

SHARED VALUES AND GUIDING PRINCIPLES OF THE COALITION OF BEHAVIORAL SCIENCE ORGANIZATIONS

The Association for Behavior Analysis International, the Association for Contextual Behavioral Science, the Association for Positive Behavior Support, the Evolution Institute, the National Prevention Science Coalition, and the Society of Behavioral Medicine believe the knowledge that behavioral scientists have accumulated about human behavior, coupled with scientific methods, can enable our societies to achieve unprecedented advances in human well-being. In this document, our coalition shares its joint values statement and commitment to collaborate in areas of significance to communities around the world.

Progress over the past 50 years on major global challenges is encouraging. The proportion of the world's population with housing, running water, medical support, improved childhood mortality, and access to education is increasing (United Nations, 2017). The status of these challenges remains far from what is possible or desirable, but it is important to consider and celebrate positive trends. Across these areas is a common theme of collaboration to collect and use data to guide problem solving. This functional use of (a) data, (b) existing scientific knowledge, and (c) practical attention to major social problems sets the stage for how behavioral science can both promote socially constructive behavior and limit the occurrence and impact of problem behavior.

Problem behavior and its adverse impact on quality of life are by no means new phenomena. Whether problem behavior has limited effects, such as only on the person engaging in the behavior and a relatively small number of others (e.g., abuse of opioids leading to premature death and the negative impact this can have on a family), or if the behavior creates trauma for larger groups (e.g., mass shootings such as in Sandy Hook, Las Vegas, and recently Parkland, Florida), the key to addressing these behaviors is working upstream in the name of prevention to understand (a) root causes and (b) environmental circumstances. If we cannot prevent the behavior or condition of concern entirely, we must provide proactive early intervention that reflects evidence-based programs and practices. Preventive and proactive approaches require understanding the relationships among risk and protective factors. Ultimately, the solutions for many of society's concerns require building protective factors to mitigate risk by promoting prosocial behavior that facilitates social, emotional, and behavioral well-being.

BASIC FACTS PROVIDE CONTEXT

The late Senator Daniel Patrick Moynihan from New York once acknowledged that people are entitled to their own opinions but not to their own facts. This sentiment, perhaps now more than ever, should serve as a mantra for the scientific community. In this spirit, we present the following facts to provide some context for the formation of the Coalition of Behavioral Science Organizations.

Facts About Enhancing Personal and Family Well-Being

Most psychological and behavioral problems begin in childhood or adolescence (NRC & IOM, 2009). The most important malleable influence on the development of behavioral problems is the family. Research on adverse childhood experiences (Felitti et al., 1998) has documented how adverse experiences and trauma during childhood contribute to a wide range of psychological, behavioral, and health problems. Research on healthy child development shows that problems are particularly likely to develop in families high in coercive interactions (Patterson, 2016) and low in positive support for children's intellectual, social, and physical skills (Biglan, Flay, Embry, & Sandler, 2012).

Leslie et al. (2016) identified 16 interventions that have produced significant improvements in family functioning while preventing future problems. The 16 programs' foci range from gestation

and infancy through adolescence. These family strategies can prevent child maltreatment and coercion and encourage positive parent/child relationships (e.g., Patterson, Forgatch, & DeGarmo, 2010). Collectively, these family interventions have reduced or prevented virtually all of the most common and costliest psychological and behavioral problems, including antisocial behavior; delinquency; use of tobacco, alcohol, and other substances; truancy; depression; and risky sexual behavior. Notably, experimental trials have shown these interventions to be effective for diverse populations. There is also evidence that they are cost efficient when compared to projected costs of services provided later (Lee et al., 2012; Lee, Drake, Pennucci, Bjornstad, & Edovald, 2012).

The demonstrated success of these interventions across communities, states, and entire nations (Chamberlain, 2017; Ogden & Amlund Hagen, 2008; Ogden, Forgatch, Askeland, Patterson, & Bullock, 2005; Sanders, Turner, & McWilliam, 2015) has prompted increased efforts toward wide and effective implementation. However, we continue to reach only a fraction of the families that could benefit from such help (Forgatch, Patterson, & Gewirtz, 2013). To do a better job of reaching families in need requires further research, plus translation of that research into practice, plus policies that provide an efficient and effective pipeline to make this help available. This will occur only when a critical mass of citizens and policymakers are aware of what can be accomplished and when policies are in place to support implementation and evaluation of evidence-based approaches.

Facts About Prevention and Treatment of Psychological and Behavioral Problems

Since 1960, rigorous research has demonstrated that effective interventions exist for virtually every significant psychological or behavioral problem (American Psychological Association, Presidential Task Force on Evidence-Based Practice, 2006). Multiple randomized controlled trials have helped identify effective psychological and educational treatments for depression (Cujipers, van Straten, & Warmedam, 2007), pain (Wetherell et al., 2011), anxiety (Waters & Craske, 2016), among others. Moreover, there has been progress on establishing effective, supportive environments to prevent risky and/or maladaptive behaviors (e.g., School-Wide Positive Behavioral Interventions and Supports).

Of course, not every person's problem behavior or condition can be effectively treated or fully prevented. However, given the efficacy of evidence-based prevention and intervention methods, society's challenge is to make them widely available and accessible. Providing such effective individualized supports is increasingly attainable. Under the Affordable Care Act, more people have coverage for these services, and integrating behavioral health into primary care is an efficient way to reach even more people (e.g., Leslie et al., 2016; Robinson & Hayes, 1997; Robinson, Wischman, & Del Vento, 1996). To date, however, only a small percentage of those who could benefit from these services are receiving them (Glasgow, Lichtenstein, & Marcus, 2003; Prinz & Sanders, 2007).

Facts About Education and Social-Emotional-Behavioral Development

The foundation of empirically supported educational technologies is the notion that creating and developing supportive environments make lives of quality and purpose possible. The emphasis is less on troubled people or problem behavior and more on problem settings (Carr & Horner, 2007). Schools need early prevention interventions, recognition of which has led to growing legislative pressure to provide safe schools that are also conducive to learning. Educators and families have major influence on children's social and cognitive development. Establishing schools as systems of care may be our best strategy for early intervention and prevention of problems in both the short and long term. Teaching social-emotional-behavioral skills directly in contexts that foster respectful, supportive relations among students, educators, and families is essential, and doing so reinforces the impact of nurturing environments and overall well-being (Bradshaw, Koth, Bevans, Ialongo, & Leaf, 2008; Bradshaw et al., 2012).

Positive Behavioral Interventions and Supports (PBIS; www.pbis.org) is a particularly strong example of such a systemic, data-based approach. School-Wide PBIS (SWPBIS) encompasses a set of practices that combine information from social, behavioral, and biomedical science and applies it to systems, targeted groups, and individuals. Universal prevention efforts that support positive academic and social behavior through comprehensive systems such as SWPBIS (which address the whole child) are more effective and less costly than reactionary interventions (e.g., retention, referrals to special education, placement in alternative schools, dropout, juvenile justice, etc.). They have the added bonus of demonstrably improving the health of the organizations that implement them (Bradshaw et al., 2008; Bradshaw, Mitchell, & Leaf, 2010).

Developing resiliency by expanding protective factors such as social and self-regulatory skills is vital to the academic success of children and to societies' future well-being. The infusion of trauma-informed, school-based behavioral health practices further enhances implementation of the PBIS framework. A recent meta-analysis of the results of 82 school programs that support children's development of social and emotional skills found that these programs had increased academic success as much as three and half years later, as well as helped prevent conduct problems, substance use, and emotional difficulties (Taylor, Oberle, Durlak, & Weissberg, 2017).

Multi-tiered frameworks are beginning to be widely promoted, and SWPBIS is now in place in almost 26,000 schools in the United States, roughly 25% (U.S. Department of Education, Office of Special Education, 2017). Murphy, Abel, Hoover, Jellinek, and Fazel (2017) estimate that PBIS has reached as many as 16 million students. This represents real progress in terms of scale and impact. However, consider that there are about 50 million K-12 in the United States. In essence, PBIS functions as a vaccine for preventing multiple problems. Thus, only 1 of every 3 children (32%) has benefited from this effective vaccine.

Facts About Effective Academic Instruction

Education research over the past 50 years has identified a great number of effective teaching methods. Meta-analyses show that increasing phonemic awareness contributes to children's learning to read (Ehri et al., 2001) and that phonics instruction is effective in improving reading skills (Ehri, Nunes, Stahl, & Willows, 2001). There is also good evidence of the value of joint book reading, in which parents read to their preschool children (Bus, van IJzendoorn, & Pellegrini, 1995).

Studies have also shown peer-to-peer tutoring to increase student performance across a range of subjects (Greenwood, Delquadri, & Hall, 1989). Cooperative learning procedures have noticeably improved the academic performance of less skilled students while not diminishing the success of more advanced students (Johnson & Johnson, 1987). Cooperative learning is one of the most effective ways to reduce prejudice and intergroup conflict in schools (Paluck & Green, 2009).

Despite these data, as with most other areas of evidence-based approaches, effective instructional techniques have not translated readily into typical daily practice. The behavioral sciences have a long history of contributing to the validation of effective educational practice. The influence of behavior analytic principles is apparent in curriculum design through direct instruction (Englemann & Carnine, 2016) and explicit instruction (Archer & Hughes, 2010). Recently, a greater emphasis on a multi-tiered approach to education integrates academic and behavior supports to improve educational outcomes (McIntosh & Goodman, 2016). Results show that an integrated approach produces better outcomes than reading strategies alone (Stewart, Benner, Martella, & Marchand-Martella, 2007). In addition, effective behavior support increases time for instruction that may have been lost due to problem behavior (Algozzine & Algozzine, 2007).

Another contemporary contribution of behavioral sciences is the development of systems to support the implementation of effective practices (Brownson, Colditz, & Proctor, 2018). Through

application of implementation science, educational systems can best ensure that educators have the competency to implement practices with fidelity and to sustain and scale implementation across districts and regions.

Facts About Community Health Promotion

The United States has the highest per capita healthcare costs of any developed country, yet lower life expectancy than 25 other developed countries. Estimates are that 95% of the money Americans spend on healthcare is for the treatment of chronic diseases (McGinnis, Williams-Russo, & Knickman, 2002), most of which are preventable. Many of the behaviorally based approaches described previously can contribute to preventing adverse childhood experiences that lead to chronic illness by helping people avoid health-compromising behaviors such as cigarette smoking, substance abuse, and antisocial behavior, in tandem with building protective factors such as problem-solving skills (Biglan, 2015).

In addition, health behavior research has identified several effective methods of increasing wellness. Mozaffarian et al. (2012) reviewed a large body of evidence that identified six population-wide strategies for improving diet and physical activity and reducing cigarette smoking: (1) media and educational campaigns; (2) labeling and consumer information; (3) taxation, subsidies, and other economic incentives; (4) school and workplace approaches; (5) local environmental changes; and (6) direct restrictions and mandates. Further, Sallis, Floyd, Rodríguez, and Saelens (2012) and Heath et al. (2012) reviewed evidence showing that media, programs, and changes in the environment can aid in increasing physical activity.

As data about enhancing well-being accrue, behavioral scientists have begun to test community-wide interventions. Randomized trials have shown that interventions targeting the nurturance of youth can significantly reduce tobacco use (Biglan et al., 1996), drug use and abuse (Hawkins et al., 2012), high-risk sexual behavior (Jemmott, Jemmott, & Fong, 2010), alcohol use and abuse (Komro et al., 2017; Perry et al., 2002; Wagenaar, Murray, & Toomey, 2000), and substance use in general (Spath, Guyll, Redmond, Greenberg, & Feinberg, 2011). Increasing expenditures on behavioral interventions to reduce conflict and coercion, prevent health-compromising behavior, and promote healthy diets and physical activity has the potential to bring American health outcomes into line with those of other developed countries.

Facts About Behavioral Research in the Workplace

Behavioral science has made major contributions to work-life quality and the effectiveness of organizations. Behaviorally based approaches to increasing worker safety significantly reduce accidents and injury (McSween & Moran, 2017; Sulzer-Azaroff & Austin, 2000). Behavioral science interventions also increase productivity and worker satisfaction, and reduce stress (Bond & Bunce, 2000; Bond & Bunce, 2003; Flaxman & Bond, 2010). Further, there is evidence that behaviorally based interventions aimed at employee empowerment and autonomy reduce turnover (Liu, Zhang, Wang, & Lee, 2011). In short, behavioral science contributes to making our work organizations more productive, safer, and less stressful.

Facts About Climate Change

The physical sciences are effectively documenting the extent, causes, and trajectory of climate change (National Aeronautics and Space Administration, 2017). The evidence predicts catastrophic outcomes across essentially all of the dimensions discussed above (Alavosius, Newsome, Houmanfar, & Biglan, 2016) if the human behavior that affects climate change does not dramatically change. A critical problem is the current lack of an aggressive program of experimental research to test diverse strategies for changing climate-relevant behavior; this must be a priority for behavioral science going forward.

Facts About Empirically Validated Public Policy

The well-being of individuals and society is dependent on effective public policy (Wagenaar & Burris, 2013). We have witnessed considerable progress in empirically evaluating the impact of policies on health and well-being. For example, solid evidence shows that increased taxation of cigarettes and alcohol helps reduce their use and subsequent harm (Congressional Budget Office, 2012; Xu & Chaloupka, 2011). Komro, Tobler, Delisle, Ryan, and Wagenaar (2013) identified more than 40 policies proven to improve children's well-being. Further extension of behavioral science into public health would allow for empirical evaluations to address the efficacy of public policy.

There is, however, far less evidence on how to encourage enactment of tested and effective policies. Here, too, behavioral research can help to identify strategies for implementation.

SHARED VALUES AND GUIDING PRINCIPLES OF THE COALITION

The bedrock values of the Coalition of Behavioral Science Organizations are commitments to (a) health and well-being for all, (b) scientific evidence as the basis for societal decision-making, and (c) public policy as a mechanism for fostering positive change. As previously highlighted, behavioral science has made great strides in understanding what human beings need to thrive and how to foster healthy development. However, this has yet to become common knowledge across communities. Citizens and elected officials are generally unaware of the great record and promise of behavioral science. Moreover, the extent to which nurturing environments contribute to health is not widely understood, even by many professionals charged with improving the public's health. The core mission of the Coalition of Behavioral Science Organizations is to expand such awareness and thereby support research and dissemination of culturally competent practices that enhance nurturing societies, guided by the following inter-related principles, which summarize the more extensive discussions of major points made in this document:

- 1. Systematic attention to the social determinants of health and well-being is a core requirement for constructing healthy societies.** Helping people avoid smoking, drug abuse, depression, stress, obesity, and antisocial behaviors can contribute to prevention of the most common and costliest causes of premature death, including cancer, diabetes, and cardiovascular disease. Those living in socially toxic conditions, with high levels of conflict, poverty, violence, and isolation/segregation, are at substantial risk of premature health problems and death.
- 2. Enhancing personal and family well-being contributes in fundamental ways to nurturing societies.** Taken collectively, programs designed to enhance personal and family well-being have shown the ability to reduce or prevent virtually all of the most common and costliest psychological and behavioral problems, including antisocial behavior; delinquency; use of tobacco, alcohol, and other substances; truancy; depression; and risky sexual behavior. There is also evidence that many of these programs are cost efficient when compared to services delivered later.
- 3. Evidence-based interventions for virtually every significant psychological or behavioral problem exist and could be made available effectively and efficiently.** Access to preventive support and effective treatment is improving, but these interventions still reach only a small portion of those who could benefit from them. Measures to increase availability and accessibility are essential.
- 4. Supportive and effective educational environments that attend to social-emotional-behavioral development are vital for academic, occupational, and social success.** Educators and families both have major influence on children's social and cognitive development. Establishing schools as systems of care may be our best strategy for early intervention and prevention of problems later in life. Education research over the past half century has identified a number of

effective methods of teaching, but those instructional techniques have yet to become typical daily practice in schools.

Academic and social skills are acquired rather than innate, and the behavioral sciences have a long history of contribution to improving academic learning. Direct teaching of social-emotional-behavioral skills in the context of educational environments that foster respectful, supportive relations among students, educators, and families is essential, and reinforces the impact of nurturing environments and overall well-being.

5. Empirically supported strategies for health promotion and prevention can have a substantial impact on population-level health and wellness. The United States has lower life expectancy than 25 other developed countries, but the highest per capita healthcare costs of any developed country. Health behavior research has identified numerous effective methods for increasing health and preventing chronic illness. A greater investment in behavioral interventions to reduce conflict and coercion, prevent health-compromising behavior, and promote healthy diets and physical activity can bring American health outcomes into line with those of other developed countries.

6. Existing research on community-wide interventions and factors that support nurturing provides considerable guidance for advancing collective health and supporting stable, vibrant, and just communities. As behavioral scientists have learned more about how to enhance well-being, they have begun to test community-wide interventions. Those targeting the nurturance of youth have demonstrated in randomized trials to have significant benefits in preventing tobacco use, drug use and abuse, high-risk sexual behavior, alcohol use and abuse, and substance use in general.

7. Implementation of science-based workplace interventions can offer major contributions to work life and the effectiveness of organizations. Behaviorally based approaches to increasing worker safety can produce significant reductions in accidents and injury. These approaches have also increased productivity and worker satisfaction while reducing stress. There is also evidence of the value of behaviorally based employee empowerment and autonomy in reducing turnover. In short, behavioral science is helping work organizations to become more productive, safer, and less stressful.

8. Human well-being depends on effective public policy. Effective policies will support the development of health, well-being, justice, and sustainability, while reducing economic inequities. Considerable expansion of behavioral science approaches would help to shape public policy in all of these areas, especially with effective collaboration among behavioral science organizations and alliances with the physical and medical sciences.

MOVING FORWARD THROUGH COLLABORATION

Increased investment in research coupled with the translation of findings into practice across all areas described so far will amplify the impact of behavioral science on the betterment of society.

In addition, there are other issues to which it is logical to apply behavioral science. The developing field of implementation science could prove useful, but it needs greater investment.

Advancing Behavioral Science Research

The organizations that make up this coalition have the collective knowledge and skills needed to benefit society significantly. However, there is no reason to believe that policymakers and higher education leaders will increase investment to the degree needed without more public awareness

and support. It is thus critical to develop a strategic plan for educating citizens and policymakers about the effectiveness of the behavioral sciences in addressing societal problems.

We must also encourage and support new initiatives to advance behavioral research and practice in critical areas. Each of the challenges enumerated in the previous sections merits the creation of multiple interdisciplinary programs of study across universities and research centers. Our coalition could convene committees composed of experts in various disciplines to define major lines of research. For example, with respect to climate change, few experimental evaluations have focused on strategies for implementing effective policy. Our collaboration could assemble credible experts to help define the needed research. We could work with foundations, government agencies, and philanthropists to establish research and graduate training programs focused on developing and experimentally evaluating strategies to advance policy that changes climate-relevant behavior. This same approach could work in each of the areas the coalition has identified as needing expanded attention.

Developing and Mentoring a New Generation of Behavioral Scientists

We must make major advances in the scope and nature of behavioral science training. As knowledge increases across a multitude of disciplines, training and research organizations need to evolve. We need interdisciplinary programs that integrate basic and applied work in neuroscience, genetics, epigenetics, epidemiology, public health, treatment, prevention, policy analysis, and implementation science. These programs should train doctoral- and master's-level scientists and professionals to implement new approaches. Outcome measures could include (a) increases in the number of well-trained personnel integrating behavioral science research and practice; (b) increases in the number of families, schools, communities, and states reached by effective practices; and (c) changes in the incidence and prevalence of psychological, behavioral, and physical disorders and prosocial behavior.

This coalition could advance such an agenda by creating a task force of members of each participating organization. The task force would articulate a vision for new training programs and also seek funding for them from foundations and philanthropic donors while encouraging engagement from institutes of higher learning.

Advocating for Behavioral Science

Each of our organizations has experience in advocating for behavioral science. For example, the Society for Behavioral Medicine has created a system of briefing papers that facilitate behavioral health specialists' communication with policymakers in ways that allow behavioral science findings to enhance health (Buscemi et al., 2017). Together, this coalition has the potential to amplify our skills, reach, and impact. To do that we will:

1. Promote one another's scientific communications efforts. Whenever any one of our organizations issues a communication designed to promote behavioral science research or practice, the other organizations can forward it to their members. As our skill in reaching the public grows, this interorganizational amplification will also grow in value and impact.
2. Collaborate in creating policy briefs/white papers about effective interventions and other issues germane to human well-being.
3. Create task forces of members of our organizations to articulate comprehensive approaches to problems; these approaches will draw on the expertise of each organization. The focus of such task forces might include:
 - a. Ways of addressing important social problems as determined through our collective knowledge.

- b. New programs of necessary research.
 - c. New desired training programs.
- 4. Organize jointly sponsored interdisciplinary events (e.g., conferences) on issues of significance to society. Examples might include:
 - a. The opioid crisis
 - b. Climate change
 - c. Prejudice
 - d. Poverty
 - e. Universal screening for early intervention
- 5. Cultivate support from foundations for initiatives to advance the use of behavioral science knowledge and methods to address societal needs.
- 6. Extend the network of collaborators within the coalition beyond the present group in order to:
 - a. Increase our influence.
 - b. Encourage other organizations to engage in effective advocacy.
 - c. Gain new skills and resources to advance our shared goals.

Our effort might begin with the creation of a report to elaborate on the points made in this document. If our organizations issued the document jointly, with sufficient support from experts in social and mass media, we could have a significant impact on public understanding and support for behavioral science to address societal challenges.

Delivering Best Practices to Groups

Although empirically supported interventions have often demonstrated substantial power within institutions, efforts to implement best practices in real-world settings sometimes fail because they require partners such as school districts, social service agencies, or local governments to alter the status quo in order to deliver these practices. To help address cases when such resistance is a barrier, there is scientific evidence of interventions in larger multi-group cultural ecosystems (www.prosocial.world) that increase efficacy and cooperation. They consist of a group facilitation process that includes a segment on Acceptance and Commitment Training, which increases flexibility and the ability to work toward valued goals, and a segment on Core Design Principles for groups to function as cooperative units, based on the Nobel Prize-winning work of Elinor Ostrom (Wilson, Ostrom, & Cox, 2013).

Engaging with groups in this fashion provides a starting point for offering a menu of other best practices, depending on the particular needs and objectives of a given group. There can also be an assessment of practices at the single group level, since we know that practices validated by scientific studies do not automatically translate to local contexts. Particularly in developing countries, employing such ecologically sensitive approaches, which parallel those of other industries such as civil engineering, could be very valuable.

A coalition of behavior science organizations could play a key role in creating frameworks for working directly with groups to scale up sustainably. Institutions will continue to play important roles in such processes, but in a way that avoids overreliance on them.

Creating a “Science-to-Narrative Chain” Communication Strategy

The concept of a science-to-narrative chain accepts that science is necessary but not enough to solve the problems of modern existence. There must also be narratives capable of reaching mass audiences and a chain of materials to provide varying degrees of depth, so that many people can learn more no matter where they begin the chain. Creating a chain (or continuum) also ensures that

the narratives remain accountable to the science and will include and quickly transmit the most recent developments.

Establishing Measures of Our Impact

It would be inconsistent for behavioral science organizations to participate in this coalition without measuring its impact. Our measures of impact will focus on our effectiveness on expansion of behavioral science research and influence on policy at the local, state, and federal levels. For example, we could measure:

- Increases in the number of newly established interdisciplinary research and training programs.
- Increases in federal and foundation funding of behavioral science research.
- Increases in the number of behavioral science-based policies adopted at the local, state, and federal levels.
- Increases in the number of people, families, schools, communities, and work organizations that evidence-based programs and policies are reaching.
- Increase in funding for dissemination of behavioral science from governments, foundations, and other organizations

The Pivotal Role of Behavioral Science

Many people take for granted the enormous changes in the physical world that have resulted from scientific and technological developments. Yet the fundamental problems our societies face are those of human behavior. Behavioral science has the knowledge and methods to address these problems, but we lack the influence. It is only by bringing the behavioral scientific community together to make a more effective case for the use of behavioral science that we will truly achieve societies that nurture the well-being of every person. This coalition is a first step toward using behavioral science to achieve greater well-being than we have had in human history.

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