Self-compassion Intervention for Parents of Children with Developmental Disabilities: A Feasibility Study

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Abstract
Objectives Parents of children with developmental disabilities (DDs) experience greater psychological distress (e.g., stress and depression) compared to parents of children without DDs. Self-compassion (i.e., responding with compassion to oneself during times of stress and difficulty) is associated with greater self-care as well as lower levels of stress, depression, and internalized stigma among parents of children with DDs. In this study, we tested the feasibility of a 4-week brief, asynchronous, online intervention targeting self-compassion among parents of children with DDs.

Methods Participants were fifty parents (48 mothers; 2 fathers) of children with DDs. Participants’ ages ranged from 25 to 62 years (M = 42.1 years, SD = 7.9 years), and 88% of participants had one child with a DD, and the remaining parents had two or more children with DDs. Child diagnoses included Down syndrome, autism spectrum disorder, and intellectual disability. Feasibility was assessed in five domains (i.e., acceptability, demand, implementation, practicability, and limited efficacy) using a combination of self-report measures, qualitative feedback, and data on attrition.

Results Most parents (84%) completed ≥ 3 modules, and 74% completed all four modules. Almost all parents (> 90%) reported that they would recommend the intervention to others. Paired-samples t-tests demonstrated significant pre-intervention to post-intervention increases in self-compassion and well-being, and significant reductions in parent depression and stress.

Conclusions Overall, data support feasibility of the 4-week intervention targeting parent self-compassion and provide preliminary efficacy data that need to be followed up in a larger randomized control trial.

Keywords Developmental disabilities · Parenting · Caregiving · Self-compassion · Online interventions

Approximately 17% of children in the USA aged 3 through 17 years have a developmental disability (DD), which is approximately one in six children (Zablotsky et al., 2019). DDs refer to a group of disorders that are characterized based on impairments in physical, neurological, and/or cognitive functioning (U.S. Department of Health and Human Services, 2010). DDs include autism spectrum disorder (ASD), cerebral palsy, fetal alcohol syndrome, intellectual developmental disorder (IDD), hearing loss, attention-deficit/hyperactivity disorder (ADHD), and Down syndrome. DDs generally emerge due to a complex combination of factors, such as genetics, complications at birth, injuries, infections, and/or exposure to environmental toxins (U.S. Department of Health and Human Services, 2019). Between 2009 and 2017, the Centers for Disease Control and Prevention (CDC) in partnership with the Health Resources and Service Administration (HRSA) examined the prevalence of DDs in children in the USA (Zablotsky et al., 2019). Parent-report data from 88,530 children aged 3 through 17 years were examined, and data demonstrated that from 2009 to 2017, there was a 9.5% increase in the prevalence of any DD. The increase in prevalence varied between different DD diagnoses. For example, the prevalence of ADHD increased 12.6%, the prevalence of ASD increased 122.3%, and the prevalence of IDD increased 25.8%. Although the reasons for these increases were not directly examined, previous research suggests that improved awareness, screening, diagnosis, and access to services has contributed to the increased prevalence of a DD diagnosis (Zablotsky et al., 2019).

Typically, parenting is accompanied by stress due to the variety of challenges parents experience in daily life (Dervishaij, 2013; Hsiao, 2018). Raising a child with DDs,
Parenting stress can be amplified when children have challenging behaviors, such as self-injurious, stereotypic, aggressive, or disruptive actions that children with DDs may display (Desrochers & Fallon, 2014; Hsiao, 2018). These difficult behaviors intensify parent stress at home, and also in public, where parents may experience unpleasant responses from onlookers. Parents are often criticized for not being “competent” enough to manage or discipline their child (Wong et al., 2016, p. 1386). A transactional model proposed by Hastings (2002) suggested that challenging child behavior increases parent stress, which disrupts healthy parenting abilities, which then feeds back to heighten difficult child behaviors. Further, the “wear and tear” hypothesis suggests that the longer an individual is exposed to stress, the more depleted their coping capacities are, resulting in decreased resiliency in the face of stressors (Robinson et al., 2017, p. 1).

In addition to stress, parents of children with DDs are also at risk of experiencing depression (Marquis et al., 2020; Scherer et al., 2019). A recent meta-analysis reported that the prevalence of clinically diagnosable depression in parents of children with DDs is estimated to be 31%, compared to 7% among parents of children without DDs (Scherer, 2019). Depressive symptoms have a potential for long-term influence, particularly if appropriate supports are not in place for the family (Glidden & Schoolcraft, 2003). Depression among parents of children with DDs may be driven by feelings of self-blame and shame (Neff & Faso, 2014). Withstanding judgment from strangers, feeling that it is impossible to coordinate care or make the “correct” treatment choices, and experiencing the newness of a DD diagnosis all further exacerbate symptoms of depression. Similarly, as is with stress, certain factors may place parents at a compounded risk for depression, such as pre-existing emotional vulnerabilities, child characteristics, financial strain, social determinants of poor health, and/or restrictions in personal life (Marquis et al., 2020; Scherer et al., 2019).

Self-compassion is a relatively new construct in psychological research, and is defined as a way of responding to oneself during times of stress and difficulty (Neff, 2003). Self-compassion involves three key capacities: self-kindness, common humanity, and mindfulness. Self-kindness is described as extending kindness and understanding to oneself, common humanity is viewing one’s difficult experiences as part of the larger human experience, and mindfulness is a non-judgmental, open state of mind in which one observes thoughts and feelings as they are. These components of self-compassion also hold opposing pairs: self-judgment, isolation, and over-identification (MacBeth & Gumley, 2012; Neff & Faso, 2014). Self-judgment involves attacking oneself over weaknesses or mistakes, isolation is a feeling of loneliness in one’s suffering, and over-identification is ruminating over negative aspects of life or oneself (Neff, 2003).

A meta-analysis by MacBeth and Gumley (2012) examined the strength of the relationship between general symptoms of psychopathology (e.g., signs of depression, anxiety, and/or stress) and self-compassion. The authors systematically reviewed 14 publications that examined this relationship, and each study utilized the Self Compassion Scale to measure self-compassion (SCS; Neff, 2003). Participants in the studies reviewed included a wide range of adults, such as students, therapists, and adults seeking services at community mental health centers. A large effect size was found for the relationship between general psychopathology and self-compassion, with higher levels of self-compassion being associated with lower levels of mental health symptomology. Overall, the analysis highlighted the importance of self-compassion in relation to reduced intensities of depression, anxiety, and stress (MacBeth & Gumley, 2012), which are concerns often experienced by parents of children with DDs.

Self-compassion may serve as an important coping strategy specifically for parents of children with DDs (Bohadana et al., 2019; Robinson et al., 2017). Neff and Faso (2014) studied the relationship between self-compassion and well-being among 51 parents of children with ASD and found that self-compassion was positively related to life satisfaction, hope, and goal reengagement. Even when faced with the difficulties and stressors of raising a child with DDs, parents with higher levels of self-compassion reported more meaning in life and were more optimistic about the future. In addition, compared to parents with lower levels of self-compassion, those with higher levels of self-compassion were better able to balance caregiving and self-care, and continued to pursue personal goals. Self-compassion was also negatively related to symptoms of depression and stress (Neff & Faso, 2014). Importantly, Neff and Faso (2014) found that self-compassion was a stronger predictor of parental well-being than severity of child behavior problems. Stated differently, how parents of a child with ASD cope and relate to themselves internally, is just as, if not more influential, to their well-being as the severity of their child’s behavioral difficulties. In sum, these findings suggest that self-compassion could potentially serve as a coping resource that can lead to...
better parent well-being and functioning when raising children with DDs (Neff & Faso, 2014).

In another study, Robinson et al. (2017) examined the association between self-compassion and well-being among 56 parents of individuals with DDs. Level of compassion varied widely in this sample, and higher levels of self-compassion were related to lower levels of depression and stress, even after accounting for other known stressors, such as economic hardship (Robinson et al., 2017). Similarly, Bohadana et al. (2019) examined self-compassion as a predictor of stress and quality of life among 139 parents of children with ASD. After controlling for predictors such as child characteristics, social support, and increased demands, self-compassion was found to account for over three quarters of the variance in stress scores. Distinctively, self-judgment, isolation, and over-identification (i.e., the opposite of self-compassion) were related to higher levels of stress among these parents. According to Bohadana et al., self-compassion could be construed as a modifiable trait, and should be targeted in parenting interventions for parents of children with DDs, with the aim of reducing parent stress and improving quality of life.

Jefferson et al.’s (2020) systematic review and meta-analysis of parenting intervention studies that incorporated and assessed self-compassion included 13 trials published between 2003 and 2019. There was wide variability across the 13 studies with regard to intervention content, duration, and participant groups. Two of these trials focused on parents of children with DDs; one was an 8-week mindfulness-based program for parents (see Jones et al., 2018) and the other was a 9-week mindfulness program for families (see Ridderinkhof et al., 2018). Findings from the meta-analysis indicated that interventions that included self-compassion resulted in increases in parent self-compassion and mindfulness, and reductions in parent stress, depression, and anxiety (Jefferson et al., 2020).

Although mindfulness and self-compassion are separate constructs, self-compassion is conceptually similar to mindfulness in that mindfulness is one of the primary components of self-compassion, and both involve a stance of acceptance and awareness of painful experiences (Wong et al., 2016). Mindfulness-based stress reduction (MBSR) and mindfulness training (MT) interventions for parents of children with DDs have been shown to reduce stress, and increase mindfulness, self-compassion, and overall well-being (Bazzano et al., 2013; Benn et al., 2012).

Bazzano et al. (2013) developed, implemented, and evaluated the feasibility of an MBSR program designed specifically for parents of children with DDs. After 8 weeks, all participants reported a significant reduction in stress, and significant increases in mindfulness, self-compassion, and well-being. In response to a qualitative question about the impact of the intervention, parents generally expressed that they learned strategies to handle their stress, be more focused on the present moment, and improve their relationship with their child. One participant stated, “[I have] a new orientation to life — more positive feelings about myself and more accepting of others — willing to listen and be present” (Bazzano et al., 2013, p. 305).

Benn et al. (2012) examined the efficacy of a 5-week MT program for both parents and educators of children with DDs and other special needs, such as specific learning disorders. The 5-week MT program included didactic components on mindfulness, group discussions, mindfulness practices, and homework assignments. All participants demonstrated significant increases in mindfulness, which in turn mediated their levels of stress and distress. There was also an enhancement of positive psychological functioning, demonstrated through greater self-compassion, relational competence, empathic concern, and forgiveness of others. Generally, a number of studies support the notion that mindfulness, one of the components of self-compassion, can serve as a powerful psychological intervention and resource, leading to adaptive, flexible coping, decreases in stress, greater general well-being, and ultimately, more positive intra- and interpersonal relations (Bazzano et al., 2013; Benn et al., 2012).

When considering health care delivery, including mental health treatment, the internet has become a major component, particularly during the COVID-19 pandemic. Given the wide reach and numerous capabilities of the internet, online interventions have great potential for the future of psychology and delivering psychological interventions that may be more accessible than traditional in-office treatments. Online interventions can reduce many common barriers to face-to-face treatments targeting parent psychological functioning, such as time to travel from appointments and arranging childcare. Self-guided (i.e., asynchronous) online interventions have the additional benefit of being accessible to parents at all times, and time taken to review and complete the intervention can vary depending on parent needs and time. A recent review evidenced both benefits and difficulties of asynchronous technologies in mental health care (Chan et al., 2018). Benefits included reduced barriers to care related to transportation, time (i.e., interventions can be accessed outside of typical office-hours), and scheduling. Asynchronous services may also be beneficial to individuals who are unable to access a provider who speaks their same language, specifically, written material can be translated on the internet, and videos can have subtitles in different languages. Challenges of asynchronous interventions include the need for clinicians to understand the efficacy of the self-guided intervention being provided, and managing privacy and safety concerns that may arise (e.g., responding to reports of self-harm and/or suicidal intent). Additionally, some individuals, such as those with significant psychological concerns may be better suited to interventions that
include therapist involvement and personalized feedback on progress (Chan et al., 2018).

Recent research provides promising preliminary evidence that self-compassion can be improved through online interventions, and that these increases in self-compassion remain over time. For example, online self-compassion interventions have been tested with psychology trainees (Finlay-Jones et al., 2016), mothers of infants (Mitchell et al., 2018), and individuals who judged themselves to be self-critical as participants (Krieger et al., 2016). Intervention duration for these studies ranged from four to 7 weeks, and content varied and generally included psychoeducational and therapeutic activities related to self-compassion (e.g., online resources, reflective and experiential exercises). Common strengths identified in these trials included cost-effectiveness, accessibility, and convenience; limitations included length of time taken to complete content. Attrition rates ranged from 23.1 to 46% across the three studies. These limitations point to possible ways to increase engagement, such as reducing length of content, providing compensation, and increasing flexibility by incorporating asynchronous features and making the intervention accessible on multiple online platforms (e.g., a smartphone) (Finlay-Jones et al., 2016).

Given that parents of children with DDs (1) experience high levels of stress and depression, and (2) experience many burdens on their time, they may be uniquely poised to benefit from asynchronous online interventions that they can access at their own pace and convenience. In this study, we evaluated the feasibility of a brief web-based self-compassion intervention for parents of children with DDs.

Method

Participants

Participants were parents of a child/children with DDs, recruited from a non-profit agency in Southern California, a children’s hospital in Ohio, and two other community organizations in Ohio. Flyers were posted online, emails were sent out to parents, and participants were also recruited via a snowball sampling method. Inclusion criteria included being a parent of a child with a DD diagnosis and the parent being 18 years and older. Participants were excluded if they did not read and write in English. Additional inclusion criteria included having regular access to the internet (e.g., via smartphone, local library, home internet service, etc.). Participants were recruited during the COVID-19 pandemic, and all data was collected online via Qualtrics survey between February and May of 2021. A priori power analysis was conducted using G*Power 3.1.4 (Faul et al., 2007), which determined that a sample size of 27 participants was needed for a paired samples t-test to detect a medium effect size (0.5) with power set at 0.8 and alpha set at 0.05.

Fifty parents (48 mothers, 2 fathers) completed baseline measures. Eighty-four percent of participants identified as White/Non-Hispanic Caucasian, 6% identified as Black/African American, 6% as either Asian American or Latino/Latina, and 4% preferred not to report their race. Participant ages ranged from 25 to 62 years (M = 42.1 years, SD = 7.9 years). Most participants were married (82%; 8% divorced, 6% single, 4% widowed) and all had at least some college education. Eighty-eight percent of participants had one child with a DD, and the remaining parents had two or more children with DDs. Child diagnoses included Down syndrome (44%), autism spectrum disorder (42%), attention-deficit/hyperactivity disorder (44%), intellectual developmental disorder (22%), and others such as spina bifida, cerebral palsy, and epilepsy; the total percentage of DDs does not equal 100% as some children had more than one diagnosis. Demographic information is summarized in Table 1.

Procedures

Approval was obtained from the researchers’ Institutional Review Board and all agencies prior to collecting data. Parents who were interested in taking part clicked on a link in the flyer, email, or newsletter invitation, and were provided with information about the study. Participants then reviewed the informed consent document, and those who met study criteria and opted to participate indicated consent by clicking the “next” button to proceed. Parents who provided consent were directed to a screen with a demographic questionnaire and baseline measures. Participants then viewed and completed the first self-compassion module and completed follow-up questions. Exactly 7 days after each participant completed the first module, they received an email link to the second module. Participants then received the link for the third module exactly 7 days after receiving the second module, and this pattern continued for the final week. On weeks 2, 3, and 4, participants also received up to two reminders (via text and/or via email) to complete the module for that week. After week 4 concluded, participants completed post-intervention measures. All participants received weekly reminders and the link to post-intervention measures regardless of number of modules completed. After the intervention and measures were completed, participants were provided debriefing information and thanked for their time.

Participants received a $5 gift card upon completion of each of the four time points of the intervention (i.e., after completion of baseline measures and Module 1, completion of Module 2, completion of Module 3, and completion of Module 4 and post-intervention measures), for a potential total of $20 in gift cards for participants who completed all measures and modules. It should be noted that due to issues related to spam and bot responses for online data collection, procedures were established to screen for fake/bot responses. This included using Captcha verification, screening open-ended responses,
Table 1  Summary of participant demographics at baseline  
\((N = 50)\)

| Category                  | Frequency (%) |
|---------------------------|---------------|
| Caregiver role            |               |
| Mother                    | 48 (96%)      |
| Father                    | 2 (4%)        |
| Race                      |               |
| White/Non-Hispanic Caucasian | 42 (84%)   |
| Black/African American    | 3 (6%)        |
| Other (e.g., Asian American and Latino/a) | 3 (6%) |
| Prefer Not to Respond     | 2 (4%)        |
| Parent age                |               |
| 25–35 years               | 8 (16%)       |
| 36–45 years               | 30 (60%)      |
| 46–55 years               | 8 (16%)       |
| 56+ years                 | 4 (8%)        |
| Level of education        |               |
| Some college and 2-year college degree | 6 (12%) |
| 4-year College degree/bachelors | 22 (44%)  |
| Advanced degree           | 21 (42%)      |
| Prefer not to respond     | 1 (2%)        |
| Employment status         |               |
| Employed full-time        | 20 (40%)      |
| Stay-at-home parent       | 13 (26%)      |
| Employed part-time        | 10 (20%)      |
| Not currently employed    | 3 (6%)        |
| Retired or other          | 3 (6%)        |
| Prefer not to respond     | 1 (2%)        |
| Annual household income   |               |
| $25,000–$49,999           | 9 (18%)       |
| $50,000–$74,999           | 6 (12%)       |
| $75,000–$99,999           | 6 (12%)       |
| $100,000 or more          | 18 (36%)      |
| Prefer not to respond     | 11 (22%)      |
| Marital status            |               |
| Single, never married     | 3 (6%)        |
| Married                   | 41 (82%)      |
| Widowed                   | 2 (4%)        |
| Divorced                  | 4 (8%)        |
| Number of children residing in the home |               |
| 1                         | 19 (38%)      |
| 2                         | 17 (34%)      |
| 3                         | 6 (12%)       |
| 4                         | 6 (12%)       |
| 5+                        | 2 (4%)        |
| Number of children with DDs |           |
| 1                         | 44 (88%)      |
| 2 or more                 | 6 (12%)       |
| Child DD diagnosis*       |               |
| Down syndrome             | 22 (44%)      |
| Attention-deficit/hyperactivity disorder | 22 (44%)   |
| Autism spectrum disorder  | 21 (42%)      |
| Intellectual developmental disorder | 11 (22%) |
| Global developmental delay | 2 (4%)      |
and use of security questions. In addition, participant email and/or phone numbers were verified.

The intervention consisted of four experiential learning modules, delivered over the course of 4 weeks (i.e., one module per week). Each module was expected to take about 12 min to complete, and all participants received the modules in the same order. The modules were adapted, with permission, from exercises developed by self-compassion pioneer K. Neff (https://self-compassion.org/category/exercises/#exercises). Adaptations included modifying examples to reflect parenting experiences of parents of children with DDs (e.g., not being able to calm a child at the store, or yelling at a child and feeling self-judgment). Each module began with brief psychoeducation on the topic followed by a written experiential activity. Table 2 provides a summary of weekly modules.

**Measures**

**Demographics**

Participants completed a demographic questionnaire on background information such as race, age, marital status, education level, number of children with a DD, and child DD diagnosis.

| Week | Module theme | Summary of module |
|------|--------------|-------------------|
| 1    | Self-compassion | Provided psychoeducation on self-compassion. Participants read, or watched a video presentation of the same material, about the definition of self-compassion, the usefulness of self-compassion, and learned how self-compassion is associated with a multitude of healthy behaviors and positive wellbeing. Parents were reminded that over the next three weeks, they would receive a weekly activity to further develop their personal self-compassion. After learning the information, parents were directed to watch a 3-min video from K. Neff’s website where she described self-compassion and provided examples |
| 2    | Self-kindness | Participants were asked to privately write down a parenting event from the past week which they felt badly about, that they judged themselves for, or that caused them emotional pain. In response to this painful experience, parents were instructed to write themselves kind and understanding words of comfort. Parents were then provided more information on self-kindness and were encouraged to practice self-kindness throughout the next week |
| 3    | Common humanity | Parents were provided information about common challenges and struggles experienced by other parents of children with DDs. Participants were then instructed to privately write down a parenting event from the past week that they felt badly about, which they judged themselves for, or that caused them emotional pain. In response to this painful experience, they wrote down the ways in which their difficult experience was connected to a larger human experience (e.g., being human means being imperfect). After writing, parents were encouraged to reflect on common humanity throughout the week and to reach out to other parents who may share similar experiences and challenges |
| 4    | Mindfulness | Participants were provided information on mindfulness and were instructed to privately write down a parenting event from the past week that they felt badly about, that they judged themselves for, or that caused them emotional pain. In response to this painful experience, they were instructed to non-judgmentally and factually write about the emotions that arose due to their difficult circumstances or self-judgment. Parents were then encouraged to reflect on mindfulness and how they could incorporate mindfulness in their daily lives |
Feasibility

Feasibility for this study was evaluated based on Bowen’s framework for conceptualizing feasibility studies, and five of the eight dimensions were examined (Bowen et al., 2009). Acceptability refers to how the target population reacts to the intervention (Bowen et al., 2009) and was operationalized through the following items presented after each module: (1) two open-ended questions (i.e., “Identify one thing that was helpful about this activity”; and, “Please provide any suggestions you have for improving this activity”), (2) one Likert-scale item (i.e., “On a scale from 1–5, how difficult was this activity”), and (3) a yes/no response to the prompt: “Would you recommend this activity to other parents?” Demand or desire for the intervention was considered in light of the existing body of literature on the experiences and functioning of parents of children with DDs. Implementation relates to how successfully the intervention is implemented and was measured by assessing the number of participants who completed 3 or more of the weekly intervention modules. We also examined differences between parents who completed 3 or more sessions versus those who did not to explore characteristics associated with greater engagement. Practicality considers how the program can be delivered to the intended audience, and we assessed practicality using a Likert-scale item presented after each module (i.e., “On a scale from 1–5, how stressful was this activity”), and (3) a yes/no response to the prompt: “Would you recommend this activity to other parents?” Limited-efficacy testing was measured via changes in pre- and post-scores on parent self-report measures described below.

Self-compassion

The Self-Compassion Scale (SCS; Neff, 2003) was used to measure self-compassion. The SCS is a 26-item, self-report questionnaire designed to measure the positive and negative aspects of the three main components of self-compassion (i.e., self-kindness, common humanity and mindfulness). Responses are given on a 5-point Likert-type scale ranging from 1 (Almost Never) to 5 (Almost Always). After reverse coding items representing uncompassionate responses, a total self-compassion score is computed. Total self-compassion scores range from 26 to 130, with higher scores indicating higher levels of self-compassion (Neff, 2003). Inter-item consistency of the SCS has been found to be consistently high across a wide variety of populations, with Cronbach’s alpha ranging from 0.73 to 0.94 across studies. Cronbach’s alpha for the present study was 0.94; and McDonald’s omega, which is a measure of scale reliability, was 0.94. The scale also demonstrates strong convergent validity, good discriminant validity, and good test–retest reliability (Neff, 2003, 2015). The SCS has been used in research with parents of children with autism, intellectual disabilities, and other DDs (Robinson et al., 2017; Wong et al., 2016).

Depression and Stress

The Depression Anxiety Stress Scale — 21 Items (DASS-21; Henry & Crawford, 2005) is a short-form version of Lovibond and Lovibond’s (1995) 42-item self-report measure of depression, anxiety, and stress (DASS). The DASS-21 consists of three subscales, comprised of seven items each. The present study utilized the 7-item depression subscale and 7-item stress subscale. For both subscales, responses are given on a 4-point Likert-type scale ranging from 0 (Did not apply to me at all — never) to 3 (Applied to me very much, or most of the time — almost always). The scales measure the extent to which each state has been experienced over the past week (Henry & Crawford, 2005). Subscale scores are computed, with higher scores indicating higher levels of depression and stress; subscale scores range from 0 to 21. In a study examining self-compassion and psychological distress in parents of children with intellectual and developmental disabilities, both subscales had Cronbach alpha levels of 0.93 (Robinson et al., 2017). Cronbach’s alphas for the present study were 0.82 (stress subscale) and 0.87 (depression subscale); and McDonald’s omegas were 0.83 (stress subscale) and 0.88 (depression subscale). Convergent and discriminant validity of the DASS-21 has also been evidenced (Henry & Crawford, 2005). The measure has been used with other samples of parents/caregivers of children with DDs (e.g., AlTourah et al., 2020; Robinson et al., 2017).

Parent Well-being

The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS; Tennant et al., 2007) is a measure of subjective general well-being (Tennant et al., 2007). The scale consists of 14 statements related to well-being during the past week and participants rate how much they experienced each item on a 5-point Likert-type scale ranging from 1 (none of the time) to 5 (all of the time). A global score is calculated by computing the mean score of the 14 items. Higher scores indicate higher levels of well-being, with a minimum score of 14 and a maximum score of 70 (Tennant et al., 2007). Inter-item consistency has been demonstrated with a Cronbach’s alpha of 0.89 for student samples and 0.91 for a population sample in Scotland (Tennant et al., 2007). Cronbach’s alpha for the present study was 0.93, and McDonald’s omega was 0.94. The measure also demonstrates high test–retest reliability, convergent validity, and discriminant validity. The measure has been used with other samples of parents/caregivers of children with DDs (e.g., Dunn et al., 2019; Martin et al., 2019).

Data Analyses

Bivariate correlations were conducted to assess the relationship between self-compassion, general well-being, stress, and depression at baseline. Independent samples t-tests were
used to examine differences in baseline functioning based on number of children with DDs (1 vs. 2 or more children) and number of DD diagnoses (1 vs. 2 or more diagnoses). Feasibility was measured by evaluating number of sessions completed as well as parent responses (qualitative and quantitative) to feedback questions after each weekly intervention. As a dimension of feasibility, we examined limited efficacy of the intervention by using paired sample t-tests to examine changes in pre-scores and post-scores on parent self-report measures among the 41 parents who completed all pre and post measures (who incidentally were all the parents who completed 3 or more modules). Given the small sample size and preliminary nature of the analyses, an alpha of 0.05 was set to determine significance of the four paired samples t-tests. Because participants were required to complete all items of a measure before moving to the next measure, there was no missing data. All study measures were normally distributed (i.e., skew and kurtosis were within $1/-1$) and there were no outliers.

**Results**

**Acceptability**

Representative parent feedback regarding weekly responses on what was helpful, and suggestions are summarized in Table 3. Parent responses to the items reflecting potential stress are summarized in Table 4. Regarding whether they would recommend the intervention to a friend, 92.9% of respondents said they would recommend the first module, 97.6% for the second module, 95.5% for the third module and 92.7% for the fourth module.

**Demand**

Due to our online recruitment strategy, we were not able to assess demand by determining what percentage of parents who received information about the study opted to participate. However, literature in this area suggests that there may be demand for such an intervention. Specifically, parents of children with DDs are at risk of greater levels of stress and depression than parents of children without DDs (Marquis et al., 2020; Masefield et al., 2020), and self-compassion may serve as an important coping strategy for these parents (Bohadana et al., 2019; Robinson et al., 2017). While parents of children with DDs may benefit from psychological interventions and supports, they are also a population that experience many burdens on their time. As such, a brief asynchronous online intervention targeting self-compassion may be particularly suited to this group of parents.

**Implementation**

Of the 50 participants who consented to participate and completed pre-intervention measures, most ($n = 37; 74\%$)

| Table 3  | Representative qualitative feedback from parents on intervention modules (verbatim) |
|-----------------|-----------------------------------------------------------------------------------|
| Week 1: Psychoeducation on self-compassion  |
| Parent comments on what was helpful         |
| • Self-reflecting                            |
| • Considering my own health                 |
| • Considering having compassion for myself  |
| • Learning that self-compassion is always available to me |
| Week 2: Self-kindness                        |
| Parent comments on what was helpful         |
| • Encouraging parents to say kind things to themselves |
| • It helps me remember that to be imperfect is to be human |
| • Taking a few moments to focus on myself    |
| • This activity really reminded me that I can’t control everything |
| Week 3: Common humanity                      |
| Parent comments on what was helpful         |
| • Reminding me that I am human and we all make mistakes |
| • Giving myself permission to be imperfect  |
| • Being reminded that all parents have struggles and challenges |
| • Remembering that no parent is perfect     |
| Week 4: Mindfulness                          |
| Parent comments on what was helpful         |
| • Remembering that mindfulness can happen in many different places |
| • Reminds me to observe my emotions         |
| • The idea of putting some space between the event and my emotions |

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completed all four modules, 5 (10%) completed three modules, 2 (4%) completed two modules, 3 (6%) completed one module, and 3 (6%) completed the pre-intervention measures but did not complete any modules or post-intervention measures. Among participants who did not complete one or more modules, there was no pattern in which module was not complete, with all four modules being missed by at least one participant. Independent samples t-tests were conducted to determine whether there were any differences between completers (i.e., completing three or more interventions) and non-completers (i.e., completing two or less interventions). There was no significance between group differences for parent age, baseline scores on all study measures, and number of years since receiving child DD diagnosis. Chi-square tests of independence found no significant difference between completers and non-completers (i.e., completing two or less interventions). There was no significance between group differences for parent age, baseline scores on all study measures, and number of years since receiving child DD diagnosis. Chi-square tests of independence found no significant difference between completers and non-completers regarding annual income (dichotomized to < $49,999 vs. $50,000 or more), race (White vs. Non-white), marital status (married vs. not married), and whether the parent was in therapy at the time of the study (yes vs. no).

**Practicality**

Parent responses to the item reflecting potential difficulty in finding time to engage in the intervention are summarized in Table 4. An average of 61% of participants found it “easy” or “very easy” to find time to engage in each weekly task.

**Limited-Efficacy Testing**

At baseline, higher levels of self-compassion were associated with lower levels of depression ($r = -0.53$, $p = 0.00$) and stress ($r = -0.55$, $p = 0.00$), and higher levels of well-being ($r = 0.73$, $p = 0.00$). In addition, at baseline, independent samples t-tests demonstrated there were no significant differences in levels of stress, depression, well-being, or self-compassion based on number of children with a DD (i.e., 1 child, $n = 44$ vs. 2 or more children, $n = 6$), or number of DDs a child had (i.e., 1 DD, $n = 24$ vs. 2 or more DDs, $n = 26$).

Paired samples t-tests indicated that parent self-compassion scores and well-being significantly increased from pre-intervention, and stress and depression significantly decreased. Table 5 displays a summary of the paired-samples t-tests, effect sizes, as well means and standard deviations of self-report measures at pre-intervention and post-intervention.

### Table 4  Acceptability and practicality data from parents on weekly modules

| How difficult was it for you to find time to engage in this activity? | Easy/ Very easy $n$ (%) | Neutral $n$ (%) | Very difficult/ difficult $n$ (%) |
|---|---|---|---|
| Module 1 | 25 (59.5%) | 10 (23.8%) | 7 (16.7%) |
| Module 2 | 26 (61.9%) | 7 (16.7%) | 9 (21.4%) |
| Module 3 | 28 (63.7%) | 10 (22.7%) | 6 (13.6%) |
| Module 4 | 24 (58.5%) | 8 (19.5%) | 9 (21.9%) |

| How stressful was this activity? | Very relaxing/ relaxing $n$ (%) | Neutral $n$ (%) | Stressful/very stressful $n$ (%) |
|---|---|---|---|
| Module 1 | 21 (50%) | 16 (38.1%) | 5 (11.9%) |
| Module 2 | 23 (54.8%) | 15 (35.7%) | 4 (9.5%) |
| Module 3 | 24 (54.6%) | 14 (31.8%) | 6 (13.6%) |
| Module 4 | 21 (51.2%) | 19 (46.3%) | 2 (4.7%) |

**Discussion**

This study examined feasibility, including limited efficacy of a brief asynchronous online self-compassion intervention for parents of children with DDs. Consistent with prior research (e.g., MacBeth & Gumley, 2012; Neff & Faso, 2014), pre-intervention levels of self-compassion were negatively correlated with depression and stress, and positively correlated with general well-being. Overall, results provide initial support for the feasibility of a brief online asynchronous intervention targeting self-compassion for parents of children with DDs. Most (84%) of the parents completed at least 3 of the 4 weekly modules and almost all parents reported they would recommend the intervention to others. While most parents found it easy to find time to engage in the intervention and found it to be either a relaxing or neutral experience, up to 22% of parents found it difficult or very difficult to find time to participate. Length and time have been identified as barriers to participation in other intervention studies with parents of children with DDs, and underscores the importance of finding ways to engage parents of children with DDs who have little spare time (Chan et al., 2018). Considerations include finding ways to incorporate the intervention as part of child appointments (e.g., a parent is offered the intervention on a tablet while in the waiting area) or finding ways to deliver core aspects of the intervention that are associated to change in a briefer format (e.g., delivering the content in five 2-min chunks each week).

Parents found specific aspects of the intervention to be helpful (e.g., “learning that self-compassion is always...
available to me," “helps me to remember that to be imperfect is to be human,” and “considering my own health”), and also provided suggestions for improvement (e.g., “additional resources to dive deeper into the topic,” “hearing other examples of how parents make mistakes,” and “adding self-worth quotes”). This important feedback should be used when improving and utilizing self-compassion interventions for parents of children with DDs.

Overall, parents who completed 3 or more modules experienced significant increases in self-compassion from pre-intervention to post-intervention. This finding suggests that self-compassion may be amenable to change and could possibly be increased through a brief online asynchronous intervention. Parents also demonstrated significant increases in general well-being, and significant decreases in depression and stress. This limited efficacy data suggests that fostering one’s self-compassion may be protective for parents of children with DDs, as this may boost affective and cognitive-evaluative dimensions of well-being and relieve symptoms of depression and stress. It is important to note, however, that without a control condition, these findings are preliminary and should be followed up with a larger randomized clinical trial. Moreover, studies with a larger sample will help elucidate the mechanisms of change.

This study was conducted during the COVID-19 pandemic, and there is increasing evidence that the pandemic disproportionately affected the most vulnerable, including children with disabilities and their families (U.S. Department of Health and Human Services, 2021). The pandemic, along with physical distancing guidelines and transition to remote learning, brought about significant stress and increased demands for many parents around the world, especially parents who have children with DDs or other special needs (Coyne et al., 2021). Researchers have been called to develop and offer accessible and feasible resources during this time, so that parents and families are supported as they navigate the disruptions of their everyday lives (Autism Speaks, 2020). Although this study was not an investigation of parents’ response to an intervention during a pandemic, it is noteworthy that participants participated during the pandemic and the largely positive feasibility and satisfaction findings suggest that the intervention is feasible even during times of heightened stress and burden.

### Limitations and Future Research

Findings from this study need to be considered in light of several limitations. A major limitation of this study is the homogeneous sample; almost all participants identified as Caucasian, married mothers who were already connected with resources for their children and self-selected to participate in the research. Moreover, participants had overall high levels of academic attainment. As such, findings are more generalizable to parents from similar backgrounds and may be less generalizable to families from different backgrounds (e.g., families living below the federal poverty threshold, non-Caucasian American mothers, etc.). Further research is recommended with a more diverse sample to examine the intervention effectiveness as well as factors that may impact parent experience, outcomes, and satisfaction. Relatedly, although in the present study there were no demographic differences between completers and non-completers of the intervention, this should continue to be investigated with a more diverse sample. This research could also specifically target parents of children with DDs who are less connected to resources, to determine if they respond to the intervention differently from parents who are more connected. It has also been found that single mothers who have a child with DDs are more vulnerable to depression than mothers living with a partner (Blacher & Lopez, 1997; Olsson & Hwang, 2001); as such, specifically recruiting single mothers may be beneficial for future trials.

Further study is needed to explore factors associated with parent interest in pursuing online interventions such as this. For example, it is possible that parents who chose to participate were those whose family functioning were less impacted by the pandemic (indeed, parents were generally from higher income households); though alternatively, it is also possible that parents who chose to participate were those experiencing psychological distress and seeking additional support.
Other limitations include the small sample size and lack of control or comparison condition. Indeed, efficacy data from this trial are limited and need to be followed-up with a larger sample utilizing a randomized control trial design to truly examine possible efficacy. Further, the modules were presented to all parents in the same order and future studies could consider counterbalancing topics and gathering data on sequencing of sessions. With regard to Bowen et al.’s (2009) framework for conceptualizing feasibility studies, integration is a dimension that could also be evaluated in ensuing research when recruiting for a larger sample, to determine if the intervention can be integrated into a larger, pre-existing system (e.g., a children’s hospital). Lastly, self-report measures were the primary measurement method, potentially leading to common method bias, such as social desirability responding. In addition, estimates of the relationships between constructs (e.g., self-compassion and depression) may have been inflated because they were measured with the same method, by the same informant (Podsakoff et al., 2012). Future research could address common method bias through a variety of strategies, such as removing common scale properties (e.g., anchor labels), getting reports from multiple informants, and separating administration of measures (e.g., with a time delay or filler activities).

Generally, findings provide groundwork for future research by documenting feasibility of an asynchronous online self-compassion intervention with a small sample of parents of children with DDs. These findings have important implications for providers working with children with DDs and their families, and point to interventions such as this as being an important area for future research. Preliminary findings from this study suggest that self-compassion may be malleable and can be increased through intervention. Parent functioning is important to target among families of children with DDs as parents are at risk of a range of psychological concerns (e.g., stress and depression). Moreover, the transactional model proposed by Hastings (2002) underscores the importance of intervening with parents, as improvements in parent functioning may also result in better child outcomes and well-being.

Given the online asynchronous nature of the intervention, it could be delivered through formal methods like group programs, or informal methods such as providing the intervention on a tablet while a parent is in a waiting room waiting for their child. In essence, the self-guided online delivery may increase access to the intervention. This is particularly important given that caregivers of children with DDs have been found to be less likely to seek help for their own psychological well-being (Wong et al., 2016; Woodward et al., 2015). Additionally, online interventions remove various barriers to receiving treatment, including transportation, cost, and time. Brief parent focused interventions could also be construed as a first-line or broad intervention offered to all parents, and the intervention could then be used to screen for parents that may benefit from additional supports, such as referrals to individual psychotherapy. The intervention could also be combined with additional hospital system specific resources and links, such that parents could easily connect with other supports such as social work and parent support groups.

Overall, this study provides preliminary evidence for the feasibility of this intervention: an asynchronous, online intervention targeting self-compassion among parents of children with DDs. This approach warrants future research to further establish efficacy of the intervention as well as feasibility among parents from diverse backgrounds. In addition, further work is needed to establish how the intervention can be effectively delivered to parents from a range of backgrounds.

Author contribution AA: designed and executed the study, completed the data analyses, and wrote the first draft of the paper. SR: collaborated with the design of the study, data analyses, and edited the paper. All authors read and approved the final version of the manuscript for submission.

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Data availability Quantitative data are available at the Open Science Framework (https://osf.io/vksjx).

Declarations

Ethics approval and consent to participate
- IRB: Approval was obtained from the Xavier University IRB (protocol #20–056).
- Compliance: In completing this study, all authors have adhered to all American Psychological Association ethical standards related to ethical completion of clinical research, as well as in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki (as relevant as this was not a medication/medical trial). All participants provided informed consent.

Conflict of interest The authors declare no competing interests.

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