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Full Length Article

## Screening for adverse childhood experiences (ACEs): Cautions and suggestions

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### ABSTRACT

This article argues that it is still premature to start widespread screening for adverse childhood experiences (ACE) in health care settings until we have answers to several important questions: 1) what are the effective interventions and responses we need to have in place to offer to those with positive ACE screening, 2) what are the potential negative outcomes and costs to screening that need to be buffered in any effective screening regime, and 3) what exactly should we be screening for? The article makes suggestions for needed research activities.

### 1. Screening for ACES: cautions and suggestions

The Adverse Childhood Experiences (ACE) research has quickly grown into the lodestar in the United States for much policy discussion in the child maltreatment field.

Why so much excitement about a study showing that there are long-term health effects from child abuse, a finding that had been a staple in the literature for decades (Norman et al., 2012)? The interest seems to derive from two new developments. First, the ACE research was conducted in an adult Kaiser Permanente medical practice by physicians who found numerous connections between maltreatment and serious later health outcomes, which inserted the issue of child maltreatment more centrally into the realm of medicine and public health policy (Stevens, 2012).

Second, because the findings appear to demonstrate a connection to serious and costly chronic physical conditions, like heart disease (Anda et al., 2008; Dong et al., 2004), they are being touted as having potential implications for reducing health care expenses, the policy elite's holy grail. This is regarded as particularly important in the United States, where advocates believe they have been less successful at making children's rights arguments in favor of action to prevent child maltreatment.

Given this hope for saving money and improving health, the policy discussion has quickly moved toward the idea of screening patients for ACES with the goal of using that information to target protective measures. Screening for ACES has been proposed and put into practice in both adult and pediatric health settings in the US (Purewal et al., 2016; Stevens, 2014). In general this screening involves asking questions about whether the patient or child has experienced maltreatment. The original ACE inventory asks specifically about childhood physical, sexual or emotional abuse, physical or emotional neglect and exposure to domestic violence. The original ACE also asks about household substance abuse, mental illness, parental incarceration, separation and divorce. Other adversities have been added to some screening efforts (Finkelhor, Shattuck, Turner, & Hamby, 2012; Purewal et al., 2016).

This screening idea has been buoyed by some success in pediatrics where screening for developmental disabilities has created strong arguments in favor of early intervention and the avoidance of downstream costs (Adams, Tapia, & Council on children with disabilities, 2013).

But before rushing into this solution for ACES, it is useful to review some of the experience with public health screening

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(Frankenburg, 1974; Grimes & Schulz, 2002; Harris, Sawaya, Moyer, & Calonge, 2011). There have been many notable controversies, failures and costly reversals in the history of screening – for example, routine chest x-rays (Eddy, 1989), and PSA assays for prostate cancer (Stewart-Brown & Farmer, 1997) – that have some cautionary lessons for the ACE screening project.

We are going to argue here that it is still premature to start widespread screening for ACES until we have answers to several important questions: 1) what are the effective interventions and responses we need to have in place to offer for positive ACE screening, 2) what are the potential negative outcomes and costs to screening that need to be buffered in any effective screening regime, and 3) what exactly should we be screening for?

## 2. What are the effective interventions?

One of the key principles in public health screening is that screening primarily has benefits when we have established interventions that mitigate some potential harmful outcome that the screening identifies (Stoto, Almarino, & McCormick, 1999). Two positive examples are screening for smoking (Milch, Edmunson, Beshansky, Griffith, & Selker, 2004) and substance abuse (Babor et al., 2007). In both cases research has demonstrated that, when identified, brief counseling by physicians, and referrals to evidence based treatment programs can reduce these risk behaviors and improve health.

But a very relevant and important cautionary alternative example is screening for domestic violence. Given the widespread occurrence of domestic violence, many health care settings hastened to develop and adopt such screening. But reviews and assessments have concluded such screening did not reduce incidence in the screened population compared to controls (O'Doherty et al., 2014) or result in long term health benefit. Among the critiques is the finding that interventions for domestic violence are not easily accessed (MacMillan et al., 2009) and that research has not established the effectiveness of such services for screened and referred women, as opposed to those actively seeking help for domestic violence, the more typical client base (Feder et al., 2009).

In a parallel fashion, it is not at all clear that we have evidence based interventions for high ACE scores, and certainly the protocols for packaging such information into a rigorous intervention are still in the early stages of development. The typical intervention in discussions and examples of ACE informed practice is referral to a behavioral health practitioner or social worker with knowledge about a variety of treatments or referral options. But the range of specific needs in high ACE referrals may run from domestic violence intervention to grief counseling, childhood aggression and substance abuse. Success of the intervention will be very dependent on the quality of available treatments in the community or the skill and training of the behavioral health practitioner getting the referral. The training and funding requirements to achieve an adequate resource level in all these areas may be prohibitive for many communities. This raises the question: is it ethical or justified to screen for conditions when proper treatment cannot be assured? Moreover, until the intervention package is fairly well specified, it will be hard to disseminate any successful model with any fidelity. So referral of high ACE individuals to behavioral health providers may have benefit, but it is an extremely non-specific intervention that will be hard to build on systematically.

One of the more specific suggested outcomes for ACE screening, especially with adults, is referral to trauma treatment which includes various evidence based PTSD and anxiety disorder interventions that have been seen as relevant to victims of various childhood adversities (Briere & Scott, 2015; Olatunji, Cisler, & Deacon, 2010). But high ACE scores, although they may be associated with symptomatology, the target for trauma therapy, are not the same as trauma symptoms. Indeed, individuals with high ACE scores do not necessarily have such symptoms. Moreover, ACEs may be associated with poor health outcomes through pathways other than trauma symptoms, for example, through poor health practices or other risk behavior, such as smoking or drinking. This complicates the question of what treatment is being prescribed. Referral of high ACE scorers to generic behavioral health may be effective, but we do not currently know this. Moreover, this is not the model typical of effective screening regimes that apply a specific proven intervention to a specific risk factor, as when drug treatments or dietary changes are prescribed for high blood pressure or cholesterol.

Other interventions are also contemplated in the ACE literature. One prominent ACE researcher has speculated that the ACE screening process itself may be therapeutic (Felitti, 2010) because it gives the patient a chance to open up about early experiences, reflect on the role of early adversity in current health problems, and have some sympathetic acknowledgement about this history from a health care professional. This is an intriguing hypothesis, but it is far from evidence-based and is contrary to general behavioral health findings on the need for multiple sessions to treat trauma (Van Emmerik, Kamphuis, Hulsbosch, & Emmelkamp, 2002).

The screening of children for ACEs poses some particular complications. On the positive side, there are indeed a variety of evidence based interventions for childhood adversities such as sexual abuse (Saywitz, Mannarino, Berliner, & Cohen, 2000), exposure to domestic violence (Graham-Bermann, Lynch, Banyard, DeVoe, & Halabu, 2007), traumatic grief (Cohen, Mannarino, & Deblinger, 2006) and parental divorce (Wolchik et al., 2002). Several evidence based treatments have been evaluated for multiple trauma exposure (Cohen & Mannarino, 2011). A wide variety of other evidence based treatments for adversities and various childhood behavioral problems are catalogued and evaluated at sites like the National Child Traumatic Stress Network (<http://www.nctsn.org/resources/topics/treatments-that-work/promising-practices>) and the National Registry of Evidence Based Programs and Practices (<http://nrepp.samhsa.gov/AllPrograms.aspx>). But these are programs that are not yet available in all or even in most communities.

Moreover, because of mandatory reporting requirements, much of the proposed ACE screening on children is being designed not to elicit specific adversity disclosures but rather to calculate a more general total ACE score (Purewal et al., 2016). We do not currently know if these available treatment programs are effective at improving mental or physical health outcomes for children and youth targeted simply by high ACE scores. Establishing this is important before we continue.

### 3. What are negative outcomes and costs?

A current strong emphasis in the screening literature is to rigorously consider whether the costs and possible negative effects of screening may counteract benefits (Harris et al., 2011). These costs can include time, effort and training devoted to screening, the stigma, worry, counterproductive reactions and side effects attendant to screening and treatment, and in particular the often wasteful effect of false positives and over-diagnosis, treating people who do not need it or would have gotten better anyway. Examples of unanticipated costs abound in the literature. For example, workplace screening programs for hypertension have been found to increase sickness absences, employee anxiety and reduce health perceptions even among workers whose hypertension did not warrant treatment (Haynes, Sackett, Taylor, Gibson, & Johnson, 1978). In the screening of the elderly for dementia, an analysis concluded that for every 4 true cases identified, 23 false positives would be signaled (Le Couteur, Doust, Creasey, & Brayne, 2013), with clearly problematic psychological impacts.

ACE screening has a number of such possible negative effects that need to be clearly investigated before launching a widespread screening program. For example, ACE screening may seem intrusive and discomforting for patients, could add to a sense of stigma, and may possibly disrupt health care relationships. Although a meta-analysis found that a majority of women patients said screening for domestic violence in health care settings was acceptable, a significant minority in a number of studies found it objectionable and objections were in particular higher among younger women ages 15–19 (Feder et al., 2009). Similarly, ACE screening may be problematic for health care professionals. Significant numbers objected to doing domestic violence screening according to one meta-analysis (Feder et al., 2009). Would such screening have a negative impact on some health care professionals' behavior, including prompting stereotypes or expectations that would result in negative health care consequences? Will practitioners sensitively carry out the screening, or be skeptical of its utility or reluctant to broach the topic and make necessary referrals.

Finally, one of the biggest costs to screening is overtreatment, the referral to additional services for people who do not truly benefit from them. The provision of unnecessary services can tremendously outweigh benefits, and we currently have little idea how burdensome this problem could be. We do not yet know how many high ACE patients need or benefit from referral. But even if many do, a fairly large number likely do not, and the additional burden on the health care system, and on behavioral health providers and the possible negative effects on patients (for example increased patient skepticism about utility of mental health services) could militate against screening.

In the pediatric setting, the problem of mandatory child abuse reporting adds considerably to the cost benefit equation in countries with such laws. Even when settings try to get aggregate ACE scores without the disclosure of specific reportable behaviors, the inquiries into this domain could well provoke suspicions of abuse that will lead to increased reporting, especially given the low threshold that is supposed to trigger a report in many places such as most states in the US. It is also hard to imagine how the referral services can treat the child or family without doing a more specific assessment that would then trigger reports.

If this results in child welfare actions that protect some vulnerable children, it could be a major benefit to screening. But the state of current research on child abuse reporting does not foster confidence that it has net benefits, given that most reports in the US are not substantiated (U.S. Department of Health & Human Services, Administration for Children and Families, Administration on Children Youth and Families, & Children's Bureau, 2016), and that service provision through child welfare system referral has not been shown to be reliable (Burns et al., 2004) or evidence-based. It is also not clear that these child welfare system services actually reduce abuse (Fluke, Shusterman, Hollinshead, & Yuan, 2008). The cost-benefit picture for child welfare reporting may be particularly poor for the relatively less serious cases that may predominate from systematic ACE screening, since these are the cases most likely to be unsubstantiated. Not a lot is known about the negative effects of reporting on children and families. But research has shown that health care professionals are widely skeptical about the benefits of reporting and very concerned about its negative effect on relationships with patients (Van Haeringen, Dadds, & Armstrong, 1998; Vulliamy & Sullivan, 2000). If general ACE screening were to result in a big increase in unnecessary and inherently expensive child welfare referrals and investigations as one of its main outcomes, we might look back on the ACE mobilization as a disastrous distraction to the development of evidence based child welfare policy. Such concerns merit very serious consideration.

### 4. What should we be screening for?

The association between childhood adversities and health problems seems strong in statistical terms and also dose related (Danese et al., 2009). But that does not mean that the ACE inventory is the best we can do or even adequate for either predicting health risk or efficiently identifying who will benefit from intervention.

It is important to keep in mind that if childhood adversities result in health impairments, there must be mediating processes. Sexual abuse is not an infection that causes a disease. Some very popular current hypotheses about these mediating processes have to do with damage to psychological and neurobiological mechanisms involving the stress-response system (Shonkoff & Garner, 2012). But there may be other mechanisms that may also play a role such as poor health behaviors, maladaptive cognitive models, impaired attachment, dysfunctional coping behaviors that rely on alcohol and drugs, and unhealthy peer associations (Kendall-Tackett, 2002). These might be more effective targets for screening than earlier child maltreatment.

The current ACE inventory was also not chosen through a rigorous process of scientific review to establish the best predictors of health outcomes. Much more sensitive and specific screening tools could be developed through a more exhaustive and systematic review, particularly ones that included or relied on some of these more proximal mechanisms, like stress symptoms, that connect childhood adversity to health outcomes. Some of the ACE screening efforts underway have made their own additions to the ACE inventory. But the screening tools are still in very early stages of development and evaluation.

Other problems with the ACE scale as a predictive instrument also need to be recognized. The ACE publications primarily rely on the life trajectories of an older population (the patients in the Kaiser Permanente study had an average age of 55) from an earlier generation (Felitti et al., 1998). The adversities being measured mostly occurred years ago in a different and less trauma-informed historical era, which might have magnified effects compared to now. For example, the ACE item asking about parental separation and divorce shows weak association with poor outcomes in a contemporary youth population (Finkelhor et al., 2012). The ACE inventory also omitted several well-established, impactful childhood adversities such as peer rejection, bullying, discrimination and low socio-economic status, which have been added by some developers (Finkelhor et al., 2012; Purewal et al., 2016).

Other screening approaches have been developed outside the narrow ACE literature, but have had some success targeting related issues. A parent questionnaire asking about parental depression, stress, substance abuse, intimate partner violence, food insecurity, and harsh punishment has been built into the Safe Environment for Every Kid (SEEK) program that has shown some success in reducing child maltreatment and improving health in young children (Dubowitz, 2014; Dubowitz, Lane, Semiatin, & Magder, 2012). A parental screening for perceived social, legal, and mental health needs, as well as enrollment in current benefits program, when combined with the support of an active “navigator,” reduced social welfare needs and improved child health (Gottlieb et al., 2016). So the question of what should be screened for is still quite open. It is also quite likely that screening targets and items should differ depending on the age of the population being screened.

But perhaps more importantly, returning to a consideration raised earlier, it may turn out that our most effective screening approach will be to look for the residues of childhood adversity for which we have established effective treatment. We have treatments for depression, PTSD (Post-Traumatic Stress Syndrome) and other anxiety disorders, alcohol and substance abuse, impulsivity and attention problems among both children and adults. Some of these conditions are elements of pathways that lead from childhood adversity to health problems. Even the developers of treatments for children with adversities like sexual abuse emphasize that the treatment is directed at the sequelae, “PTSD, depression, anxiety or behavioral problems”, not at the adversity itself (Cohen & Mannarino, 2008). A strong alternative hypothesis to ACE screening is that screening for these sequelae conditions may identify more of the at-risk individuals with childhood adversities. Moreover, such screening may have more overall success because it matches people with treatable residues of childhood adversities to existing effective remedies.

All this suggests that before we rush off to screen for ACEs in health care settings, we should match such screening up against different screening inventories that target other indicators instead of or in addition to childhood adversities alone.

## 5. Recommendations

The good news is that there are many proven behavioral health interventions from parenting education, family therapy, and individual treatment that have been shown to help children and families facing adversities and adults suffering from the effects of adverse childhoods. There is also a substantial literature showing that integrating behavioral health into pediatric and adult medical practices can have positive health benefits (Asarnow, Rozenman, Wiblin, & Zeltzer, 2015). The potential is great. The key challenge is to figure out how to use health visits to find the patients who will benefit from such effective services and get them connected while minimizing unnecessary costs and harms. We have a lot of work to do.

First, a great deal of developmental research is needed to compare, contrast and refine possible ACE informed screening instruments. There seem to be some very different views about what should be screened for in various populations (Nygren, Nelson, & Klein, 2004). Should it be symptoms, should it be adversities, child maltreatment, parenting, social welfare deficits, in what combination, and should the whole population be screened or only some subpopulation? The conversation needs to be broadened beyond the narrow ACE items. It would be most beneficial to the field if any screening regimen being set up currently would make it a commitment to experimentally contrast some alternatives, so that questions about screening targets could be answered empirically.

Any screening around childhood adversities should make sure that sufficient evidence based treatment resources are available to handle likely referrals. Since many communities have a limited supply of these resources, screening is not justified unless funding to assure the needed *additional* resource is in place. It is not ethical to have a “Field of Dreams” attitude that if we manifest the need, the resources will magically appear.

The initial criteria for deciding among screening approaches should be the degree to which differently screened groups get access to, complete and derive any benefit from the intervention. This is not a complete and thorough evaluation of the benefit of screening, but it may be sufficient to help decide which screening approaches should be more extensively tested.

A more thorough cost benefit analysis of any promising screening program is needed before the idea of screening should be widely endorsed. This more thorough evaluation needs to especially monitor rates and outcomes of child welfare reports. It also needs to assess any negative effects on patients, practitioners and their relationship. It needs to look carefully at whether benefits outweigh the costs of supplying more services, especially for individuals and families who do not seem to have a need or benefit. This is a more complex and detailed evaluation challenge than the typical design in this field.

In the meantime, none of this is to argue that health care providers and other professionals, like teachers, should stop looking for signs that children are being maltreated or asking about that or other adversities when they encounter situations that arouse their concern because of various child and adult problem behaviors, as this is one of the lessons of trauma-informed practice (Ko et al., 2008). The argument here is about the merits of subjecting everyone to a systematic and routine screening.

It is also important to note that in countries that do not have mandatory reporting systems like the US or where the child protection system is more integrated with the health care system, the contingencies may be very different. Independent studies are probably needed about screening in these contexts. However, many of the same cautions about screening in the absence of services and screening of adult patients would likely apply.

Finally, one of the most important hypotheses prompted by the ACE research is that the prevention of childhood adversities may have substantial population level health benefits. There is a temptation to pursue this hypothesis with more studies about which items best predict health problems. But the most useful confirmation of this hypothesis is not through the refinement of better ACE screening tools. Rather it is through the development and evaluation of programs that prevent the occurrence of childhood adversities in the first place and then the experimental demonstration of the population health effects from their dissemination. We have a number of programs which are good candidates (Mikton & Butchart, 2009), such as parent education programs (Lundahl, Nimer, & Parsons, 2006) and school based victimization prevention programs (Tofi & Farrington, 2011). The most persuasive case for preventing child maltreatment is likely to be when we can show that we can produce these positive outcomes efficiently and effectively.

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