

BC2M High School Program: Evaluation Findings from a Randomized Trial
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Executive Summary

From 2015-2017, Bring Change to Mind (BC2M) funded a formal evaluation of its high-school club program, which is designed to reduce mental illness stigma among teenagers. The evaluation was performed at UC Berkeley, under the co-direction of Professors Stephen Hinshaw (UC Berkeley and UC San Francisco) and Bennett Leventhal (UC San Francisco). The UC Berkeley Committee for Protection of Human Subjects fully approved this investigation. Participants were over 700 diverse high-school students from the San Francisco Bay Area.

The club model originated in Los Angeles (2010), where it was originally called “Let’s Erase the Stigma” (LETS). In this program, teenagers join high-school clubs that are student-directed and facilitated by a club advisor (e.g., a teacher at the school), with suggestions and directions provide in the form of a “Guidebook.” Now sponsored and adapted by BC2M, the clubs have the underlying objectives of fostering empathy, compassion, and social action, with the key goal of reducing the stigma of mental illness. This philosophy differs from that of many youth anti-stigma programs, which have the educational goal of enhancing students’ knowledge of mental health conditions. BC2M’s guiding principles do not involve a fully structured curriculum; rather, the Guidebook provides a range of suggested activities to encourage student-initiated discussion, involvement, contact with people with mental illness, and actions designed to reduce stigma, reduce social distance, and enhance acceptance.

The evaluation design was a randomized clinical trial in which Northern California high schools that had agreed to sponsor clubs were matched on the variables of school size, minority student proportion, and percentage of students receiving reduced-price lunches. For example, two large urban high schools formed a pair; two smaller private schools may have formed another pair. One school of the pair was assigned, via coin toss, to begin a club in the Fall of a given school year (‘Immediate’), with the other beginning in the Winter/Spring (‘Delayed’).

Measures from participating students were collected at the beginning of the school year (Time 1), middle of the school year (Time 2), and end of the year (Time 3). Quantitative measures included validated scales of students’ (a) knowledge of mental illness, (b) attitudes toward mental illness, (c) desired social distance from individuals with mental illness, and (d) intended actions to combat stigma. Qualitative measures included brief student essays on open-ended questions related to stigma and the need for students to combat stigma.

The main hypothesis was that improvements in knowledge, attitudes, social distance, and intended actions would occur from Time 1 to Time 2 in Immediate schools but would not occur until from Time 2 to Time 3 for the Delayed schools, when the students were actively participating in the clubs.

A previous, quasi-experimental evaluation of LETS club participation in Los Angeles was published in Murman, Buckingham, Fontile, Villanueva, Leventhal, & Hinshaw (2014: *Child and Youth Care Forum*, 43, 631-637). This prior investigation revealed significant gains in

knowledge, attitudes, social distance, and intended behaviors to reduce stigma, as a function of club participation. The largest effects, in the size range of “medium” (i.e., moving an individual from the 50% to the 75th percentile), emerged for improved attitudes and reduced social distance.

Within the present study, the overall pattern of findings was quite similar to that found in the Murman et al. (2014) evaluation—but this time with the benefit of a randomized trial, which has the most rigor to assess the effects of an intervention. Specifically, *knowledge* of mental health showed a clear signal in the hypothesized pattern, whereby greater change occurred during active club participation. Second, both *attitudes* toward people with mental illness and *intended actions* to reduce stigma largely showed the same hypothesized pattern. Third, *social distance* did not yield significant differences between Immediate and Delayed schools, although results were in the expected direction, largely because the pre-club scores were so high that little room for change existed. Finally, we found that, across both Immediate and Delayed schools, students who participated in a club across the entire school year attained significant gains in all four outcomes—knowledge, attitudes, social distance, and intended behaviors to reduce stigma—demonstrating a measureable benefit in club participation.

Club-related effects for students’ knowledge, attitudes, and intended actions were in the range of small to medium—slightly smaller than those in Murman et al. (2014). Again, this pattern indicates that club participation triggered an average change from the 50th percentile of mental health knowledge, attitudes, and intended actions to the 65th percentile, which represents a 30% improvement for a given student.

It is important to note that the scores in this randomized trial at “baseline” (Time 1—prior to club entry) were in a more favorable range than had been the case several years earlier in Southern California. That is, even prior to actual participation, students interested in joining a Northern California club had more mental health knowledge, better attitudes, less social distance with respect to interacting with an individual with mental illness, and higher degrees of intended social actions to reduce stigma, than had their peers in the Murman et al. (2014) study. Although we cannot be certain whether this finding reflects the effects of geographic region, the year of the study, or both, it does appear that enhanced exposure to social media, greater norms toward disclosure, and better awareness of mental health show “secular trends” among high-school students during the second decade of the 21st Century, in the direction of greater acceptance of mental illness. Although these “ceiling effects” made it harder to detect club-related change; we nonetheless found real improvements.

In sum, the rigorous, randomized evaluation of BC2M’s high-school club model replicated the finding that participation in action-oriented, student-initiated, and highly interactive clubs resulted in important improvements in student knowledge of mental health, attitudes toward mental illness, and intended actions to combat stigma. Despite the apparently better attitudes of high school students toward mental disorder across the past decade, club participation was still associated with clear improvements in key indicators of stigma.

Based on our finding, it appears that the time is ripe for further dissemination and ‘scaling’ of the club model to other regions. Furthermore, with additional funding, a larger evaluation (including more current, sophisticated measures and with participants expanded to include students in a

given school who had not participated in clubs) may reveal the potential for even wider change in enhancing school climate—and even in and community-level change in stigma. Finally, we contend that fundamental societal changes in attitudes and behaviors directed toward people with mental illness can and will emanate from young people, eventually yielding a far more accepting and humanizing society.

Introduction

The following presents (a) background information about and (b) the results of a randomized trial to evaluate the effects of student participation in the Bring Change to Mind (BC2M) high school program, conducted during the 2015-2016 and 2016-2017 school years in Northern California. BC2M has always demonstrated a major commitment to the evaluation of its various anti-stigma programs; this report details its investment in carefully and systematically evaluating the effects of a unique program for high-school students.

Stigma refers to a combination of stereotypes, prejudicial attitudes, and discriminatory behaviors toward devalued groups in society. Many social groups are the subject stigma in various cultures but, around the world, people with mental illness are often a major focus of stigmatization.

A thorough literature review of trends in mental health stigma requires a book-length treatise. However, briefly, among the U.S. general public, despite considerable gains in *knowledge* about mental health issues over the past half-century, *attitudes* with respect to mental illness have remained virtually unchanged. Additionally, *more* Americans equate mental illness with violence and danger than was the case during the 1950s. Overall, in spite of the appearance of greater openness and disclosure in our current era, removing the stigma of mental illness is proving to be a difficult goal to achieve.

Evidence to date reveals that attitudes and practices related to mental illness consolidate during adolescence. That is, from childhood through the teen years, youth learn more about mental disorders but at the same time tend to form negative attitudes about people with mental illness — apparently emanating from parental dialogue, media stereotypes, peer denigration, and negative social values, more generally. A core premise of the high-school club model is that adolescence is the critical time to engage individuals in discussion- and action-based programs designed to increase contact and compassion and eventually eliminate the stigmatization of mental illness. The club model may have spin-off effects with respect to enhancing the school climate of participating high schools—with effects that may persist.

Many contend that the key components of any anti-stigma program rest on whether the public knows more about mental illness—its prevalence, often-damaging impairments, and origins in biological vulnerability, as opposed to personal volition. Some suggest that if this goal could be accomplished, stigma will disappear. Yet, the reality is more complex. Too often, knowledge of mental illness “facts” tends to reinforce negative stereotypes. Teaching the public about the genetic undercurrents of mental disorder reduces blame but at the same time fosters a sense of hopelessness and actually increases the desire for distance from people with such illnesses. The key element appears to be *humanization*, particularly emphasizing that people with mental disorders, above all, are *people* who contend with a variety of challenges.

The emphasis of the BC2M high-school club program is squarely related to humanizing mental illness. The model, presented through the BC2M Guidebook, does not expressly focus on teaching facts about mental health and mental illness. Rather, through a range of student-initiated and student-led activities, the objectives are to promote active discussion (thereby reducing shame and silence), to expose club members to examples of successful individuals with mental health challenges, and to enhance adolescents' natural empathy and tendencies toward social action by promoting engagement in activities to reduce stigmatization and promote acceptance. Clubs can receive grants from BC2M to initiate club activities, provide food for club meetings, and sponsor programs. Again, within the guidelines provided by the club Guidebook, the aim of BC2M is to foster students' own initiatives to combat stigma. A real hope is that school climate may improve, more generally, regarding acceptance and compassion.

A brief history of the program begins in 2010 when Philippe Fontilea, a Los Angeles resident, contacted Hinshaw and Leventhal, as well as other figures in child/adolescent psychology and psychiatry. His core idea was that forming high-school clubs with a focus on tackling mental illness stigma—without a mental health professional involved—would allow activism and acceptance to flourish. With private funding, he helped to organize LETS clubs at a wide variety of Southern California high schools. Through pro-bono legal consultation, guidelines were established whereby a club advisor (usually a teacher at the school forming the club) and the club leaders would refer for counseling any club members demonstrating mental health issues themselves. Fontilea formed an advisory board that oversaw the writing of a club guidebook, suggested activities and speakers for clubs, and provided a forum for students' natural activism to flourish.

A quasi-experimental evaluation, contrasting (a) a large number of potential club participants attending an initial, Los Angeles-wide summit with (b) students who had participated in a club for at least a semester, provided supportive data (Murman, Buckingham, Fontilea, Villanueva, Leventhal, & Hinshaw, 2014: *Child and Youth Care Forum*, 43, 631-637). That is, club participation was associated with improvements in mental health knowledge, attitudes, social distance (i.e., enhancing the desire for closeness with people with mental illnesses), and intended actions to reduce stigma. Social distance revealed the largest effect, such that club participants improved from roughly the 50th to the 75th percentile on this scale.

Subsequently, Fontilea moved overseas. Through the connection of Hinshaw with BC2M co-founder Glenn Close, and subsequent intensive discussions among the BC2M Board of Directors, BC2M took over the club model.

With the support of BC2M the Guidebook was refined, and additional legal consultation was provided to indemnify clubs from mental-health related issues presented by any students participating in a club. Specifically, presentation of such issues must lead to an immediate referral to school counselors or other mental-health professionals.

Intensive work by the BC2M team in Northern California led to the adoption of clubs by a large number of high schools. UC Berkeley obtained full Institutional Review Board approval of a

planned evaluation of the club model, and BC2M provided funding for a combined UC Berkeley and UCSF team to perform a randomized evaluation of the model.

Specifically, in the school years 2015-16 and 2016-17, Northern California high schools that had agreed to sponsor a club were contacted by BC2M and UC regarding the planned evaluation. School principals provided agreement.

For each of these school years, publicly accessible data on these schools were collected, including the number of students at the school, the proportion of Hispanic and other ethnic groups attending the school, and the school's proportion of students eligible for a reduced-price lunch (yielding an indicator of the schools socioeconomic status). Before the school year started, the UC team formed pairs of schools, matched as closely as possible on these three variables. Once pairs were formed, a coin toss decided whether the school's club began (a) at the beginning of the school year ('Immediate' school) or (b) mid-way through the year, following the Winter break ('Delayed' school). The same assessment battery that had been used in the Murman et al. (2014) quasi-experimental evaluation was given to participating students: in the early Fall, prior to the club's official start (Time 1); in the Winter of that school year, following a semester of the Immediate clubs but prior to the start of the delayed clubs (Time 2); and at the end of the school year (Time 3).

Comparisons were performed based on the core hypothesis: Participants in Immediate schools will show more salient gains in mental health knowledge, attitudes, social distance, and intended actions to reduce stigma between Times 1 and 2 but that participants in Delayed schools will show salient gains between Times 2 and 3, once their clubs had begun. In addition, we hypothesized that, overall, students will demonstrate gains in the research measures over time (from Time 1 to Time 3). One final set of comparisons was performed to assess whether baseline measures of stigma have changed over the past 5 years. Given that we utilized the same measure as Murman et al. (2014), we were able to compare baseline measures of stigma (knowledge, attitudes, social distance, positive actions) between the LETS clubs from the Los Angeles program and the current BC2M High School program.

A randomized clinical trial such as this provides the best means of evaluating change in important variables related to stigma, given that all other relevant factors (e.g., student motivation, school characteristics, etc.) are randomly distributed between the Immediate and Delayed Conditions. Of course, it is difficult to keep school clubs in the Delayed condition motivated during the fall term. BC2M worked to have occasional, non-substantive club meetings during the fall term for Delayed school clubs, in order to maintain attendance and motivation for the onset of the actual club meetings during the Winter/Spring term.

Method

Schools

Across the 2015-2016 and 2016-2017 school years, 42 schools participated in the randomized controlled trial (RCT). Random assignment yielded 21 schools in the Immediate intervention group and 21 in the Delayed intervention group. Six additional schools established BC2M High

School clubs, and provided at least one set of measures (for 101 students), but were not part of the RCT. The following data pertain to students who participated in the RCT, including 21 Immediate and 21 Delayed schools.

Of the 42 schools participating in the RCT, 34 were public schools (N=638 students), three schools were private (N=36 students), three were charter (N=25 students), and two were independent (N=32 students). Because schools were recruited from many diverse counties in Northern California, school demographics varied widely (full school data were not always available for private/independent schools). For example, the percentage of students who were White ranged from 1% of the school population to 77%; and, percentage of students who were eligible for a reduced-price lunch ranged from 2% to 89%. For additional information on school characteristics, please refer to Table 1.

Participants

Overall, 731 high school students participated in the RCT and provided at least one set of measures (75% female). The lowest number of participants from any school was 4; the highest was 49. Overall, 321 students provided data at T1 and one additional time point (either T2 or T3). 160 students provided data at all three time points.

The overall sample of the RCT was extremely diverse in terms of ethnicity: 36% reported that they were White, 20% Asian-American/Pacific Islander, 20% Hispanic/Latino, 2% African-American, 16% mixed/other, and 6% not reported. In terms of class standing, 15% were Freshmen, 21% Sophomores, 37% Juniors, and 27% Seniors. For additional information on student demographic and baseline data, please refer to Table 2.

Measures

Quantitative scales. The quantitative scales were taken from the youth mental health knowledge, attitudes, and stigma measure of Otto Wahl (University of Hartford), who first established the psychometric properties of the scales in a pilot investigation and subsequently during a youth antistigma program evaluation. The test-retest correlations reported after each measure emanate from Wahl's data and from Murman et al. (2014).

First, with respect to mental illness *knowledge*, a scale of 18 items relates to factual questions about mental disorders (e.g., "People with Obsessive Compulsive Disorder (OCD) often feel they must repeat behaviors over and over"). Knowledge scores were calculated as averages on a 5-point Likert scale (*strongly disagree* to *strongly agree*), where higher mean scores indicated more accurate knowledge. Eight of the items were reversed scored (e.g., "Schizophrenia is a mental illness that involves multiple personalities"). Test-retest reliability was $r = .58$; internal consistency was $\alpha = .54$. Wahl et al. (2011) proposed that the relatively modest psychometrics exhibited by the knowledge measure may be related to the diversity of items and may thus reflect specific gaps in knowledge about mental illness rather than a general lack of knowledge about mental illness.

Second, the *attitude* scale contains 17 items tapping attitudes about mental illness (e.g., “A person with mental illness is able to be a good friend”). Responses were indicated on a 5-point Likert scale from *strongly disagree* to *strongly agree*. Scores were averaged to yield an overall composite, where higher mean scores indicated more positive attitudes. Ten items were reverse scored (e.g., “It is a good idea to avoid people who have mental illness”), for which weaker agreement indicated more positive attitudes. This scale yields strong test–retest reliability ($r = .80$) and internal consistency ($\alpha = .83$).

Third, the *social distance* scale, originally created by Bogardus (1925) for the study of race and ethnic relations, is regarded as one of the most venerable and widely used psychological scales tapping stigma and prejudice (Wark & Galliher, 2007). It has generally been used as a proxy for discriminatory behavior. The overall framework is to ask participants about their willingness to interact with particular social groups. These interactions are ordered by the closeness of contact required, from rather distant interactions to extremely close ones. Items were worded to be relevant to youth (e.g., working on a class project instead of working on a job). These eight items, in order from least to most intimate contact, ranged from “Have someone with a mental illness as a neighbor” to “Go on a date with someone with a mental illness.” Willingness to interact was measured on a 5-point scale for each item, ranging from *definitely unwilling* to *definitely willing*. Higher scores were suggestive of more desire for contact with people who have mental illness (i.e., less social distance; greater acceptance/inclusiveness). Mean scores across the eight items were calculated. This measure demonstrated extremely robust test–retest reliability ($r = .88$) and internal consistency ($\alpha = .91$).

Fourth, regarding *positive actions* related to reducing mental illness stigma, Wahl et al. formulated a behavioral measure that included a list of positive ($n = 16$) actions that could reasonably be performed as a result of the antistigma program tested in their evaluation. Here, participants were asked to answer *yes* or *no* to indicate whether they had performed any of a series of specific actions (e.g., “I befriended someone who has a mental illness”; “I talked to someone about their use of slang mental illness terms to put down other people or their ideas”) within the past month. Positive action scores were calculated as proportions (e.g., a *yes* response to 12 out of 16 positive actions would yield a score of 0.75). In their study, Wahl and colleagues established the reliability of the positive action measure by calculating the percentage of instances in which a student was consistent in indicating the same action from the first to the second administration, which was 76% of the time.

Qualitative scales. Finally, participants wrote brief essay responses to three questions:

- (a) “Can you think of an example in your life, your family, or your school of what stigma means?” (stigma awareness);
- (b) “What are the best ways that youth can be the ones to overcome the stigma of mental illness and make history?” (potential antistigma actions);
- (c) “Why is it important to erase the stigma of mental illness?” (antistigma rationale).

Extensive coding manuals were created for each question, with scoring of responses on a 5-point scale (no understanding to exemplary understanding). Scores (1–5) were based on quality of relevant content, as determined by specific criterion lists, plus level of coherence. It takes

considerable time to blindly and reliably code such responses. We anticipate that these will be analyzed by the end of the initial quarter of 2018.

Procedures

Research staff from UC Berkeley traveled to each participating school three times: in the Fall (T1) for baseline measures, during Winter (T2), and in the Spring (T3), administering measures to students who had signed assent forms and whose parents/guardians had signed permission forms. The specific time was often during a lunch period or other time when a club was scheduled to meet. Food (pizza) was brought in for the students, and each student was compensated \$10 for completing the scales.

Results

Data Analyses

T-tests and one-way ANOVA's were conducted for continuous variables; chi-square analyses were conducted for categorical variables in baseline comparisons between treatment groups (Immediate vs. Delayed schools), gender, school type, and class standing. Paired-samples *t*-tests were used to analyze change for stigma measures over time, from T1-T2 and for T2-T3, between treatment groups. Paired-samples *t*-tests and Cohen's *d* analyses were then utilized to assess effect size changes for students who participated across the entire school year (from T1-T3). Finally, Cohen's *d* analyses were utilized to assess effect size changes in baseline measures of stigma over the roughly 5-year period between the LETS Los Angeles program and the current BC2M High School Program RCT.

Baseline Results

Baseline (Time 1) analyses revealed no differences between groups (Immediate vs. Delayed) with respect to basic demographic information and the variables of gender, class standing, GPA, and parent education. There were no significant differences between intervention groups with respect to baseline quantitative stigma measures for knowledge or attitudes; however, social distance and positive action were marginally significant, such that Delayed schools scored *slightly* higher than active schools on both baseline social distance ($M = 4.25$ vs. 4.16 , respectively; $p = .07$) and positive action ($M = 0.57$ vs. 0.54 , respectively; $p = .07$). Such slight differences can occur despite randomization. Regarding type of school (public, private, independent, or charter), no significant differences were found in baseline quantitative stigma measures. However, some differences were found in baseline quantitative stigma measures between various student demographic data. Freshman scores on the knowledge scale were significantly lower than those of sophomores, juniors, and seniors: $F(3, 545) = 3.88$, $p = .009$. No other group differences were found with respect to knowledge, or across other stigma measures (attitudes, distance, action).

A significant difference was also found for gender, with girls scoring slightly higher on all scales compared to boys (knowledge was marginally significant, $p = .054$; attitude, $p = .001$; distance, $p = .011$; action, $p < .001$).

Finally, a significant difference in the baseline knowledge scale was found based on type of school, for which public ($p=.046$), private ($p=.006$), and independent ($p=.034$) schools all scored higher on the baseline knowledge scale compared to charter schools. No other school-based differences were found with respect to knowledge, or other stigma measures (attitudes, distance, action).

The key, initial finding of relevance is that, at T1, the mean scores for all four quantitative measures were quite high (ranging from 3.7-4.2 on the 5-point scales), meaning that even prior to participation in anti-stigma clubs, students showed good levels of knowledge, attitudes, low social distance, and relatively high rates of positive actions to reduce stigma. Such initially high scores limited the potential to reveal club-related change. They may indicate, though, that across the past decade, youth are revealing better behaviors and attitudes toward individuals with mental disorders, as elaborated in the Discussion.

Outcomes: Changes in Stigma over Time

Changes in measures of stigma (knowledge, attitudes, social distance, positive actions) over time, and comparisons between Immediate and Delayed schools, are summarized below.

**Knowledge (Figure 1).*

- T1-T2
 - Significant increase across Immediate schools was found
 - W1 $M = 3.70$, W2 $M = 3.79$; $t(126) = 3.97$, $p < .001$; Cohen's $d = .28$
 - Significant, but smaller, increase across Delayed schools was found
 - W1 $M = 3.79$, W2 $M = 3.85$; $t(142) = 3.09$, $p = .002$, Cohen's $d = .19$
 - *Summary: Knowledge increase was stronger for Immediate schools from T1-T2*
- T2-T3
 - Significant increase across Immediate schools was found
 - W2 $M = 3.80$, W3 $M = 3.87$, $t(78) = 2.24$, $p = .028$. Cohen's $d = .19$
 - Significant, but larger, increase across Delayed schools was found
 - W2 $M = 3.88$, W3 $M = 3.99$, $t(81) = 4.78$, $p < .001$, Cohen's $d = .35$
 - *Summary: Knowledge increase was stronger for Delayed schools from T2-T3*

Overall: We find the predicted pattern across all 3 waves: A larger increase for Immediate schools from T1-T2, and larger increase for Delayed schools from T2-T3.

- For students who participated across the entire school year (both Immediate and Delayed clubs) knowledge significantly improved over time (pooled Cohen's $d = .63$).

**Attitudes (Figure 2).*

- T1-T2
 - Significant increase across Immediate schools was found

- W1 $M = 4.13$, W2 $M = 4.25$, $t(126) = 4.42$, $p < .001$, Cohen's $d = .37$
- No significant increase across Delayed schools
 - W1 $M = 4.22$, W2 $M = 4.25$, $p = ns$
- *Summary: Attitude increases for Immediate schools only from T1-T2*
- T2-T3
 - No significant increase across Immediate schools
 - W2 $M = 4.23$, W3 $M = 4.26$, $p = ns$
 - No significant increase across Delayed schools
 - W2 $M = 4.32$, W3 $M = 4.36$, $p = ns$

Overall: As predicted, Immediate schools increased significantly (from T1 to T2), however Delayed schools did not increase significantly from T2 to T3. Of note, Delayed school mean values at T1 and T3 were higher than Immediate schools (ceiling effect).

- Visually inspecting the data (Figure 2), we do see the predicted *pattern* across all 3 waves, but the changes from T2-T3 do not reach statistical significance.
- For students who participated across the entire school year (both Immediate and Delayed), attitudes significantly improved over time (pooled Cohen's $d = .39$).

**Social Distance (Figure 3).*

- T1-T2: No statistically significant differences were found between or within Immediate and Delayed schools.
- T2-T3: No statistically significant differences were found between or within Immediate and Delayed schools.

Overall: lack of significant findings are due, in part, to *ceiling effects* (high initial scores)

- Visually inspecting the data (Figure 3), we do see the predicted *pattern* across all 3 waves, but the changes do not reach statistical significance.
- For students who participated across the entire school year (both Immediate and Delayed clubs) social distance significantly improved over time (pooled Cohen's $d = .18$).

**Positive Actions (Figure 4).*

- T1-T2
 - Significant increase across Immediate schools
 - W1 $M = 0.54$, W2 $M = 0.62$; $t(126) = 4.96$, $p < .001$, Cohen's $d = .37$
 - Marginally significant increase across Delayed schools
 - W1 $M = 0.58$, W2 $M = 0.61$; $t(142) = 2.0$, $p = .045$, Cohen's $d = .13$
 - *Summary: Positive actions increase was stronger for Immediate schools from T1-T2*

- T2-T3
 - No Significant increase across Immediate schools
 - W2 $M = 0.62$, W3 $M = 0.62$, $p = ns$
 - No Significant increase across Delayed schools
 - W2 $M = 0.64$, W3 $M = 0.66$, $p = ns$

Overall: lack of significant findings are due, in part, to *ceiling effects* (high initial scores)

- Visually inspecting the data (Figure 4), we do see the predicted *pattern* across all 3 waves, but the changes do not attain statistical significance from T2-T3.
- For students who participated across the entire school year (both Immediate and Delayed schools) positive actions significantly improved over time (pooled Cohen's $d = .30$).

In our final planned comparisons, we examined possible changes in stigma over a ~5-year period (2010-2015) by comparing baseline LETS Los Angeles survey data (obtained from Murman et al., 2014) with the current BC2M High School Program RCT baseline school data (see Table 3). Across all 4 measures of stigma, results indicate that baseline scores were higher during the Bay Area RCT than had been the case in the Los Angeles trial. For knowledge, attitudes, and social distance, effect sizes were in the medium to large range (Cohen's d ranged from .64 to .88). The effect size for increases in positive actions was smaller (Cohen's $d = .32$).

Conclusions and Discussion

The timing of student involvement in BC2M High School Program clubs was associated with greater mental health knowledge, enhanced attitudes, and increased positive actions to reduce stigma. In other words, club participation was causally linked to greater factual information about mental health, improved attitudes toward individuals confronting mental disorders, and increased social actions to help reduce the stigma of mental illness. Also, regardless of timing of student involvement in BC2M clubs, students who participated for an entire school year demonstrated greater mental health knowledge, enhanced attitudes, decreased social distance, and increased positive actions to reduce stigma. The effects were statistically significant and in the small-to-medium range, indicating gains from approximately the 50th to the 65th percentile of scores in knowledge, attitudes, and intended actions.

Note that the high “baseline” (T1, pre-club) scores precluded large changes in scores. It appears that adolescents—at least those motivated to join antistigma clubs—are showing lower levels of stigma across the current decade.

Overall, the core findings indicate that high school students can and do reveal meaningful reductions in stigma as the result of BC2M High School Program club participation. Stronger effects were revealed in the earlier, quasi-experimental evaluation in Los Angeles (Murman et al., 2014), but that investigation did not have the rigor of a randomized trial.

Note, as well, that student participation in the clubs was voluntary; this fact introduces a *self-selection bias*. It is quite possible (and indeed probable) that students who *wanted* to participate in such clubs had more knowledge, more positive attitudes, etc., toward mental illness to begin with, compared to the “typical” high school student. Therefore, extending evaluations and interventions to non-participants—and even to adults in relevant schools and communities—will be essential to reveal the larger effects of high-school clubs on stigma-related measures.

Along these lines, we note that the Pew Charitable Trust has tracked attitudes in the U.S. related to gay marriage from 2001-2016. A marked change has occurred during that timespan, from 62% opposed to 62% in favor. These effects have been driven by young people throughout this time period. We fervently hope that programs like the BC2M High School program can reveal parallel effects in terms of changes in public attitudes toward mental disorder in the years and decades to come.

Finally, we note that the ultimate goal is not stigma-reduction per se, but instead, enhanced acceptance. The objective is to enhance humanization and social inclusion—which, we believe, is consistent with the BC2M high school program.

Based on the present findings, there is ample evidence to suggest that, with sufficient funds, it is possible to study the patterns of social influence of key club participants, in terms of their ability to ‘spread’ enhanced humanization across other students in their schools. We also believe that scaling-up of the high school club model is an important goal, urging BC2M to include evaluation data in such efforts to the greatest extent possible.

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Table 1: Demographic Data of Schools Participating in BC2M RCT

Immediate Schools									
ID^a	School Type	School Size^b	Asian (%)	Black (%)	Hispanic / Latino (%)	White (%)	Low SES^c (%)	EL^d (%)	Eligible FRPM^e (%)
1	Public	< 500	0.7	0.2	51.4	41.3	58.5	19.4	56.8
4	Public	1000 - 1499	28.6	4.9	16.6	37.2	18.0	9.0	18.2
5	Public	2000 +	64.0	1.8	10.9	15.5	16.8	6.6	12.0
8	IND	< 500	NA	NA	NA	NA	NA	NA	NA
9	Public	1500 - 1999	30.2	3.3	9.4	48.9	7.4	1.7	8.9
10	Public	1000 - 1499	3.3	0.8	35.8	54.9	35.9	11.0	32.3
11	Private	< 500	NA	NA	NA	53.0	NA	NA	NA
15	Public	1500 - 1999	6.6	5.2	54.1	27.3	55.6	11.8	52.1
18	Public	1000 - 1499	3.2	2.0	10.7	77.3	7.5	1.2	7.8
19	Public	2000 +	22.3	1.3	28.0	44.2	18.5	6.6	15.7
20	Public	2000 +	31.3	2.2	58.8	3.0	70.7	21.7	60.2
21	Private	1500 - 1999	13.6	3.7	16.7	50.6	NA	NA	NA
22	Private	< 500	NA	NA	NA	NA	NA	NA	NA
25	Public	2000 +	38.8	2.7	35.3	3.7	58.9	2.9	48.7
26	Public	1000 - 1499	6.5	1.7	78.2	5.1	83.8	18.3	82.1
28	Charter	< 500	4.8	34.7	51.4	2.4	81.7	9.2	81.4
30	Public	1500 - 1999	4.0	3.3	72.9	15.3	61.2	14.2	56.0
31	Public	2000 +	4.8	3.0	42.8	41.0	37.5	15.8	34.5
33	Public	1500 - 1999	4.1	2.9	40.4	44.1	44.1	10.1	40.4
34	Public	1500 - 1999	20.3	6.2	55.6	8.9	58.1	15.3	48.8
35	Public	1000 - 1499	10.0	2.1	78.8	0.5	90.3	25.8	89.3
37	Public	2000 +	53.3	3.3	23.1	5.6	30.6	7.6	27.6
39	Public	1000 - 1499	3.0	3.2	41.5	45.5	42.0	9.3	33.4
40	Public	500 - 999	1.4	0.7	12.4	77.6	15.0	1.6	14.1
41	Public	1000 - 1499	4.7	3.0	26.6	59.9	24.1	7.1	17.6

Delayed Schools

ID ^a	School Type	School Size ^b	Asian (%)	Black (%)	Hispanic / Latino (%)	White (%)	Low SES ^c (%)	EL ^d (%)	Eligible FRPM ^e (%)
0	Public	1000 - 1499	4.0	3.2	36.0	49.9	34.7	9.0	31.5
2	Public	1500 - 1999	2.1	1.3	41.8	51.1	33.5	8.7	28.5
3	Public	500 - 999	2.1	0.6	55.0	40.6	48.1	13.8	45.0
6	Public	2000 +	6.7	1.6	24.6	55.9	17.0	4.7	16.0
7	IND	500 - 999	NA	NA	NA	NA	NA	NA	NA
12	Public	2000 +	64.9	1.6	9.4	17.4	9.6	8.1	9.7
13	Public	1500 - 1999	5.9	1.2	10.5	74.2	4.9	1.0	5.0
14	Public	1500 - 1999	11.9	2.8	10.5	66.3	9.6	4.4	7.8
16	IND	< 500	NA	NA	NA	NA	NA	NA	NA
17	Public	2000 +	6.5	0.8	8.7	76.8	2.3	0.4	2.0
23	Public	1500 - 1999	5.7	5.1	42.9	36.5	50.2	11.9	47.1
24	Public	2000 +	63.3	1.5	18.7	5.2	19.2	5.1	16.3
29	Charter	< 500	14.9	1.5	77.1	1.3	77.5	8.6	73.2
32	Public	2000 +	15.7	0.9	7.2	67.9	1.9	0.4	24.0
36	Public	1000 - 1499	0.2	0.1	96.0	2.5	87.7	32.1	86.2
38	Public	2000 +	3.5	20.3	58.2	6.4	73.9	20.7	65.4
42	Public	1500 - 1999	21.7	1.2	42.4	19.7	37.4	17.2	28.6
43	Public	500 - 999	1.5	0.0	15.9	74.2	10.2	0.6	8.7
44	Public	2000 +	43.7	2.2	36.5	4.5	47.8	11.1	38.1

Note: NA = Not available; IND = Independent School

^a School IDs were utilized to mask school

^b Total school population

^c Socioeconomically disadvantaged, as defined by California School Accountability Report Card (SARC)

^d English learner, as defined by California School Accountability Report Card (SARC)

^e Free and reduced price meals program (FRPM), as defined by California School Accountability Report Card (SARC)

Table 2: Demographic and Baseline Stigma Information by Intervention Group

Variable	Immediate Schools		Delayed Schools		<i>p</i> -value
	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	
Demographics					
Female (%)	258 (75)		259 (76)		<i>ns</i>
Class standing ^a	344	2.7 (1.00)	345	2.8 (1.01)	<i>ns</i>
GPA	269	3.6 (0.56)	286	3.58 (0.55)	<i>ns</i>
Parent Education ^b	339	3.6 (1.49)	334	3.6 (1.47)	<i>ns</i>
Stigma measures					
Knowledge ^c	285	3.7 (.30)	266	3.8 (.31)	<i>ns</i>
Attitudes ^c	285	4.1 (.35)	267	4.2 (.33)	<i>ns</i>
Social Distance ^c	283	4.2 (.58)	264	4.3 (.60)	.07
Positive Actions ^d	283	0.54 (0.24)	262	0.57 (0.23)	.07

Note: Sample sizes vary due to missing data (cases excluded analysis by analysis).

^a For class standing: 1 = freshman, 2=sophomore, 3=junior, and 4 = senior

^b For primary parent education: 1 = did not complete high school; 6 = medical degree/doctorate

^c Mean scores are calculated on a 5-point scale; higher scores indicate more accurate knowledge, positive attitudes, greater willingness to interact with a person with mental illness (less social distance)

^d Mean scores are calculated as a proportion of 16 possible positive actions (range 0–1). Higher scores indicate more actions taken

Table 3: Comparison of Findings between LETS Los Angeles (Murman et al., 2014) and BC2M RCT Baseline Stigma Measures

Measure	LETS Angeles ^a		Los	BC2M RCT ^b		<i>t</i> -test	Cohen's <i>d</i>
	<i>n</i>	<i>M</i> (<i>SD</i>)		<i>n</i>	<i>M</i> (<i>SD</i>)		
Knowledge	387	3.51 (.30)		551	3.74 (.30)	11.56***	.77
Attitudes	394	3.83 (.41)		552	4.16 (.34)	13.49***	.88
Social Distance	397	3.73 (.87)		547	4.21 (.60)	10.03***	.64
Positive Actions	371	0.47 (.26)		545	0.55 (.23)	4.90***	.32

Note: Sample sizes vary due to missing data (cases excluded analysis by analysis).

*** $p < .001$

^a Ratings were obtained from the “No-LETS” group, meaning students who had either not yet begun (but expressed interest in going) or had just started participation in a LETS club

^b Ratings were obtained from all students who participated in the BC2M RCT and provided at least one set of measures at baseline

Figure 1. Comparison of Changes in Knowledge between Immediate and Delayed schools

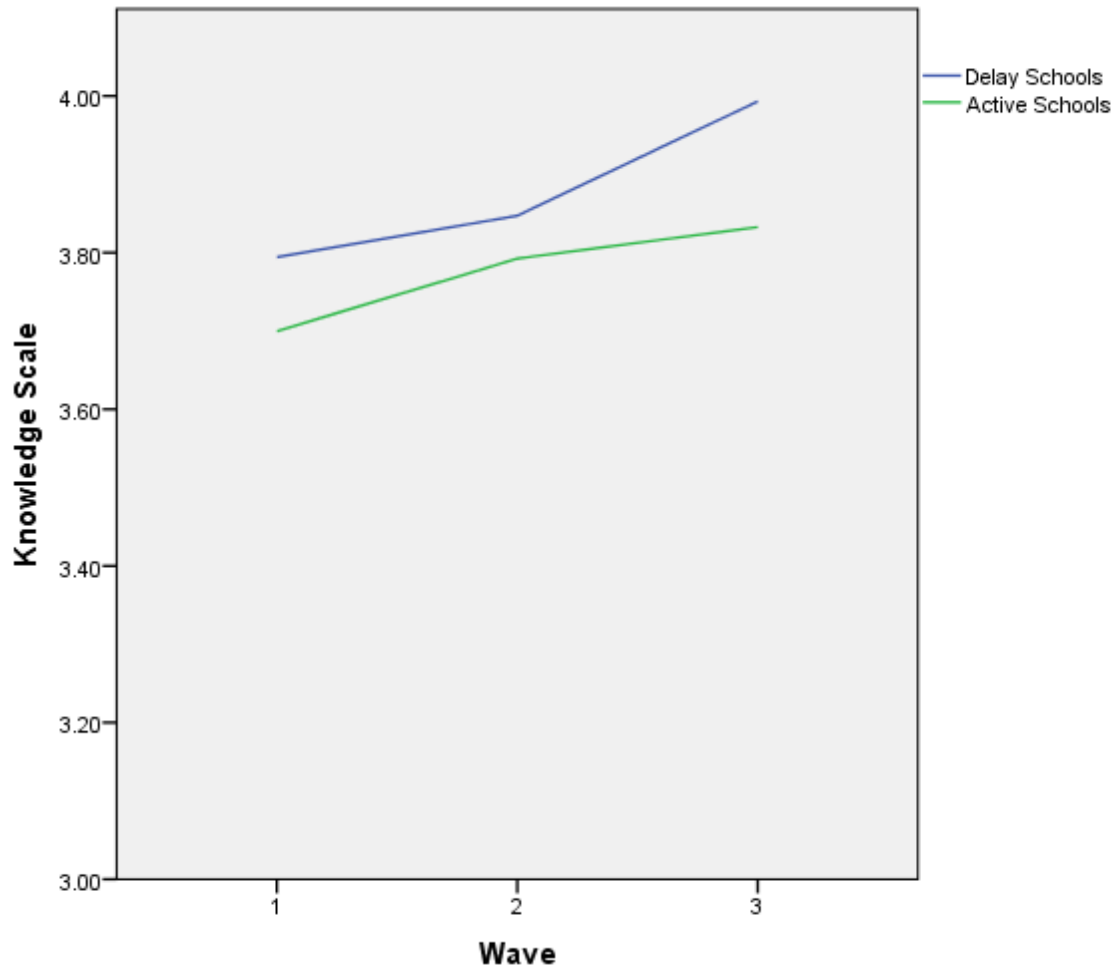


Figure 2. Comparison of Changes in Attitudes between Immediate and Delayed schools

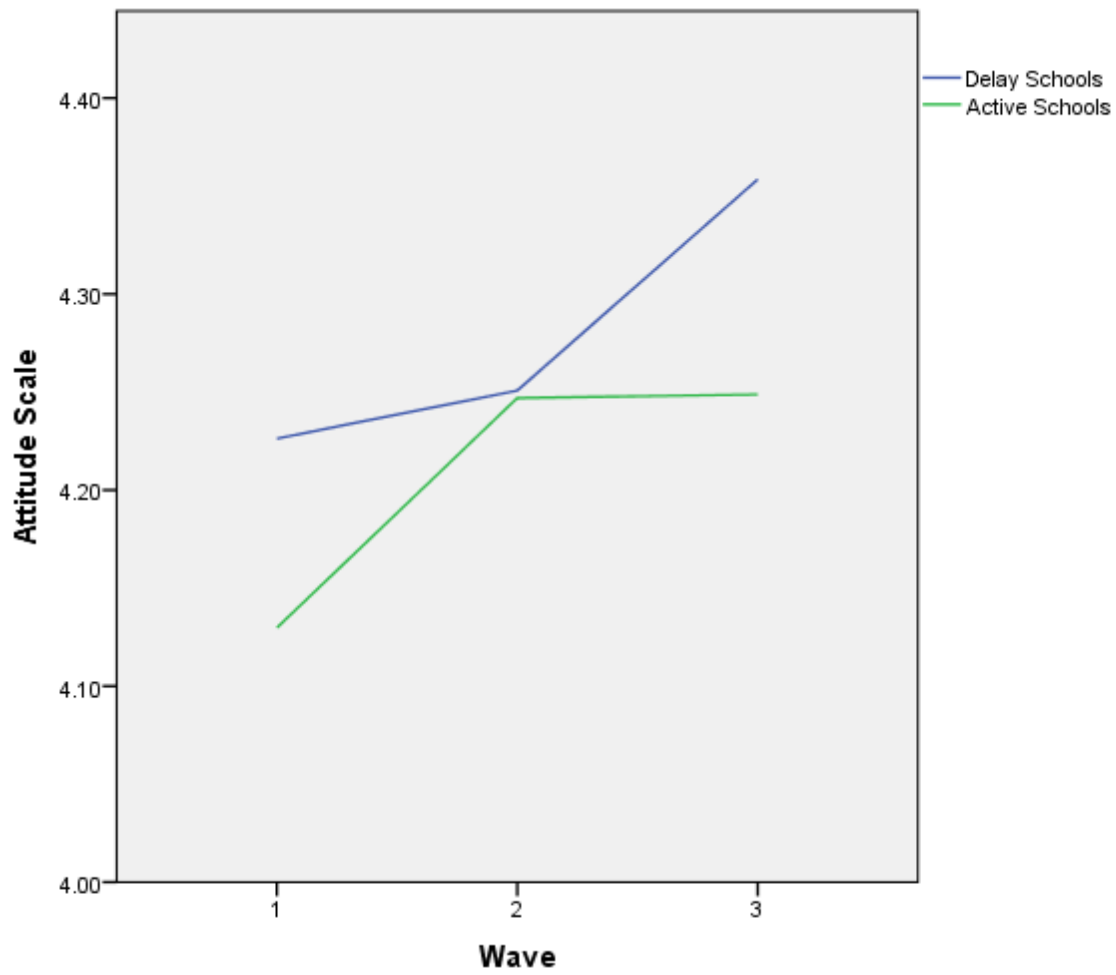


Figure 3. Comparison of Changes in Social Distance between Immediate and Delayed schools

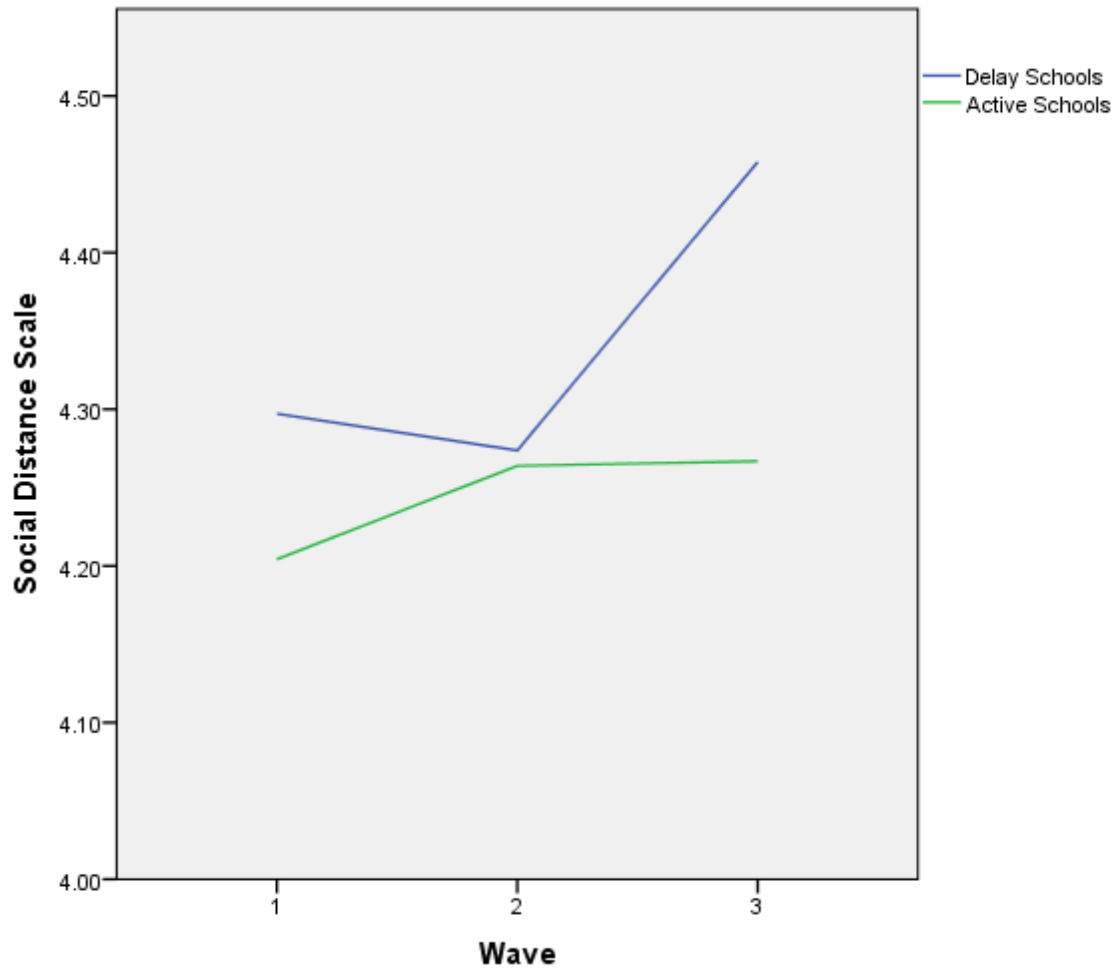


Figure 4. Comparison of Changes in Positive Actions between Immediate and Delayed schools

