Available online at www.sciencedirect.com

ScienceDirect

Current Opinion in Psychology

# Anger and aggression treatments: a review of meta-analyses

Amy Hyoeun Lee and Raymond DiGiuseppe

In the last several decades, researchers have begun to recognize dysregulated anger as a common and debilitating psychological problem among various psychiatric populations. Accordingly, the treatment of anger and aggression has received increasing attention in the literature. The current article reviews existing meta-analyses of psychosocial intervention for anger and aggression with the aims of (1) synthesizing current research evidence for these interventions, and (2) identifying interventions characteristics associated with effectiveness in specific populations of interest. Results demonstrate that cognitive behavioral treatments are the most commonly disseminated intervention for both anger and aggression. Anger treatments have consistently demonstrated at least moderate effectiveness among both non-clinical and psychiatric populations, whereas aggression treatment results have been less consistent. We discuss the implication of these findings and provide directions for future research in the treatment of anger and aggression.

**Address**
Department of Psychology, St. John's University, 8000 Utopia Pkwy, Queens, NY 11439, United States

Corresponding author: DiGiuseppe, Raymond (digiuser@stjohns.edu)

**Current Opinion in Psychology** 2017, **19**:65–74

This review comes from a themed issue on **Aggression and violence**

Edited by **Brad J Bushman**

http://dx.doi.org/10.1016/j.copsyc.2017.04.004



## Introduction

The phrase *anger management* has become commonplace in the Western culture. In the U.S., the term has been used in the media and was the title of a 2003 movie and a television series. A recent Google search resulted in approximately 30 000 web pages (February 27, 2017). Those arrested for assault or domestic violence in the U.S. and other countries are frequently referred for anger management classes as a condition of their release, plea, or probation. Given the widespread use of anger management and the mandate for such treatments in legal systems, knowledge about the effectiveness of these interventions is much needed.

Most mandates for anger management assume that a direct relationship exists between anger and aggression, and that targeting anger would reduce or eliminate the aggression. While the number of studies on this relationship is remarkably small [1•], the limited literature suggests that anger does not always lead to aggression, nor is anger a necessary cause of aggression. A recent meta-analytic review, however, found a robust relationship between anger and violent behavior [2], and a recent evaluation of an individually-delivered anger treatment found that reductions in aggressive behaviors were associated with decreases in anger [30]. This emerging literature provides support to the supposition that treatment of anger will result in reduction of aggression. However, some anger management interventions have failed to produce positive effects in prison samples [3]. Given the context in which most people are referred or mandated to such interventions, both anger and aggression serve as related yet distinct outcomes of interest.

We reviewed the literature on anger and aggression interventions to shed light on the effectiveness of anger management programs. Not long ago, the amount of literature on this topic was thin. However, in preparation for this review, we uncovered a large number of studies. As reviewing them all would be beyond the length of this article, we focused our attention on meta-analytic reviews of anger and aggression treatments. A literature search revealed 21 such meta-analyses, most of which focused on specific populations. These meta-analyses represent a substantial database from which to assess whether such treatments work and which treatments appear to be most successful.

## Methods

### Search strategy and study selection

We searched *PsycINFO* and *PubMed* for meta-analytic reviews published between the earliest available year and February 23, 2017. We used the keywords 'anger' or 'aggression' AND 'treatment' or 'therapy' AND 'meta-analy*' in the title. Our search yielded 76 articles published between 1998 and January 2017, and 75 articles published between 1992 and 2016 from PsycINFO and PubMed, respectively. After removing duplicates, we inspected the remaining articles for meta-analytic reviews of non-psychopharmacological treatments targeting primarily anger or aggression. We identified 13 meta-analyses of treatments targeting anger and 8 meta-analyses of treatments targeting aggression, which are included in this review.

## Results

### Treatments targeting anger

Table 1 summarizes the results of the 13 meta-analyses on treatments of anger.

**Table 1**

**Characteristics of meta-analyses of treatments targeting anger (in chronological order)**

| Study | Years of publication | No. of studies (*k*) | No. of participants (*N*) | Sample characteristics | Treatment type(s) | Treatment setting/modality | Treatment components | Outcome variable(s) | Effect size(s) |
|---|---|---|---|---|---|---|---|---|---|
| Henwood *et al.* [4] | Prior to June 2014 | 14 | 3226 | Adult male offenders | CBT-based anger treatments | Prison or community/Group | Self-management, challenging dysfunctional thinking, and relapse prevention; arousal and anger control training and moral reasoning; arousal reduction, communication skills, relationships, addressing cognitive distortions, and problem solving | General and violent recidivism | **.77 overall**, .72 for violent recidivism |
| Hamelin *et al.* [5••] | 2002–2005 | 8 | 336 | Adults with intellectual disabilities | CBT | Not reported/ Individual and group | Discussion of causes, appropriate expression of anger, cognitive restructuring, role play, relaxation and problem solving | Anger | **1.52overall** for RCTs (unweighted); .89 within-group for pretest-posttest (unweighted) |
| Nicoll *et al.* [6] | 1999–2011 | 9 | 302 | Adults with intellectual disabilities | Treatments with cognitive behavioral framework | Community, institutional/Most delivered in groups | Psychoeducation, self-monitoring, cognitive restructuring, relaxation, self-instruction, role-play and problem solving | Anger | **.88 overall**; .84 for group treatments, 1.01 for individual |
| Kusmierska* [7] | Prior to 2010 | 17 | Not reported | Varied | CBT combined (37 studies) or Novaco's multicomponent anger treatment model (19 studies); non-CBT (16 studies) | Not reported/ Individual and group | CBT: Relaxation, exposure, cognitive restructuring, social skills, systematic desensitization, problem solving, self-instruction training, and education. Non CBT: meditation, forgiveness, use of humor, acceptance and commitment therapy (ACT), the process group | Anger | **.58 overall** |

**Table 1** (*Continued*)

| Study | Years of publication | No. of studies (*k*) | No. of participants (*N*) | Sample characteristics | Treatment type(s) | Treatment setting/modality | Treatment components | Outcome variable(s) | Effect size(s) |
|---|---|---|---|---|---|---|---|---|---|
| Ho *et al.* [8] | 1982–2007 | 18 | 408 | Children with special needs (Ages 8–18) | Cognitive behavioral approach | Schools and research clinics/ Individual and group | Direct cognition treatments, affect education, stress inoculation, external trigger recognition, anger arousal recognition, problem-solving skills, self-instructions, assertiveness, relaxation techniques, specific coping strategies | Three dimensions of anger: behavior, cognition, affect | **.61 overall**; .34 for behavior, .63 for cognition, .82 for affect, .19 for anger control skills |
| Candelaria *et al.* [9•] | 1979–2010 | 60 | 3386 | Children (Ages 5–18) | Anger management interventions for school-age children | Schools/ Groups | Coping skills training, emotional awareness and self-control, problem solving CBT, relaxation techniques, role play or modeling activities | Overall behavioral/ emotional index, conduct/ delinquency, knowledge of anger management principles, blood pressure, anger, aggression, self-control, forgiveness, social skills | **.27 overall**; .29 for conduct problem/ delinquency, 1.28 for knowledge of anger management principles, .33 for anger, .34 for aggression |
| Saini [10] | Prior to 2009 | 96 | 7440 | Adults (college students, health care patients, incarcerated offenders, mental health clients) | Cognitive, CBT, exposure, psycho-dynamic, psycho-educational, relaxation-based, skills-based, stress inoculation | Varied/ Majority were group | Not reported | Anger constructs (general, control, person specific, expression, state, trait, driving) | **.76 overall**; 1.40 for psychodynamic, .67 for relaxation, .60 for CBT, .83 for CT |
| Gansle [11] | 1984–2003 | 20 | Not reported | Children & adolescents (Ages 5–18) | School based anger interventions | Schools/ Majority delivered in groups | Discussion, role play, practice, modeling, homework, reward for compliance, performance feedback, reward for performance, conducting parent or teacher group sessions, goal setting, visualization/imagery, contracting, academic tutoring, games, and home visits | Externalizing and anger, internalizing, social skills, and academics; beliefs and attitudes | **.31 overall**; .53 for follow up data; .54 for anger and externalizing, .43 for internalizing .34 for social skills |

**Table 1** (*Continued*)

| Study | Years of publication | No. of studies (*k*) | No. of participants (*N*) | Sample characteristics | Treatment type(s) | Treatment setting/modality | Treatment components | Outcome variable(s) | Effect size(s) |
|---|---|---|---|---|---|---|---|---|---|
| Sukhodolsky *et al.* [12] | 1968–1997 | 40 | 1953 | Children & adolescents (Ages 6–18) | CBT for anger-related problems | Majority deliver in schools/ Majority delivered in groups | Instruction, discussion, modeling, role-play, feedback, emotion identification, relaxation, self-instruction, exposure, homework, and reinforcement | Physical aggression, anger experience, self-control, social problem-solving, and social skills | **.67 overall**; .79 for skills development and .74 for eclectic treatments, .36 for affective education, .67 for problem solving treatments |
| DiGiuseppe and Tafrate [13] | 1970–1998 | 50 | 230 | Adults | Any treatments targeting anger | Not reported/ Individual and group | Self-instructional training, cognitive restructuring, problem solving, relaxation, systematic desensitization, exposure, behavioral skills training, combined interventions, anger management training experiential group process based on Yolom's (1995) group treatment, humor, education, meditation, and biofeedback. | Overall, anger, aggression, positive behaviors, other emotions, physiological arousal, attitudes/ cognition, Type A, Self-esteem | **.71 overall**; 1.16 for individual, .68 for group |
| Del Vecchio and O'Leary [14] | Jan 1980–August 2002 | 23 | 1340 | Adult outpatients defined as angry by pretreatment anger scores | CBT, cognitive (CT), relaxation (RT), and other (O) | Setting not reported/ Majority delivered in groups | To be considered a CBT, the therapy must contain both behavioral and cognitive components; relaxation refers to treatments that provide only relaxation training; treatments that could not be placed in any of these categories were evaluated together and entered into "other'' | Anger (control, suppression, expression, driving, state, trait) | .68 for CBT; .82 for CT; .90 for RT; .61 for Other |
| Beck and Fernandez [15] | 1970–1995 | 50 | 1640 | Adults and children; predominantly clinical | CBT treatments | Not reported | Identifying situational "triggers", cognitive self-statements, acquisition of relaxation skills, problem-solving conflict management and social skills training | Self-reported anger behavioral ratings of anger/ aggression | **.70 overall** |

**Table 1** (*Continued*)

| Study | Years of publication | No. of studies (*k*) | No. of participants (*N*) | Sample characteristics | Treatment type(s) | Treatment setting/modality | Treatment components | Outcome variable(s) | Effect size(s) |
|---|---|---|---|---|---|---|---|---|---|
| Edmondson and Conger [16] | 1970–1994 | 10 | Not reported | Adults; most are referred clinical sample | Relaxation, social skills, cognitive-relaxation treatment, cognitive treatment | Not reported | Not reported | Reduction in anger | .82 for relaxation, 80 for social skills, .76 for cognitive-relaxation, .64 for cognitive |

*Note:* Bolded text represents overall effect size for each study when available; all effect sizes are weighted unless denoted otherwise. CBT = cognitive behavioral therapy.

*Treatment type*

Eight of the meta-analyses focused exclusively on cognitive behavioral therapies, which are the most studied type of psychosocial treatment for anger. Several others attempted to correct this overrepresentation either by directly comparing different types of treatments, or by expanding their searches to include non-cognitive-behavioral treatments.

The earliest meta-analysis comparing relaxation, social skills, cognitive, and cognitive-relaxation treatments of anger found that relaxation treatments yielded the highest effect size ($d = 0.82$), followed by social skills ($d = 0.80$) cognitive-relaxation ($d = 0.76$), and cognitive therapies ($d = 0.64$) [16]. This finding was replicated in another meta-analysis, which reported the largest effect size for relaxation treatments ($d = 0.90$) relative to those for cognitive treatments ($d = 0.82$), CBT ($d = 0.68$), or therapies categorized as 'other' ($d = 0.61$) [14]. Examining all types of treatments targeting anger in adults yielded a mean effect size of 0.71 [13]. However, a subsequent meta-analysis concluded that psychodynamic therapy yielded the large effect size ($d = 1.40$) based on only two studies, and reported a similar weighted overall $d$ of 0.76 [10]. Finally, one unpublished meta-analysis of both cognitive-behavioral and non-cognitive-behavioral treatmetypesnts found an overall effect size of $d = 0.58$ [7]. Taken together, these studies suggest that both cognitive-behavioral and other approaches to treatment of anger are comparably and at least moderately effective, with limited evidence favoring relaxation treatments over othertypes.

*Children and adolescents*

One meta-analysis examined cognitive-behavioral treatments in children and adolescents found a mean effect size of $d = 0.67$ [12]. Comparisons of cognitive-behavioral treatment subtypes showed that skills development and multimodal treatments were more effective than affective education, which included components such as relaxation training and learning about emotions. Thus, among cognitive-behavioral interventions for anger in children and adolescents treatments directly targeting behavioral changes appear more successful than those targeting internal are (*i.e.*, cognitive and emotional) processes.

*School-based interventions*

Two meta-analyses of school-based interventions targeting anger have reported small overall effect sizes [9•,11]. The use of a more stringent approach to effect size calculations was a possible explanation of the discrepancy between these small effect size and those reported by previous meta-analyses [15,12]. With externalizing symptoms and anger constructs as the outcome, the mean effect size was increased to $d = 0.54$, suggesting that interventions might have been more effective for behavioral targets than for cognitive constructs or for outcomes that were not directly targeted (*i.e.*, academic

performance). Conversely, another study found that the overall effect size ($d$ = 0.27) did not differ based on behavioral or cognitive outcome measures, with anger and aggression measures yielding slightly larger effect sizes than behavioral/emotional indices [9•]. Taken together, these studies highlight the importance of specifying primary targets of treatment.

*Intellectual disabilities*

Two meta-analyses focused on cognitive-behavioral treatments in adults with intellectual disabilities [5••,6]. These studies reported conventionally large mean effect sizes ($d$'s = 1.52 and 0.88, respectively). In children with special needs, treatments employing cognitive-behavioral approaches yielded a medium overall effect size ($d$ = 0.61) in reducing three dimensions of anger; however, effect sizes for behavior and anger control skills were notably smaller ($d$'s = 0.34 and 0.19, respectively) [8]. Such discrepancies between anger and behavioral outcomes suggest that despite some conceptual overlap between anger and aggression, treatments targeting anger might not be effective in reducing problematic aggressive behaviors in this population.

*Forensic samples*

One meta-analysis focusing on adult criminal offenders reported moderate effectiveness for anger treatments in reducing general and violent recidivism, $d$'s = 0.77 and 0.72, respectively [4]. Recidivism was considered an important long-term behavioral target of anger management interventions in this population. Importantly, this was the only meta-analysis that included anger management classes, the most commonly disseminated intervention for aggressive and violent behaviors. When considering treatment completion, mean effect sizes decreased slightly ($d$'s = 0.58 and 0.44 for general and violent recidivism, respectively). Further research is warranted to examine the long-term effects of anger interventions, especially the commonly mandated anger management classes for forensic populations. These authors did not test the difference in effect sizes between group therapy interventions and psychoeducational classes.

### Treatments targeting aggression

Similar to the literature on anger treatments, all but one of the eight meta-analyses for aggression included only cognitive-behavioral treatments. The mean effect sizes reported by these meta-analyses varied greatly from small (four studies) to medium (three studies) to large (two studies), ranging from 0.10 to 1.14. Table 2 summarizes the results of these meta-analyses.

*Treatment type*

Few comparisons of treatment types were available. One study examined the effectiveness of behavioral therapy, cognitive-behavioral therapy, and family therapy in addressing conduct problems in school-age children [17]. Behavioral therapy represented the majority of treatments in this meta-analysis ($k$ = 34), whereas family therapy represented a small minority ($k$ = 3). Although family therapy evidenced the largest effect size of $d$ = 0.80, behavioral and cognitive-behavioral therapies both yielded medium effect sizes with much larger $k$'s. These results were consistent with an earlier meta-analysis, which found mean weighted effect size of 0.62 across types of treatments, majority of which belonged in the behavioral therapy category [22]. Thus, it appears that attempts to disentangle treatment effects by type have been largely unsuccessful due to the lack of studies of treatments belonging to categories other than behavioral or cognitive-behavioral therapies.

*Treatment population*

Aggression was sometimes included as an outcome in meta-analyses of anger treatments, but only in studies of children [9•]. Similarly, all eight meta-analyses of aggression treatments examined children and adolescents exclusively and did not include anger as an outcome, further delineating aggression as the primary outcome of interest for children and adolescents. This was a surprising finding, given that aggressive and violent behaviors are not limited to childhood and can cause potentially more serious consequences in adulthood. Thus, it appears that treatment target often shifts from aggression in childhood to anger in adulthood, but the conceptual basis for this shift across development has not been articulated.

## Discussion

Substantial evidence supports the effectiveness of anger and aggression interventions. However, there are several limitations to this literature. First, most of the research presented in this review, with the exception of one meta-analysis [4], included group therapy and not anger management classes. The term *class* implies larger numbers of participants per intervention or session than for group or individual therapy. Also, anger management classes are largely psychoeducational in nature and treatment is not based on an individualized case conceptualization. It is a serious problem that we have little empirical data on the effectiveness of this particular intervention while it continues to be commonly mandated.

Second, no meta-analysis has examined the effectiveness of anger or aggression treatments for domestic violence or child abuse perpetrators, and only one meta-analysis in the current review included abusive parents and spouses in their overall sample [15]. There is a serious lack of progress in this important area of service delivery [24••] given the multi-level consequences of domestic violence, and represents a critical area for future treatment research of anger and aggression.

Third, the therapeutic modalities that appear in the research are predominantly cognitive-behavioral in

**Table 2**

**Characteristics of meta-analyses of treatments targeting aggression (in chronological order)**

| Study | Years of publication | No. of studies (*k*) | No. of participants (*N*) | Sample characteristics | Treatment type(s) | Treatment setting and modality | Treatment components | Outcome variable(s) | Effect size(s) |
|---|---|---|---|---|---|---|---|---|---|
| Fossum *et al.* [17] | 1980–Feb 2010 | 56 | 2821 for between group; 1184 for within group | Children with conduct problems in the clinical range (Age <18 years) | Behavioral therapy (BT), CBT, BT and CBT in combination, Family Therapy (FT) | Varied; Individual, group, or combined | Parent training, anger management, social skills, problem solving skills, family communication, improving parenting | Conduct problems | **.64 for between**, 1.05 for within overall; .70 for BT, .52 for CBT, 0.51 for BT/CBT, and .80 for FT |
| Hoogsteder [18] | 1980–2011 | 6 | 164 | Adolescents (Ages 12–18) | Individually oriented treatments with CBT components: mode deactivation therapy, stress-inoculation therapy, the cell-phone program | Individually oriented | MDT: centering, imagery, relaxation techniques (mindfulness), balance training; SIT: psychoeducation, coping skills, exposure; the cell-phone program: self-monitoring and cognitive training | Externalizing behavior, physical aggression, verbal aggression | **1.14 overall** |
| Smeets *et al.* [19] | 2000–April 2013 | 25 | 2302 | Adolescents (Age <23 years) | CBT Treatments | Varied | Coaching and modeling, anger management, social skills training, assertiveness training | Aggression | **.50 overall** |
| Barnes *et al.* [20] | 1992–2012 | 25 | 30309 | Children (Majority from grades K-5) | Cognitive-Behavioral Interventions | School-based/ Group | Problem solving, violence prevention, anger control curricula | Aggression | **.14 overall** |
| Özabacı [21] | 1997–March 2009 | 6 | 307 | Children & adolescents (Ages 6–18) | Behavioral, cognitive, or CBT | Varied | Varied | Violence | **.10 overall** |
| Fossum *et al.* [22] | 1987–August 2005 | 65 | 4971 | Children & adolescents (Ages 2–17) | Behavior therapy, family therapy; CBT, psychodynamic therapy; and others | Not reported | Not reported | Teacher reported change in aggression, change in social functioning, and changes in parental distress | **.41 for between**, **63 for within overall**; .62 for between, .95 for within, for aggressive behaviors |

**Table 2** (*Continued*)

| Study | Years of publication | No. of studies (*k*) | No. of participants (*N*) | Sample characteristics | Treatment type(s) | Treatment setting and modality | Treatment components | Outcome variable(s) | Effect size(s) |
|---|---|---|---|---|---|---|---|---|---|
| Wilson and Lipsey [23] | 1950- | 249 | Not reported | Children (Grades K-12) | Cognitively oriented approaches and social skills training | School-based | Changing thinking patterns, developing social problem solving skills or self-control, and managing anger; learning constructive behavior for interpersonal interactions, including communication skills and conflict management; behavioral strategies that manipulated rewards and incentives; counseling for individuals, groups, or families | Aggressive, and/or disruptive behaviors | **.21 overall**; .21 for universal; .29 for selected/ indicated; .11 for special classes/schools |
| Robinson *et al.* (1999) | 1967–1995 | 23 | 1132 | Children (Majority from grades K-5) | Cognitive behavior modification (CBM) | School-based | Cognitive-behavioral interventions designed to assist children with increasing self-control | Hyperactive-impulsive and aggressive behaviors | **.74 overall**; .64 for aggression, .79 for hyperactive-impulsive behaviors |

*Note:* Bolded text represents overall effect sizes for each study when available; all effect sizes are weighted unless denoted otherwise. CBT = cognitive behavioral therapy.

nature; only a small number of studies included treatments based on non-cognitive behavioral approaches such as psychodynamic and family therapy. Although there were only a few family therapy studies, the results are promising. The field of psychotherapy is mired in theoretical debates among competing models, but such debates are noticeably absent in anger treatments. Do the proponents of other theoretical orientations believe they have nothing to offer in the treatment of anger and aggression? We doubt it. The quote by Carl Sagan, "Absence of evidence is not of evidence of absence," prompts us to suggest that treatment research in other theoretical approaches is needed, as they may provide components valuable in the treatment of anger.

Fourth, although many cognitive-behavioral interventions are abundant in the anger and aggression literatures, this family of interventions includes heterogeneous treatment packages consisting of any number of components. Thus, while it appears that behavioral interventions are more effective than cognitive ones for some populations, we are far from identifying which components work best for which clients.

Finally, all treatment studies have pooled all their participants to receive the same treatment regardless of the nature of each individual's presenting problem. Several taxonomies of anger and aggression problems have been proposed [25•,26••]. However, as anger disorders do not appear in the DSM-5 [27], we do not yet have an accepted taxonomy of anger and aggression problems that informs treatment research. The field has not developed empirically based subtypes of anger and aggression that would clarify targets of treatment, although researchers have provided some useful suggestions [24••,13,28•]. Although the body of literature reviewed here suggests that anger treatments are moderately effective, much remains to be done to inform future treatment of this clinically significant and impairing problem. We are a long way from answering Gordon Paul's classic questions [29••]: "What types of psychotherapy (for anger) works best for which types of problems, with which types of treatments, by which types of therapies?"

## Conflict of interest statement

This certifies that we have no conflict of interest and no financial conflict with the publication of this manuscript.

## 1. #Denotes meta-analyses included in the current review.References and recommended reading[1]

Papers of particular interest, published within the period of review, have been highlighted as:

- • of special interest
- •• of outstanding interest

[1] #Denotes meta-analyses included in the current review.


1. • DiGiuseppe R, Tafrate RC: *Understanding Anger Disorders*. New York: Oxford University Press; 2007.
This book reviews the basic research on anger and related constructs, the negative effects of clinically dysfunctional anger, a proposal for an anger disorder diagnostic category, and recommendations for differential treatment.

2. Cheriji SV, Pintea S, David D: **The relationship of anger and cognitive distortions with violence and violent offenders: a meta-analytic review**. *Eur. J. Psychol. Appl. Leg. Context* 2012, **4**:59-78.

3. Walker JS, Bright JA: **Cognitive therapy for violence: reaching the parts that anger management doesn't reach**. *J. Forensic Psychiatry Psychol.* 2009, **20**:174-201 http://dx.doi.org/10.1080/14789940701656832.

4. #Henwood KS, Chou S, Browne KD: **A systematic review and meta-analysis on the effectiveness of CBT informed anger management**. *Aggress. Viol. Behav.* 2015, **25**:280-292 http://dx.doi.org/10.1016/j.avb.2015.09.011.

5. •• #Hamelin J, Travis R, Sturmey P: **Anger management and intellectual disabilities: a systematic review**. *J. Ment. Health Res. Intellect. Disabil.* 2013, **6**:60-70 http://dx.doi.org/10.1080/19315864.2011.637661.
Given the high incidence of aggressive behavior displayed by those with developmental disabilities, the results of this article provides a start for establishing empirically based treatment guidelines for this populations.

6. #Nicoll M, Beail N, Saxon D: **Cognitive behavioural treatment for anger in adults with intellectual disabilities: a systematic review and meta-analysis**. *J. Appl. Res. Intellect. Disabil.* 2013, **26**:47-62 http://dx.doi.org/10.1111/jar.12013.

7. #Kusmierska G: *Do Anger Management Treatments Help Angry Adults? A Meta-analytic Answer*. 2011. (Order No. 3469884) Available from ProQuest Dissertations & Theses Global. (894253552). Retrieved from http://jerome.stjohns.edu:81/login?url=http://search.proquest.com.jerome.stjohns.edu:81/docview/894253552?accountid=14068.

8. #Ho BV, Carter M, Stephenson J: **Anger management using a cognitive-behavioural approach for children with special education needs: a literature review and meta-analysis**. *Int. J. Disabil. Dev. Educ.* 2010, **57**:245-265 http://dx.doi.org/10.1080/1034912X.2010.501169.

9. • #Candelaria AM, Fedewa AL, Ahn S: **The effects of anger management on children's social and emotional outcomes: a meta-analysis**. *Sch. Psychol. Int.* 2012, **33**:596-614 http://dx.doi.org/10.1177/0143034312454360.
This article provides important information on the effectiveness of anger intervention in school. Given the large number of schools that have such programs, this article would help establish empirically based interventions in schools.

10. #Saini M: **A meta-analysis of the psychological treatment of anger: developing guidelines for evidence-based practice**. *J. Am. Acad. Psychiatry Law* 2009, **37**:473-488.

11. Gansle KA: **The effectiveness of school-based anger interventions and programs: a meta-analysis**. *J. Sch. Psychol.* 2005, **43**:321-341 http://dx.doi.org/10.1016/j.jsp.2005.07.002.

12. #Sukhodolsky DG, Kassinove H, Gorman BS: **Cognitive-behavioral therapy for anger in children and adolescents: a meta-analysis**. *Aggress. Viol. Behav.* 2004, **9**:247-269 http://dx.doi.org/10.1016/j.avb.2003.08.005.

13. #DiGiuseppe R, Tafrate RC: **Anger treatment for adults: a meta-analytic review**. *Clin. Psychol. Sci. Pract.* 2003, **10**:70-84 http://dx.doi.org/10.1093/clipsy.10.1.70.

14. #Del Vecchio T, O'Leary KD: **Effectiveness of anger treatments for specific anger problems: a meta-analytic review**. *Clin. Psychol. Rev.* 2004, **24**:15 http://dx.doi.org/10.1016/j.cpr.2003.09.006.

15. #Beck R, Fernandez E: **Cognitive-behavioral therapy in the treatment of anger: a meta-analysis**. *Cogn. Ther. Res.* 1998, **22**:63-74 http://dx.doi.org/10.1023/A:1018763902991.

16. #Edmondson CB, Conger JC: **A review of treatment efficacy for individuals with anger problems: conceptual, assessment,**

**and methodological issues**. *Clin. Psychol. Rev.* 1996, **16**:251-275 http://dx.doi.org/10.1016/S0272-7358(96)90003-3.

17. #Fossum S, Handegård B, Adolfsen F, Vis S, Wynn R: **A meta-analysis of long-term outpatient treatment effects for children and adolescents with conduct problems**. *J. Child Fam. Stud.* 2016, **25**:15-29 http://dx.doi.org/10.1007/s10826-015-0221-8.

18. #Hoogsteder LM, Stams GJ, Figge MA, Changoe K, van Horn JE, Hendriks J, Wissink IB: **A meta-analysis of the effectiveness of individually oriented Cognitive Behavioral Treatment (CBT) for severe aggressive behavior in adolescents**. *J. Forensic Psychiatry Psychol.* 2015, **26**:22-37 http://dx.doi.org/10.1080/14789949.2014.971851.

19. #Smeets K, Leeijen A, Molen M, Scheepers F, Buitelaar J, Rommelse N: **Treatment moderators of cognitive behavior therapy to reduce aggressive behavior: a meta-analysis**. *Eur. Child Adolesc. Psychiatry* 2015, **24**:255-264 http://dx.doi.org/10.1007/s00787-014-0592-1.

20. #Barnes TN, Smith SW, Miller MD: **School-based cognitive-behavioral interventions in the treatment of aggression in the United States: a meta-analysis**. *Aggress. Viol. Behav.* 2014, **19**:311-321.

21. #Özabacı N: **Cognitive behavioural therapy for violent behaviour in children and adolescents: a meta-analysis**. *Child. Youth Serv. Rev.* 2011, **33**:1989-1993 http://dx.doi.org/10.1016/j.childyouth.2011.05.027.

22. Fossum S, Handegård B, Martinussen M, Mørch W: **Psychosocial interventions for disruptive and aggressive behaviour in children and adolescents**. *Eur. Child Adolesc. Psychiatry* 2008, **17**:438-451 http://dx.doi.org/10.1007/s00787-008-0686-8.

23. #Wilson SJ, Lipsey MW: **School-based interventions for aggressive and disruptive behavior: update of a meta-analysis**. *Am. J. Prev. Med.* 2007, **33**:S130-S143 http://dx.doi.org/10.1016/j.amepre.2007.04.011.

24. •• Armenti NA, Babcock JC: **Conjoint treatment for domestic partner violence: a systematic review and implications**. *Couple Fam. Psychol. Res. Pract.* 2016, **5**:109-123.
This article reviews the literature on domestic violence, focusing on treatments and policy implications. Some suggestions are made for the differential treatment of perpetrators according to types of abuse.

25. • Ahmed AG, Kingston DA, DiGiuseppe R, Bradford JM, Seto MC: **Developing a clinical typology of dysfunctional anger**. *J. Affect. Disord.* 2012, **136**:139-148 http://dx.doi.org/10.1016/j.jad.2011.09.008.
This article proposes a taxonomy of anger problems that could lead to differential treatment.

26. •• Hecker MH, Lunde DT: **On the diagnosis and treatment of chronically hostile individuals**. In *Anger and Hostility in Cardiovascular and Behavioral Disorders.* Edited by M. Chesney A, Rosenman RH. Washington, DC: Hemisphere Publishing Corp; 1985:227-240.
This article was the first to present a taxonomy of anger and aggression problems that could provide a basis for individualizing treatment.

27. American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed.. Arlington, VA: American Psychiatric Publishing; 2013.

28. • DiGiuseppe R, Tafrate R: *The Anger Regulation and Expression Scale for Youth: Manual*. Toronto, Ontario, Canada: MultiHealth Systems; 2011.
This test manual provides recommendations for individualized intervention plans based on the youths' profile of different anger scores.

29. •• Paul GL: **Strategy of outcome research in psychotherapy**. *J. Consult. Psychol.* 1967, **31**:109-118 http://dx.doi.org/10.1037/h0024436.
This classic article identifies the questions researchers should ask to guide outcomes research in all psychological intervetnions.

30. #Novaco RW, Taylor JL: **Reduction of assaultive behavior following anger treatment of forensic hospital patients with intellectual disabilities**. *Behav. Res. Ther.* 2015:6552-6559 http://dx.doi.org/10.1016/j.brat.2014.12.001.