Dialectical Behavior Therapy Skills Training in School Settings: A Systematic Review

DBT STEPS-A

Guðrún Jóna Þrástardóttir og Karen Geirsdóttir

Lokaverkefni til BS-prófs í sálfræði

Júni 2020
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Lokaverkefni til BS-prófs í sálfræði (10 einingar)
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Abstract

The present study was a systematic review of available literature regarding the effectiveness of the Dialectical Behavior Therapy Skills Training for Emotional Problem Solving for Adolescents (DBT STEPS-A) program, using PRISMA guidelines. The program builds on dialectical behavior therapy and is meant to promote mental health among adolescents in a school setting by teaching useful social- and emotional skills. DBT STEPS-A was published in 2016 and authored by Mazza and colleagues in the United States. Using three different search databases and specific inclusion and exclusion criteria, a total of five studies were selected for this review, originating from Iceland, Ireland and Wales. In each study, the program was modified to better fit the circumstances. Collectively, results from these studies indicated that the program is effective at promoting adolescent mental health, especially emotion regulation. Additionally, results suggested that despite modifications of the program, its positive effects may be retained. Several limitations of the included studies are noted as well as suggestions for future research.
Ágrip

Þakkarorð

Við viljum þakka leiðbeinanda okkar, Dr. Bergljótu Gyðu Guðmundsdóttur fyrir frábæra leiðsögn og endurgjöf sem og áhugavert verkefni. Einnig erum við henni þakklátar fyrir fagmennskuna og metnaðinn sem hún síndi bæði okkur og verkefninu.
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Dialectical Behavior Therapy Skills Training in School Settings: A Systematic Review

Promoting better mental health among adolescents is important as adolescence can be a trying time, often characterized by numerous changes and novel experiences. Mental health promotion can have a profound influence on one’s development and wellbeing. A rise in risk-taking and problematic behaviors is common among adolescents, which can include substance use, reckless driving, risky sexual and suicidal behaviors (Michael & Ben-Zur, 2007; UNICEF, 2007). Some of these experiences can be highly stressful and have a negative effect on daily functioning. While these changes might not have a stressful effect on most, it can have detrimental effects on others and lead to mental strain, which can then lead to the development of mental illness. In fact, it is estimated that up to a quarter of young people will experience issues regarding their mental health (Cook et al., 2015; Hollenbaugh & Lewis, 2018; Werner-Seidler, Perry, Calear, Newby, & Christensen, 2017). These proportions may seem quite extensive; however, this is most likely an underestimate (Mazza, Dexter-Mazza, Miller, Rathus, & Murphy, 2016). According to Dooley and Fitzgerald (2012), 75% of mental health disorders surface around the ages of 15 to 25.

What helps prevent this is promotion of emotional intelligence as it leads to a better understanding of one’s emotions, improved self-efficacy to control and regulate emotional responses, and higher self-esteem (Nykliček, Vingerhoets, & Zeelenberg, 2010). Protective factors, such as resilience and coping skills (Dray et al., 2017), have shown to weigh more than potential negative effects of risk factors (Mackay, Shochet, & Orr, 2017). For this reason, it is important that mental health programs for adolescents are based on strengthening these qualities to help them tackle the highs and lows of adolescence. It has been estimated that a vast majority of students in need of support regarding their mental health do not receive it (Gulliver, Griffiths, & Christensen, 2010). However, when these services are available within the school setting, the majority of students receive the assistance needed (Kilgus, Reinke, & Jimerson, 2015).

Promotion of mental health among children and adolescents has already been heavily researched and many social-emotional learning programs have been developed, including Promoting Alternative Thinking Strategies (PATHS) (Greenberg, Kusche, Cook, & Quamma, 1995) and FRIENDS (Shortt, Barrett, & Fox, 2001), among others. These programs, however, were developed primarily for younger children in primary and secondary school (Clarke, Morreale, Field, Hussein, & Barry, 2015). Social Emotional Learning (SEL) is a process
through which social-emotional competence develops (Domitrovich, Durlak, Staley, & Weissberg, 2017). SEL skills were used to create SEL programs, which have shown positive effects on young people’s mental health (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). The Collaborative for Academic, Social and Emotional Learning (CASEL) has published guides for schools regarding SEL programs that have met strict standards and shown positive outcomes on student’s academic performance, based on research. In these guides, 23 programs for use in preschool and elementary school (CASEL, 2013) are listed, whereas only nine programs for middle and high schools (CASEL, 2015) are included. Accordingly, it is important to advance the programs already available for secondary students (Dooley & Fitzgerald, 2012).

Cognitive behavior therapy (CBT), a well-known intervention with a strong evidence base for a variety of mental health problems (Division 12 of the American Psychological Association, 2016; Hofmann, Asnaani, Vonk, Sawyer & Fang, 2012), is based on a mixture of interventions and builds on the pioneering work by Albert Ellis and Aaron Beck from the 1970’s (Hofmann et al., 2012). CBT aims to modify maladaptive cognitive processes by focusing on attention and thoughts (Hofmann et al., 2012). Another well-known intervention, which builds on the CBT approach and has been gaining more attention since its emergence nearly 30 years ago, is dialectical behavioral therapy (DBT) (Linehan, 1993). DBT focuses on improving emotion regulation by considering the interplay between biological, social, and environmental factors (Lynch, Chapman, Rosenthal, Kuo, & Linehan, 2006; Wagner, Rathus, & Miller, 2006). The center of DBT is developing acceptance strategies, while the dialectical part focuses on changes and expansion in one’s thinking (Lau & McMain, 2005; Rathus & Miller, 2014). Studies evaluating the efficacy of DBT have mainly been focused on suicidal behaviors, borderline personality disorder, and eating disorders, generally yielding positive outcomes (Fleischhaker, Böhme, Sixt, Brück, Schneider, & Schulz, 2011; James, Taylor, Winmill, & Alfoadari, 2008; Miller, 1999; Safer, Couturier, & Lock, 2007; Wisniewski & Kelly, 2003). Recently, however, DBT-based interventions have increasingly been expanded and adapted for implementation in school settings (Flynn, Joyce, Weihrauch, & Corcoran, 2018; Mazza et al., 2016).
Theoretical background

**Social-emotional learning (SEL)**

Social-Emotional Learning (SEL) is defined by the Collaborative for Academic, Social and Emotional Learning (CASEL) as “the process through which children and adults understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions” (CASEL, 2019). CASEL is a well-known framework and a trusted source regarding high-quality, evidence based SEL programs and has also developed a set of rigorous standards for evaluating SEL programs (Osher, Kidron, Brackett, Dymnicki, Jones & Weissberg, 2016). There are five core competencies to SEL, including: self-awareness, self-management, social-awareness, relationship skills, and responsible decision-making (Osher et al., 2016). SEL programs have been developed for students of all ages and have shown a wide range of beneficial effects in a wide context and for a number of different positive outcomes. (Barry, Clarke, Jenkins, & Patel, 2013; Cook & Gorraiz, 2016; Cook, Gresham, Kern, Barreras, & Crews, 2008; Kilgus et al., 2015; Weare & Nind, 2011).

Rather than focusing on reducing the negative aspects in the lives of adolescents there is evidence for a greater long-term impact when the focus is on building their social and emotional capabilities (Barry & Jenkins, 2007; Durlak et al., 2011; Weare & Nind, 2011; O’Connell, Boat, & Warner, 2009). Studies suggest SEL programs have resulted in positive outcomes for school systems and when implemented effectively (Barry et al., 2013; Durlak et al., 2011; Payton et al., 2008; Weare & Nind, 2011). According to Belfield and colleagues (2015), applications of SEL programs have also been shown to be cost-effective, with an average return of investment of 11:1. As stated previously, most SEL programs, however, have focused on children in either preschool or elementary school so the resources for adolescents are scarce (CASEL, 2013; 2015).

**DBT background**

Dialectical behavior therapy (DBT) is an empirically supported psychological treatment, extended from cognitive behavior therapy (CBT) (Robins, Rosenthal & Cuper, 2010). It is often categorized as a third wave cognitive behavior therapy (Öst, 2008), meant to treat severe mental disorders (Linehan, 1993). It includes skills training, individual therapy, between session telephone coaching, and therapist peer consultation (Rathus & Miller, 2014).
DBT was first developed and advanced by Marsha Linehan in 1993 to help individuals with borderline personality disorder and chronically suicidal individuals (Linehan, 1993). In recent years, however, it has been adapted for broader use, for example eating disorders (Chen, Matthews, Allen, Kuo, & Linehan, 2008), substance use disorders (Linehan, Schmidt III, Dimeff, Craft, Kanter, & Comtois, 1999), mood and conduct disorder (Hollenbaugh & Lewis, 2018), as well as other problems (Linehan, 2015).

DBT has been shown to enhance the individual’s behavioral capabilities and their desire to change, and to promote generalization of these new capabilities to their daily life (DeCou, Comtois, & Landes, 2019; Feigenbaum, 2007; Linehan, 1993; Panos, Jackson, Hasan, & Panos, 2014). Additionally, DBT may help strengthen the therapist’s competence in treating their client’s problems effectively, by adapting the treatment environment to support their therapeutic relationship (Linehan, 1993). A growing number of studies have been conducted regarding the efficacy of DBT, suggesting DBT leads to increased treatment adherence, fewer psychiatric admissions, and decreased numbers and severity of self-injurious and suicidal behavior (Rathus & Miller, 2014). Importantly, DBT is designed to correspond to the level of severity of the problem at hand (Rathus & Miller, 2014; Linehan, 1993). DBT is also designed to be malleable and responsive to the client’s current situation, providing opportunities to address multiple issues at once (Rathus & Miller, 2014).

DBT is based on biosocial theory, wherein vulnerability in biological factors, combined with an invalidating social environment, are believed to give rise to emotion dysregulation and problem behaviors (Lynch, Chapman, Rosenthal, Kuo, & Linehan, 2006; Rathus & Miller, 2014; Wagner et al., 2006). An invalidating environment is, for example, when family members, friends, and other close relationships discredit or do not respond appropriately to an individual’s experiences, including their emotional experiences. Over time, this may lead to the individual doubting their own emotions and responses and therefore increasingly using their environment as a cue of how to act, think and feel (Rathus & Miller, 2014).

The core elements of DBT, acceptance and change strategies, stem from dialectical philosophy, which posits that reality consists of polar opposites (Lau & McMain, 2005). Thought patterns of emotionally dysregulated individuals are often characterized by rigidity and so called black and white thinking, i.e. two opposing thoughts that the individual perceives as not being able to coexist (Rathus & Miller, 2014). These opposites are called the
thesis and antithesis, and between them is constant tension (Chapman, 2006; Rathus & Miller, 2014). The goal within DBT is to promote flexible thinking such that the individual may perceive two or more conflicting thoughts to exist and be true at the same time, for example: “I’m doing the best I can” and “I can also do better” (Hollenbaugh & Lewis, 2018). When these two conflicting thoughts are accepted and then combined, called the synthesis, it can produce change and in turn provide a balance in cognition and behavior (Rathus & Miller, 2014). Therefore, no statement is accepted as fact or final truth, rather the individual is taught to ask what more there is to each thought, considering more than one perspective simultaneously (Chapman, 2006; Rathus & Miller, 2014).

DBT comprises a set of skills that were developed based on behavioral research and other evidence-based treatments, divided into four modules: mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness (Linehan, 1993). Skills for distress tolerance and mindfulness focus on the acceptance aspect, while the emotion regulation and interpersonal relationship skills mainly focus on the aspect of change (Lau & McMain, 2005).

There is growing evidence for using the DBT skills as a stand-alone intervention to promote mental health (Chugani, Ghali, & Brunner, 2013; Meaney-Tavares & Hasking, 2013; Üstündağ-Budak, Özeke-Kocabaş & Ivanoff, 2019; Zapolski & Smith, 2017), and some have stated that DBT skills constitute basic social and emotional skills (Mazza et al., 2016). Preliminary results of a recent study suggested that implementation of DBT skills training to promote the psychological well-being of Turkish college students was potentially feasible (Üstündağ-Budak, Özeke-Kocabaş & Ivanoff, 2019). Findings reported by Zapolski and Smith (2017) showed preliminary evidence of a decrease in middle school youth’s partaking in risky behaviors and that implementation of the program in schools is feasible. As of now there are few evidence-based treatments accessible that target pervasive emotion dysregulation among adolescents, in addition to concerns that adolescents may not respond adequately to traditional treatment methods already available (Hollenbaugh & Lewis, 2018).

As a result, DBT holds promise as a tool for psychologists and other mental health professionals working with adolescents (Hollenbaugh & Lewis, 2018).

**DBT for adolescents**

Shortly after the emergence of DBT, the DBT skills training component was applied among suicidal adolescents and their families in a clinical context and has since then been constantly advancing (Rathus & Miller, 2014). As most mental health disorders start to
develop in or around adolescence (American Psychiatric Association, 2013), availability of adequate resources is crucial. Dialectical behavior therapy for adolescents (DBT-A) is an empirically supported, manualized 16-week treatment, comprising weekly individual and family therapy in addition to skills training (Clarke & Zack, 2018; Miller, Rathus, & Linehan 2006).

In adolescence many teens start to engage in problematic and risky behaviors (Dooley & Fitzgerald, 2012). Problematic, impulsive, or avoidant behaviors can occur as a result of emotion dysregulation (Rathus & Miller, 2014), which is one of the main areas of intervention within DBT (Linehan, 1993). Dysregulation of this sort may lead to a predicament for the adolescent regarding their self-image and interpersonal relationships (Rathus & Miller, 2014), increasing psychological distress. Fortunately, however, DBT-A is applicable among adolescents dealing with various problems at once, ranging in severity, including school attendance issues, breakups, non-suicidal and non-severe self-harm behavior (Rathus & Miller, 2014). Similar to DBT, the four modules constitute the basis of the skill training in DBT-A in addition to a fifth module called the Walking the Middle Path (Miller et al., 2006). The basis of that module is to improve communication between parents and teens as well as additional skills have been applied to the existing modules (Rathus & Miller, 2014).

Studies examining the effectiveness of DBT-A in reducing self-harm and suicidal behavior among adolescents have shown positive results (Fleischhaker et al., 2011; James et al., 2008; Mehlum et al., 2014; Rathus & Miller, 2002; Woodberry & Popenoe, 2008). According to Flynn et al. (2019), DBT-A showed positive results for adolescents dealing with emotional and behavioral dysregulation, with improvements remaining constant or having increased at 16-week follow up. Additionally, results revealed that DBT-A can be implemented in a real-world, public health promotion setting and that it can decrease use of health services.

**School-based interventions**

Recently, DBT has been modified and adapted as a school-based prevention and intervention program to reach adolescents at a universal level (Flynn et al., 2018; Mazza et al., 2016). Research suggests that universal well-being and mental health programs can be implemented in schools with positive results for youth (Durlak et al., 2011). Findings have also supported the efficiency of offering school-based interventions for students struggling with their mental health (Mazza & Dexter-Mazza, 2017). Data indicate that for students who
are dealing with mental health problems and potentially referred to outside agencies, a vast majority does not receive appropriate assistance, due to various obstacles (National Institute of Mental Health, 2015, as cited by Mazza & Dexter-Mazza, 2017). In contrast, when these students are provided support within the school environment, they will most likely receive the assistance they need (Kilgus et al., 2015; Mazza et al., 2016), especially given that when students seek help, a large majority turns towards school staff (Smith et al., 2014).

The school environment is considered optimal for implementing mental health promotion programs for several reasons, particularly as it serves as a natural and accessible way to reach young people (Werner-Seidler et al., 2017). Students are under a lot of stress, with almost a quarter of adolescents facing mental health issues that need intervention by mental health professionals, and all youth will eventually endure stressful situations that may compromise their functioning (Kilgus et al., 2015; Oosterhoff et al., 2018). Because of this, it is believed that there is even more reason to offer students support in the school environment, as it can help with coping and practice newly learned skills with guidance to help limit emotional difficulties (Mazza & Dexter-Mazza, 2017; Werner-Seidler et al., 2017).

In addition, schools are accessible to almost all youth and school attendance does not rely as much on parental involvement, relative to services provided beyond the school environment (Mazza & Dexter-Mazza, 2017; Werner-Seidler et al., 2017). When these interventions are provided at a universal level, relatively more “at risk” youth may be screened for mental health concerns and provided support (Browne, Gafni, Roberts, Byrne, & Majumdar, 2004; Werner-Seidler et al., 2017). Additionally, teachers can be instrumental in providing mental health support for students, as shown in a study conducted by Smith and colleagues (2014), in which probability for attempted suicide was significantly decreased when students sought help from a teacher. Using schools as the center for mental health services, however, also has its limitations, as there is typically limited access to trained mental health professionals (Mazza & Dexter-Mazza, 2017). Studies have shown conflicting results regarding the effectiveness of the school-based programs, when delivered universally (Fazel, Hoagwood, Stephan & Ford, 2014; Ramage, 2019).

In an effort to better meet students’ needs, many schools have implemented a Multi-Tiered Systems of Support (MTSS) framework (Mazza & Dexter-Mazza, 2017). A MTSS structure typically is divided into three tiers; Tier 1, which includes a program that is universal and delivered to all students; Tier 2, which involves a more focused program
delivered to a smaller group of students, often considered “at risk” for developing problems; and Tier 3, which involves a program that is thoroughly tailored to individual students’ needs (Weist et al., 2018). Historically, tiers 2 and 3 have been the main focus within the field of education and school psychology and are thus relatively well developed. Recently, however, the focus has increasingly shifted toward tier 1 to better elucidate its elements of effectiveness, although some critical guidance is available from the SEL literature (Katz, Mercer, & Skinner, 2019).

One intervention that has shown promise in this context is the dialectical behavior therapy (DBT) skills programs (Katz, Mercer, & Skinner, 2019). Versions of DBT have already been implemented in various school systems around the world, including Australia (DBT in Schools, 2020), Ireland (Flynn, Wehrauch, Corcoran, Gallagher, O’Sullivan, & Hurley, 2017), Iceland (Rósenbergsdóttir & Jóhannesdóttir, 2018), Turkey (Üstündağ-Budak, 2019) and the United States (Wayne, 2018). One of these versions is called Dialectical Behavior Therapy Skills Training for Emotional Problem-Solving for Adolescents (DBT STEPS-A) (Mazza et al., 2016).

**DBT STEPS-A**

As previously noted, DBT STEPS-A is based on dialectical behavior therapy (DBT). DBT STEPS-A, however, is not a therapy program but rather an SEL program aimed at promoting adolescent mental health by teaching valuable social and emotional life skills (Mazza et al., 2016). The program was officially available in 2016 with the publication of DBT skills in schools: Skills Training for Emotional Problem Solving for Adolescents (DBT STEPS-A) by Mazza and colleagues (2016) and is conceptualized as a primary DBT extension outside of the clinical setting (Mazza & Dexter-Mazza, 2017). This proactive program has been in development for 15 years, focuses on prevention (Mazza et al., 2016), and is mainly based on the skills component of DBT (Mazza & Dexter-Mazza, 2017).

DBT STEPS-A is designed for adolescents in middle and high school and is intended for use at the universal level, that is, tier 1. Additional strategies are available, however, for working with students at risk and those already showing mental health concerns at tiers 2 and 3 (Mazza & Dexter-Mazza, 2017). The program is meant to be straightforward and taught by teachers, or other school staff who have a background in adolescent mental health (Mazza et al., 2016). The four modules of DBT STEPS-A correspond to those established in standard DBT, namely: mindfulness, distress tolerance, emotion regulation, and interpersonal...
effectiveness. It is recommended that after orientation lessons, the mindfulness module is taught first, whereas the order of the other modules can vary (Mazza et al., 2016). The curriculum consists of 30 lessons that are consistent in structure so that they are predictable and effective in planning. The program is however adaptable, to better fit each circumstance for example regarding lesson length and frequency. Each lesson starts with a mindfulness exercise that takes approximately five minutes. After the mindfulness exercise, homework is reviewed where students have a chance to evaluate and practice their skills among their peers, given that young people often discuss mental health issues among each other before reaching out to their seniors. Great effort is then dedicated to teaching and developing a new skill and each lesson ends with a few minute summary and homework assignment, based on the newly developed skill. These assignments are then reviewed in the next lesson (Mazza & Dexter-Mazza, 2017). For an overview of each lesson’s subject, see appendix 1. The homework assignments are part of the handouts given to the students along with other activities and skill explanations. There are also diary cards that students use to mark and evaluate the practiced skills as well as their practicality. Students turn in completed diary cards every week so the teacher can better monitor student skill use and attainment (Mazza et al., 2016).

DBT STEPS-A offers promising opportunities to help students acquire DBT skills that relate to their personal environment, and for the school community to provide support and acceptance to aid in student development of these skills (Mazza & Dexter-Mazza, 2017). There is also hope that with DBT STEPS-A the school environment will support students in using these skills, that skill use will eventually be driven by impulse, and that the skills will generalize and be effectively used across situations (Mazza & Dexter-Mazza, 2017). There are multiple things to consider before implementing a program such as DBT STEPS-A in the school setting, such as class size, format, instructors’ characteristics and training (for a discussion of implementation, see Mazza et al., 2016 and Hollenbaugh & Lewis, 2018).

Rationale

As noted earlier, school-based mental health promotion programs for adolescents are scarce, even though it is clear that mental health concerns are very common among youth (Dooley & Fitzgerald, 2012). Calls have been made for prevention and intervention programs that focus on developing protective factors, are available for use in the school setting, and that have an easy implementation process for school staff. In 2016, a new program was developed to fill this gap, titled Dialectical Behavior Therapy Skills Training for Emotional Problem
Solving for Adolescents or DBT STEPS-A, which has been gaining recognition over the recent years (Mazza et al., 2016)

Given the novelty of the DBT STEPS-A program and its potential for widespread implementation in schools, it was of particular interest to study data concerning its effectiveness, based on research conducted thus far. To the authors’ knowledge, a systematic review of studies regarding the effectiveness of DBT STEPS-A is not yet available, primarily for two reasons; first, only a few schools worldwide have implemented the program, and second, much of the extant research of the program effectiveness is still in its beginning stages. Due to the dearth of information regarding the effectiveness of the DBT STEPS-A program, and the demand within school communities for empirically based SEL programs of high quality for secondary students, a review of available data regarding the impact of DBT STEPS-A on student mental health would shed much needed light on this issue. Accordingly, the authors conducted a systematic review of studies concerning DBT STEPS-A implementation in schools, using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009).

Aims

The aim of this review was to examine results of studies that have been conducted to evaluate the effectiveness of DBT STEPS-A for the promotion of mental health among students ages 10-19. To achieve this, the scope of studies already conducted was assessed, including their main findings, strengths, and limitations, in order to proffer some guidance for future research.

Research questions

The research questions included the following; How many studies have been conducted regarding implementation of DBT STEPS-A in a school environment for students aged 10-19?; What are the main results of these studies?; and finally, what are the limitations and/or challenges that future research should address?
Method

Objective and intention

The main objective was to gather results from studies that examined the effect of DBT STEPS-A on the mental health of adolescents ages 10-19. As previously noted, the DBT STEPS-A program is relatively new so the object of this review was to shed light on the current state of knowledge, assess the information gathered, and to provide guidance for future research.

Methodology

This systematic review was conducted and reported according to the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) (Moher et al., 2009). The search was conducted using specific search terms using PubMed, ProQuest and Google Scholar databases. For studies to be included in this review, certain inclusion and exclusion criteria had to be met. The results of this systematic review were then taken together and indicators of the effectiveness of DBT STEPS-A assessed.

Study selection criteria

The search was conducted using three databases, PubMed, ProQuest and Google Scholar. Specific search terms were used, and certain criteria had to be met (see Table 1 for a more detailed description of inclusion criteria). This review was limited to studies/reports concerning use of DBT STEPS-A in a school setting for the general student population. As a result, studies that were conducted outside of school settings and/or targeted toward specific problems were excluded. Studies also had to be written in either English or Icelandic because of the authors’ language skills. The program was designed in 2016 for adolescents in middle and high school. However, The World Health Organization (WHO; n.d.) defines adolescents as 10-19 years old accordingly, that was the age range included in this review as student age at the middle and high school stages may vary. For that reason, participants had to be 10-19 years of age and the studies included had to be published in 2016 or later.
Table 1 Inclusion and Exclusion criteria listed for the selection procedure

<table>
<thead>
<tr>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBT STEPS-A in school settings</td>
<td>DBT in other than school settings (e.g., clinical settings)</td>
</tr>
<tr>
<td>DBT offered to students at a universal level</td>
<td>DBT for specific problems</td>
</tr>
<tr>
<td>Written in English or Icelandic</td>
<td>Written in languages other than English or Icelandic</td>
</tr>
<tr>
<td>Published in 2016-2020</td>
<td>Published before the year 2016</td>
</tr>
<tr>
<td>Participants 10-19 years of age</td>
<td>Participants younger than 10 years old or older than 19</td>
</tr>
</tbody>
</table>

Data collection and analysis

Databases and search terms

Before the official search began, the scope of the literature was explored by a Google search, using Google Scholar and by reviewing reference lists from similar studies. It was apparent that the breadth of the literature was quite small. Inclusion and exclusion criteria, therefore, were not made highly specific. The official search was conducted in January until March of 2020 using PubMed and ProQuest. Within PubMed there are multiple databases and the one used for this review was PubMed Central (PMC), given that it provided the largest number of hits for each search term. In ProQuest a database filter was not used as more than one was appropriate. The first search term that was used was “Dialectical Behavior Therapy Skills Training for Emotional Problem Solving for Adolescents OR DBT STEPS A”. While using PubMed the use of quotation marks was not possible; however, for the ProQuest search, quotation marks were used. By not being able to use the marks in PubMed a large number of irrelevant hits emerged, which made the process more time consuming. The use of the Boolean operator, OR, in the search term served to broaden the set of results. The other search terms were used in a similar manner in each database (see Tables 2 and 3).
**Study selection**

Titles from each set of results were screened to see if they fit inclusion criteria, subsequently the abstracts of those resources were read and finally the full text (see Tables 2 and 3). Only a very small part of the identified resources could be used.

*Table 2 Search in PubMed, overview of the search terms used and the quantity of hits*

<table>
<thead>
<tr>
<th>Search Term using PMC database with the filter “2016-2020”</th>
<th>Search results</th>
<th>Titles included/Abstracts read</th>
<th>Full Text read</th>
</tr>
</thead>
<tbody>
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<td>1316</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>DBT in schools OR DBT Skills in schools</td>
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<td>3</td>
<td>1</td>
</tr>
<tr>
<td>DBT A Skills in Schools</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1432</strong></td>
<td><strong>24</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

*Table 3 Search in ProQuest, overview of the search terms used and the quantity of hits*

<table>
<thead>
<tr>
<th>Search Term with the filter “2016-2020” and “English”</th>
<th>Search results</th>
<th>Titles included/Abstracts read</th>
<th>Full Text read</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialectical Behavior Therapy Skills Training for Emotional Problem Solving for Adolescents OR “DBT STEPS A”</td>
<td>900</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>DBT in schools OR DBT Skills in schools</td>
<td>14</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>DBT@m Skills in Schools</td>
<td>48</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>962</strong></td>
<td><strong>20</strong></td>
<td><strong>2</strong></td>
</tr>
</tbody>
</table>
**Manual search**

After the database search, eight resources were hand-selected based on findings from the screening process, from resource lists of similar studies or a Google search. It should be noted that three of the five studies included in this review were manually chosen. While conducting the search a dissertation was found that noted the lack of studies regarding the implementation and efficacy of the DBT STEPS-A program (Wilson, 2019). Additionally, Dr. James J. Mazza, first author of DBT STEPS-A program was contacted via email as part of the literature search. Similarly, he noted that studies on this topic are very limited as of now (J. Mazza, personal communication, April 1, 2020).

**Selection Procedure**

The selection procedure is shown in a flow diagram created according to the PRISMA guidelines (see Figure 1). Many records were identified through the initial search, however, a majority was irrelevant to the search terms, which led to only 48 titles meeting the inclusion criteria. Abstracts of these titles were then screened, and a large portion was excluded. To ensure better internal validity, both authors read every abstract and cross-checked the included and excluded titles. The full text of ten articles was then read and four were deemed fit according to the previously noted inclusion and exclusion criteria.
Figure 1 Prisma Flow Diagram of the selection procedure.
Results

Results from the selection procedure

The selection procedure resulted in $N=5$ studies/reports from Ireland, Wales, and Iceland. Surprisingly, no studies emerged from the United States that fit the selection criteria, despite the DBT STEPS-A program originating from there. It is worth noting that not all search databases were accessible while the search was being conducted, however, three different databases were used and from there only five studies were deemed appropriate for this review.

One of the studies included in this review, by Carey (2019), may be considered a borderline fit, as it explicitly only covers one of the four modules of the program. The study is, however, included in the present review as it provides a better understanding of whether and how the program can be implemented and, potentially, enhanced.

Data extraction

Data were extracted from the five studies used in this review using a form containing the following items: authors and year published, aim of the research, number of participants and age, country of origin, measures used, effect sizes, and main results. An overview of this information can be found in Table 4.
<table>
<thead>
<tr>
<th>Reference</th>
<th>Aim</th>
<th>Participants</th>
<th>Country</th>
<th>Measures</th>
<th>Effect sizes</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flynn, 2018.</td>
<td>To explore a pilot implementation of DBT STEPS-A for adolescents.</td>
<td>N = 72</td>
<td>Ireland</td>
<td>15-16 years</td>
<td>Partial eta-squared, d = 0.011</td>
<td>Improvements were noted in the intervention group, however overall differences between the groups were statistically non-significant.</td>
</tr>
<tr>
<td>Flynn, 2017.</td>
<td>Evaluation of adapted DBT STEPS-A for an Irish school context.</td>
<td>N = 479</td>
<td>Ireland</td>
<td>15-16 years</td>
<td>Satisfaction survey</td>
<td>Students in the DBT STEPS-A school had significantly lower scores on measures of depression, anxiety, and lower scores on measures of social stress in comparison to the control school at the end of the academic year.</td>
</tr>
<tr>
<td>Flynn, 2018.</td>
<td>To evaluate a pilot implementation of DBT STEPS-A for a universal group of adolescents.</td>
<td>N = 72</td>
<td>Ireland</td>
<td>15-16 years</td>
<td>Partial eta-squared, emotion module</td>
<td>Using DBT STEPS-A may yield positive effects for those who complete the intervention.</td>
</tr>
</tbody>
</table>

| Table 4 Summary of the included studies of this review |
To evaluate the effectiveness of DBT STEPS-A when delivered as a targeted intervention, Ramage et al. (2019) studied a sample of N = 35 participants aged 14-15.6 years old from North Wales, Wales. Measures used included the DBT-WCCL, DERS, SDQ, CAMM, and WEMWBS. Cohen's $d$ for the WEMWBS was 0.19; for the SDQ, DERS, and CAMM, the effect sizes were 0.66, 0.60, and 0.24, respectively. For the DBT-WCCL, the effect sizes were 0.36, 0.38, and 0.26, respectively. These studies suggest a positive effect, with the students in the targeted intervention group showing improved emotional regulation and general functioning.

To evaluate the implementation of DBT STEPS-A in an Icelandic school setting, Rósenbergsdóttir et al. (2018) studied a sample of N = 27 participants aged 13-14 years old from Iceland. Questionnaires used included the NR, and the study suggested a positive effect, with an increased skill among the students in verbalizing their emotions.

Notes: BASC-2, The Second Edition of Behavior Assessment System for Children; CAMM, Child and Adolescent Mindfulness Measure; DERS, Difficulties with Emotional Regulation Scale short form; DBT STEPS-A, Dialectical Behavior Therapy Skills Training for Adolescents; DBT-WCCL, Dialectical Behavior Therapy Ways of Coping Checklist; NR, Not Reported; SDQ, Strengths and Difficulties Questionnaire; WEMWBS, Warwick Edinburgh Mental Wellbeing Scale.
Study characteristics

Flynn et al. (2017) conducted a pilot implementation of DBT STEPS-A in an Irish public-school system. Before this, the program had not been delivered in a school system outside of the United States, therefore it was adapted in collaboration with the authors of DBT STEPS-A. These adaptations included shortening the program from 30 weeks to 22 weeks, adjusting each lesson to fit within a shorter time frame, as well as having the teachers handle the delivery of the program. Eight schools participated in the implementation, however only two were able to fully implement the DBT STEPS-A program. Data were collected at five time points, from before the intervention to a three month follow up. Compared to the control groups, the effectiveness of the program was only noted when fully implemented, and no significant correlation was found between dosage, i.e., how much intervention participants received, and their increase in skill use.

Another study by Flynn et al. (2018) used a subgroup from the dataset of Flynn et al. (2017). This subgroup consisted of two all-female schools in which one school received the full implementation of the DBT STEPS-A program whereas the other acted as a control group and therefore received no intervention. Measures were identical to those used by Flynn et al. (2017). Data showed the intervention resulted in statistically significant decline in depression, anxiety, and social stress symptoms for the intervention group.

Rósenbergsdóttir and Jóhannesdóttir (2018) reported data collected as part of a pilot implementation of DBT STEPS-A in one elementary school in Iceland. Another elementary school was then used for comparison. The program was facilitated by a teacher accompanied by a school counsellor. The DBT STEPS-A lessons were taught over a five-month period and included a variety of mindfulness practices, use of conversation for skill practice, as well as having the students write down different coping skills that could be beneficial down the road. The following academic year, students had already completed the program so only selected lessons were revisited. Results suggested that implementation of the DBT STEPS-A program can lead to positive outcomes as well as better emotional regulation and wellbeing.

As part of her doctoral dissertation study, Carey (2019) investigated the impact of implementing a modified version of the emotion regulation module lessons of DBT STEPS-A in Limerick, Ireland. Building on information gained from Flynn et al. (2017; 2018) etc., some changes were made to the intervention program, including the use of multimedia, games, role play, problem-based learning, and other active learning approaches (for a detailed
list of changes see Carey, 2019, Table 10, p. 59). Results revealed that participating students considered the intervention beneficial and effective, including the use of the different methods and resources. Participants also reported that receiving instruction in a smaller group helped them gain better knowledge both with and from each other, in a safe environment.

Finally, a doctoral dissertation study, conducted by Ramage (2019) in Wales, included an evaluation of DBT STEPS-A, as delivered by teachers and school-based counsellors for a targeted group. This study followed the guidelines for targeted interventions noted in the DBT STEPS-A manual, e.g. dividing the participants to smaller groups. Findings suggested improvements in functioning, mindfulness, relationships, and academic performance. A secondary benefit was also found for this program, which was a decline in self-harm behavior among the participants.

**Participants**

Number of participants in the studies included ranged from $N = 23 - 479$, in total $N = 567$ from three different countries; Iceland, Ireland and Wales. The age of participants ranged from 13 to 16 years. In three of the five studies a majority of participants were female, ranging from 68% to 100%. The study by Flynn et al. (2017) included 479 participants in total, with no specification made regarding the gender distribution. One study did not specify the gender distribution (Rósenbergsdóttir & Jóhannesdóttir, 2018).

As for ethnicity and race, it was not noted in four of the studies, however in Carey (2019), it was specified that the participants were predominantly Caucasian Irish. It was however mentioned in four of the five studies that participants originated from both urban and rural areas, Rósenbergsdóttir and Jóhannesdóttir (2018) did not specify this. Most studies delivered the intervention at a universal level, however, Ramage (2019) aimed the intervention at a targeted group identified as having more complex needs. Carey (2019) included a mixed ability group and one school from Flynn (2017) included students with special education needs.

**Study design and setting**

For the Irish pilot implementation of the DBT STEPS-A program, Flynn et al. (2017) utilized a quasi-experimental, between and within-subjects design as well as a mixed method for the data collection and included a 3 month follow up. The sampling was opportunistic with no inclusion or exclusion criteria. No measures of treatment fidelity were conducted.
given that this was a pilot implementation. The program was universally delivered in the classroom of eight schools in Ireland, where one school was divided into a control and intervention group. Additionally, one school acted as a comparison group. Teachers facilitated and ran the program in weekly classes over the course of one academic year, from 2015 to 2016.

Because Flynn et al. (2018) used a subset of the data accumulated from Flynn et al. (2017) the study design was the same, however, it only included two schools, both all-female, where one school received the full implementation and the other acted as a control group. The data from these two schools was selected based on a matched comparison regarding gender and intervention dosage.

Rósenbergsdóttir and Jóhannesdóttir (2018) used a quasi-experimental, longitudinal, between and within-subjects design, for the pilot implementation of the DBT STEPS-A program, in one elementary school in Iceland. Additionally, one school acted as a comparison. Data were collected at three time points, from January 2017 until May 2018. The program was facilitated by a classroom teacher accompanied by a school counsellor.

Carey (2019) utilized waitlist-control design with a non-probabilistic convenience sampling. Data were collected with mixed methods and repeated measures across three time points, from September until December 2018. The emotion regulation module of the DBT STEPS-A program was implemented in a single, urban, post-primary school, in Ireland, across seven 55-minute classes. The program was run by a Trainee Educational Psychologist (i.e., the researcher), while the teacher served as a co-facilitator. A fidelity sheet was utilized in each session.

Ramage (2019) used a between and within-subjects design for his feasibility study of DBT STEPS-A for a targeted group. Because the sample was targeted, with certain inclusion and exclusion criteria, the sample was non-probabilistic. Participants were then divided into three small groups, all of whom completed the intervention, which consisted of 22, one-hour sessions, over an eleven-week period. School-based counsellors and teachers handled the delivery of the program. Data were collected with mixed methods as well as pre and post measures.

**Aims**

Each of the studies had similar aims, which was to evaluate the implementation and the effectiveness of the DBT STEPS-A program. In Carey (2019) a modified version was
used, which included only the emotion regulation module of the program. Three of the studies modified the program to better fit each circumstance, so the aims of each study included evaluating the program in an Irish school context (Flynn et al., 2017), in an Icelandic school context (Rósenbergsdóttir & Jóhannesdóttir, 2018) and as a targeted intervention (Ramage, 2019). The aims of the study by Flynn et al. (2018) was to evaluate the pilot implementation conducted the year before by Flynn et al. (2017).

**Outcome Measures**

Quantitative measures used in the studies were the *DBT Ways of Coping Checklist* (DBT-WCLL) (Neacsiu, Rizvi, Vitaliano, Lynch, & Linehan, 2010) - consisting of two subscales the *DBT Skills Subscale* (DSS), and the *Dysfunctional Coping Subscale* (DCS); the *Second Edition of Behavior Assessment System for Children* (BASC-2) (Reynolds & Kamphaus, 2004) - consisting of two subscales the *Emotional Symptom Index* and the *Internalizing Problems Scale, The Difficulties with Emotional Regulation Scale short form* (DERS-SF) (Kaufman, et.al., 2016); *Strengths and Difficulties Questionnaire* (SDQ) (Goodman, 2001); *Child and Adolescent Mindfulness Measure* (CAMM) (Greco, Baer, & Smith, 2011), and *Warwick Edinburgh Mental Wellbeing Scale* (WEMWBS) (Tennant et al., 2007). For these measures, effect sizes were noted in four of the five studies, however, in Rósenbergsdóttir and Jóhannesdóttir (2018) they were not reported.

In the studies conducted by Flynn et al. (2017; 2018) the effect sizes were the same, as the same dataset was used, revealing a statistically significant treatment effect for the intervention group on both BASC-2 subscales, with both effect sizes considered large (Cohen’s $F^2 = 0.65; 0.83$). In Carey (2019) it was suggested that the intervention group possibly showed improvements regarding emotion regulation after the implementation of DBT STEPS-A. However, the effect sizes for this were small (Partial eta-squared ($\eta^2$) $d = 0.011$) and because of the little interaction and between-group effects, it is not possible to determine the true effect of the implementation. The effect sizes for each questionnaire were reported by Ramage (2019), with improvements in emotion regulation (DERS) and general functioning (SDQ) showing a statistically significant, albeit moderate, effect (Cohen’s $d = 0.6; 0.66$). Ramage (2019) noted that no statistically significant change was found with the WEMWBS scale, considering general wellbeing (Cohen’s $d = 0.19$), the CAMM measure regarding mindfulness (Cohen’s $d = 0.24$), nor on either subscale of DBT-WCCL (Cohen’s $d = 0.36$) as all effect sizes were considered small.
Regarding the qualitative data, a survey was used in Flynn et al. (2017) regarding the participants’ satisfaction while the implementation was ongoing, which resulted in suggestions regarding the modification of the program (for a more detailed discussion, see Flynn et al., 2017), which Carey (2019) used in her study. Rósenbergsdóttir and Jóhannesdóttir (2018) collected data using a non-standardized self-report questionnaire across three time points. Carey (2019) collected the data using semi-structured interviews both with participants and teachers as well as from diaries and observations made by the Trainee Educational Psychologist (TEP). Qualitative data from Ramage (2019) were gathered by interviewing eleven of the participants, which was then analyzed using thematic analysis. These data suggested improvements in functioning, mindfulness, relationships, and academic performance.

Limitations and strengths

The most prominent problem noted in the included studies was the time constraint the researchers faced when implementing the program, as most researchers underestimated the amount of time and level of planning required to prepare implementation, e.g. providing sufficient training for staff. Demographic information about participants, including their ethnicity and race, was only mentioned in one of the included studies. In addition to a lack of information regarding the socio-economic status of participating students, this makes inferences concerning program applicability across different cultural settings difficult. Regarding study design, none used a randomized controlled trial (RCT), and all samples were recruited based on convenience. In contrast, one of the strengths of Ramage (2019), for example, was that the intervention was implemented successfully within a targeted group of participants and a decline in self-harm behavior was observed among those who took part in the qualitative interviews, even though self-harming behaviors were not specifically targeted within the curriculum. Additionally, as reported by Flynn and colleagues (2017), participating teachers attended training before the implementation of the program, as well as „network meetings“ every 6-8 weeks. In Ramage (2019) the facilitators attended weekly meetings with a skilled DBT therapist for consultation, co-planning an information exchange. Finally, only one of the studies included in the present review was published in a peer-reviewed journal, which limits the reliability of the overall findings.
**Discussion**

The present study was aimed at systematically reviewing results of available studies investigating the effects of DBT STEPS-A, a social-emotional curriculum for students, aged 10-19, at a universal level. A total of five studies conducted internationally (i.e., from Ireland, Wales and Iceland) were included in this review; however, no studies from the United States were identified, despite the program originating from the US. Furthermore, only one of the included studies was published in a peer-reviewed journal. The dearth of studies concerning the effectiveness of DBT STEPS-A perhaps is not surprising given how recently the curriculum was published. Similarly, Wilson (2019) reported that when searching for literature regarding DBT implementation in schools, few studies were available, including studies conducted in a clinical setting. This is in accordance with the findings of the current review, as there is an obvious gap in this literature.

**Main results**

The main results of the aforementioned studies (Carey, 2019; Flynn et. al, 2017; 2018; Ramage, 2019; Rósenbergsdóttir & Jóhannesdóttir, 2018) showed that implementation of the program, ideally, should be comprehensive, thoroughly planned, and conducted with fidelity to achieve positive effects. As noted by Carey (2019) and Flynn and colleagues (2017), there may be a reason to reevaluate the module structure to better engage the students, as well as teaching the program in a modular manner. Additionally, data suggest that the program may be beneficial for a targeted population, as noted by Ramage (2019), as for example students with complex needs and at-risk youth. Overall, although the results collectively indicate that DBT STEPS-A holds promise, particularly with respect to improved emotion regulation among students, these findings are preliminary and require further investigation in randomized, controlled studies, ideally employing a longitudinal design.

**Limitations, strengths and importance of this review**

The current review revealed a dearth of empirical studies regarding the effectiveness of DBT STEPS-A. As a result, the present review only identified a total of five studies, from three different countries. This apparent lack of studies limits the ability to make inferences concerning the effectiveness of the program, its feasibility for schools and classrooms, and the cost-benefit ratio of investing limited resources in its implementation. All five studies included in this review adapted the DBT STEPS-A program to better fit their respective
environment. The methodological diversity of the included studies is reasonable given how few they are.

During the search and retrieval process, a substantial number of irrelevant results emerged. The databases used in the present review were limited to those accessible and considered suitable. Databases comparable to PsycNet, however, may have been a better fit, as it is a specified database for psychology. While there were some limitations to data collection, the fact that both authors conducted the search and cross checked the results, can be considered a strength. This ensured that every search result was screened twice, so none would be overlooked.

Among these strengths is the fact that, to the authors’ knowledge, it is the first systematic review concerning the DBT STEPS-A program. With this, valuable information regarding the program has been gathered to inform future research and further implementation of the program globally. It is also apparent from the results of this review that the program potentially may be modified with positive results and that it holds promise in being effective for a targeted population.

**Future steps**

Given the novelty of the DBT STEPS-A program the research literature is scarce. Additional research is much needed to better establish the efficacy of the program and address the limitations of extant literature. It would be beneficial for future research to gather more longitudinal data, as well as conducting fidelity checks and implementing the program using a randomized control trial (RCT), including more diverse participants. As revealed in this review, investigators within this field of research should bear in mind that there may be reason to reevaluate the structure of the curriculum as well as possibly implementing the program in a more modular manner. It is worth noting that Flynn and colleagues (2018) raised concerns regarding the measures of dysfunctional coping and DBT skill use (DBT-WCCL) that it may not have adequate sensitivity to detect subtle changes within a universal sample, as it is typically used for clinical samples. Additionally, it is important, both for researchers and for practical use of the program, to allocate sufficient time, resources and planning for an overall smooth implementation of the program in order to support school staff and increase program fidelity. In research settings, particularly, enough time should be allocated for data collection before program implementation, to help promote comparison of outcomes pre and post program implementation. Before program implementation, buy-in from school
administrators and other school staff should be established, in order to ensure commitment, reliability, and validity. Additionally, researchers wishing to evaluate the program may need to seek funding and possibly commitment and input from outside agencies and other professionals.
Conclusion

Dialectical Behavior Therapy Skills Training for Emotional Problem-Solving for Adolescents (DBT STEPS-A) is a comprehensive Social-Emotional Learning (SEL) program aimed at adolescents at a universal level. This program is meant to promote better mental health by teaching adolescents a number of social- and emotional skills in a school setting. To date, the available literature and research regarding the DBT STEPS-A program is scarce, with only one study published in a peer-reviewed journal. Social-Emotional Learning programs have been shown to be beneficial, however, evidence-based SEL programs for adolescents are lacking. This systematic review of available literature concerning the effectiveness of DBT STEPS-A comprised five different studies originating from three countries. These studies included a pilot implementation, modifications of the program structure, as well as implementation in a targeted sample. Preliminary results suggested that when the program is implemented fully it appears to have a positive effect on student functioning, however, when implemented partially, no significant effects were observed. To the authors’ knowledge, this is the first systematic review on this topic, as the DBT STEPS-A program is still relatively new. The findings of this review serve to inform future research, particularly with regard to limitations of the extant literature. Despite the laudable efforts and pioneering work of the authors of the included studies, additional studies of the effectiveness of DBT STEPS-A are sorely needed. Ideally, future studies within this area of research should employ a longitudinal, randomized-controlled design and attend carefully to teacher training and supervision, as well as program fidelity.
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Appendix

Orientation (Lesson 1)
Dialectics (Lesson 2)
Mindfulness (Lessons 3–5, 13–14, and 23–24)
  Specific Mindfulness Skills
Distress Tolerance (Lessons 6–12)
  Crisis Survival Skills
  Reality Acceptance Skills
Emotion Regulation (Lessons 15–21)
  Understanding and Naming Emotions
  Changing Emotional Responses
  Reducing Vulnerability to Emotion Mind: ABC PLEASE
  Letting Go of Emotional Suffering
Interpersonal Effectiveness (Lessons 25–29)
  Specific Interpersonal Effectiveness Skills