm-referenced standardized achievement test (i.e., distal skill measure). As another example, Baskin et al.'s (2010) meta-analysis on the impact of psychotherapy on academic outcomes yielded the strongest effects on proximal attitudes, while smaller effect sizes were obtained for most indicators of distal skills and behavior (e.g., ODRs, achievement tests).

There are several reasons why SMH prevention/intervention primarily impacts academic attitudes and behaviors that are most proximal to the learning (and intervention) environment. First, one of the major objectives of SMH services is to reduce barriers to learning and increase opportunities for academic engagement. Thus, it is not surprising that the most immediate intervention impact will be seen for proximal and distal behavior measures given that the most prominent barriers to learning will be behavioral for the majority of students. For example, the clear association between student externalizing problems and academic adjustment is more evident for adaptive classroom behaviors (e.g., Moilanen et al., 2010) than for skill assessments (e.g., Burt & Roisman, 2010). This implies that SMH prevention/intervention impact on academic success is mediated by improvements in academic-related behaviors. It is also possible that SMH prevention and intervention effects on distal skill performance could take more time (i.e., to promote skill development) and would require longer-term intervention and/or follow-up assessment (Sumi et al., 2013). Finally, variation in psychometric properties across measures could account for differential intervention impact. For example, norm-referenced achievement test scores are typically more stable over time than are proximal skill assessments like CBM probes or even grades earned in different courses (e.g., Suldo, Thalji, & Ferron, 2011).

Student success also involves a balance of student- and school-level considerations. To date, most of the research in SMH has focused primarily on student-level outcomes at the individual and/or small group level. Research on the impact of SMH to school-level performance indicators is less clear, and in turn, the contributions of SMH to school functioning and overall success are not well understood. As previously described, schools are held increasingly accountable for their performance on key indicators such as proficiency, growth, school completion, performance of targeted groups of students, and disparities and disproportionalities among subgroups. Implications of this reality and other literature reviewed in this paper include

- Continue to examine the impact of SMH on proximal and distal indicators, particularly student-level attitudes, behaviors, and skills. Document importance of different SMH approaches on these student-level academic outcomes. Continue to identify evidence-based practices that contribute to academic outcomes, particularly among subgroups of students historically neglected in such research but who may benefit from SMH supports due to their risk for compromised mental health.

- Keep in mind the student-level outcomes valuable to the ultimate consumers of successful education: families and communities. Collect data and report outcomes of SMH interventions in relation to students' social–emotional success, i.e., qualities of productive citizens. SMH researchers should include brief indicators of well-being that assess quality of life (e.g., life satisfaction) and social competence. More research is needed on the academic outcomes associated with

interventions intended to foster well-being, such as life satisfaction and positive emotions.

- Examine the contributions of SMH to broader school-level outcomes, performance indicators that administrative stakeholders may ultimately be most focused on in relation to results. Future research should document the contributions of SMH to broader school-level performance indicators such as proficiency on state-wide tests; student growth and learning; significant gaps and disparities across subgroups; school completion and engagement; post-secondary education preparation; and school-level safety, climate, and affect. Also, consider the possible secondary benefits of successful SMH initiatives on other desirable school targets, such as increased teacher efficacy and decreased teacher stress (Ball & Anderson-Butcher, in press).
- In examining the impact of SMH prevention and intervention programs on student and/or school-level academic outcomes, explicitly examine path models that test the potential role of academic attitudes and behaviors (e.g., engagement) in mediating intervention effects on longer-term educational knowledge and skills.
- Researchers developing and testing SMH interventions should align their intervention components and designs with school reform strategies, such as focus on subgroups, site-based management, use of scientifically based curriculum, parent involvement, focus on inclusion, school-wide planning, scripted lessons, instruction, use of data to guide teaching and instruction, parent involvement, and service utilization of community mental health (Duchnowski & Kutash, 2011).
- SMH services at a particular school should align with a public health model to mental health promotion, targeting systems most likely to have the broadest impact (e.g., class-wide and school-wide interventions), at the critical developmental periods (e.g., early childhood), and provide additional supports targeting the most critical problems that undermine future functioning (e.g., externalizing behavior problems, anxiety).
- Multiple stakeholders, academic disciplines, and organizations contribute to SMH research and practice. Consideration should be placed on the interdisciplinary nature of the work, and on the importance of school–family–community partnerships in promoting SMH and its value in schools. Ball, Anderson-Butcher, Mellin, and Green (2010) identified a common set of SMH competencies in areas such as key policies and laws; interdisciplinary and cross-system collaboration; the provision of academic, social–emotional, and behavioral learning supports; and data-driven decision making. More research is needed to demonstrate the value of this interdisciplinary work.

- The collaborative work of applied disciplines should be informed by the ongoing research findings from psychology, social work, school counseling, teaching and learning, and educational policy and leadership, which shed light on the domains, social settings, and developmental stages to be targeted in order to maximize likely benefits as a consequence of resource allocation.
- Researcher–school partnerships should incorporate an implementation science approach as essential to the process of translating evidence-based interventions into school context (Forman et al., 2013), and understand the fit between these interventions and the organizational structure of schools (Hoagwood & Johnson, 2003).

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