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Recommended Citation

Petersen, Julie M., and Michael P. Twohig, "Acceptance and Commitment Therapy for a Child With Misophonia: A Case Study", *Clinical Case Studies* (0) pp. 1-13. DOI: <https://doi.org/10.1177/15346501221126136>.

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Acceptance and Commitment Therapy for a Child with Misophonia: A Case Study

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Acceptance and Commitment Therapy for a Child with Misophonia: A Case Study**Abstract**

Misophonia, a condition involving hypersensitivity, anger, and/or disgust in response to specific noises (e.g., chewing, tapping), is highly underresearched in children. Several case studies point towards the utility of cognitive behavioral therapy (CBT) and related treatments (e.g., acceptance and commitment therapy [ACT]). ACT presents a particularly promising option, as it focuses on building psychological flexibility in response to difficult internal experiences, rather than trying to remove or change them (e.g., responding effectively to irritation provoked by chewing). The present case study describes “Kelly” (pseudonym), a 12-year-old girl with moderately severe misophonia symptoms, who received a 16-session course of ACT for misophonia. At post-treatment, Kelly reported a decline to the mild range of misophonia, as well as re-engagement in activities that were important to her and clinically significant reductions in depressive symptoms. These results suggest that ACT may be an appropriate treatment for children with misophonia; however, much more research is warranted.

Keywords: misophonia, acceptance and commitment therapy, children

Acceptance and Commitment Therapy for a Child with Misophonia: A Case Study

Theoretical and Research Basis for Treatment

Misophonia is a highly understudied condition involved hypersensitivity to specific noises that are typically repetitive and generated by humans (e.g., chewing, breathing; Swedo et al., 2022). Individuals with misophonia report experiencing tension, anger/rage, and/or disgust in response to such noises, which in turn can interfere with daily functioning and meaningful activities (Schröder et al., 2013; Swedo et al., 2022). Misophonia is not in the Diagnostic and Statistical Manual of Mental Disorders -Fifth Edition (DSM-5; American Psychiatric Association [APA], 2013), and there is a lack of consensus around its specific diagnostic classification. Although misophonia impacts individuals across the lifespan, the prevalence, impact, and treatment of children with misophonia is highly understudied. Thus, it is important to begin to grow our understanding of treatment options for misophonia in youth.

Several case studies have examined cognitive behavioral therapy (CBT), occasionally in conjunction with exposure therapy, as a treatment for misophonia. Many of these case studies have relied on success with similar adult cases using comparable approaches such as counterconditioning (Dozier, 2015a). Furthermore, a randomized controlled trial of CBT for misophonia in adults found beneficial short- and long-term effects from three months of weekly group CBT as compared to a waitlist (Jager et al., 2020). CBT for misophonia often includes, but is not limited to, exposure exercises, progressive muscle relaxation, response prevention, assertiveness training, emotion regulation skills, and more (e.g., Cecilione et al., 2022; Muller et al., 2018). For example, two cases (17- and 11-year-old White, Hispanic girls) reported 33% improvement in misophonia symptoms after receiving CBT (McGuire et al., 2015). Another case of an adolescent female with comorbid misophonia and OCD reported a 58% reduction in

misophonia symptoms after a three-week intensive CBT program (Reid et al., 2016). Similarly, a CBT approach combined with exposure and response prevention (ERP) was used with a 14-year-old female with misophonia; she reported increased tolerance of sound and less symptom interference by the end of treatment (Muller et al., 2018). Lastly, a recent case study of a 12-year-old girl with misophonia reported a symptom decrease of over 50% after receiving 24 sessions of CBT, including regular exposure practice (Cecilione et al., 2022).

Another potential treatment option worthy of exploration is acceptance and commitment therapy (ACT). Instead of trying to reduce internal reactions, ACT targets the transdiagnostic process of psychological inflexibility with the intention of improving the client's quality of life. Psychological inflexibility is defined by rigid and/or unhelpful responses to thoughts, feelings, or other internal experiences, as opposed to behavior guided by values or personal meaning (Levin et al., 2014). ACT uses six processes to target psychological flexibility through three major categories: open, aware, and active (Hayes et al., 2011). The first category, open, focuses on producing openness to difficult experiences (e.g., acceptance, cognitive defusion). The second, aware, enhances contact with the present moment (e.g., present moment awareness, self-as-context). The third category, active, focuses on engaging the client with what is most meaningful (e.g., values, committed action). In sum, ACT focuses on changing one's relationship with internal experiences and promotes meaningful behavior change via the open, aware, and active processes. ACT may theoretically be beneficial for individuals with misophonia because it focuses more on engaging with what is meaningful and finding ways to decrease the impact of triggers and/or the feelings associated with sounds.

There are only a handful of case studies supporting the use of ACT and/or related treatments for misophonia in youth. For example, one case study of a 17-year-old male combined

elements of ACT and Dialectical Behavior Therapy (DBT) to treat misophonia, resulting in a 57% decline in misophonia symptoms and general improvements in functioning at post-treatment and 6-month follow-up (Schneider & Arch, 2017). In another case study, a 16-year-old female received DBT for misophonia after reporting an exacerbation of symptoms during and after traditional CBT and exposure (Kamody & Del Conte, 2017). At post-treatment, she reported a 54-68% decline in misophonia symptoms and normal levels of anger and anxiety. Lastly, a third case study of combined family- and acceptance-based CBT for a 10-year-old female resulted in an approximately 80% decrease in misophonia symptoms—the client also rated mindfulness as one of the most helpful coping strategies (Dover & McGuire, in press). With these few case studies in mind, there is clear merit for pursuing ACT as a potential treatment option for misophonia in younger groups.

The present study describes a case of a child with misophonia who received 16 sessions of ACT over telehealth. The overarching hope of this case study was to demonstrate how ACT can successfully be adapted for telehealth and a child with misophonia. We also hope to offer preliminary evidence indicating the benefits of ACT for younger people with misophonia. While much further research is needed on both ACT for youth and misophonia, this case study presents promising outcomes.

Case Introduction

At intake, Kelly (pseudonym) was a 12-year-old, White, cisgender female living with her family. Kelly and her family were practicing Christians. This case was treated during the COVID-19 pandemic, prior to the availability of vaccination, and thus took place completely online. During intake and treatment, Kelly was in fifth grade, attending public school and receiving frequent tutoring by her mother, Darbie (pseudonym).

Presenting Complaints

Kelly reported significant and daily distress in response to specific noises at home and during in-person school. For example, she described struggling with her mother and uncle's chewing, her sibling's humming, and various noises from other people (e.g., lip smacking, leg shaking, breathing). Kelly described these sounds almost always provoking irritation, anger, and tension. Kelly often left the room during online religious services and meals—at home and school—to avoid these unpleasant sounds. Darbie also reported significant conflict with Kelly during tutoring due to sounds from her mouth (e.g., breathing, swallowing) that often resulted in Kelly leaving or losing her temper (e.g., shouting, covering her face and ears). Once Kelly had lost her temper, she described being unable to calm down until the noise stopped and/or she was isolated. Darbie and Kelly described disrupted familial relationships and elevated conflict because of Kelly's reactions to sounds—no other disruptive behaviors were reported outside of these situations. However, Kelly reported several positive friendships and denied any major impacts on her friendships, as she described being able to manage misophonia in the service of her friendships, even during meals or snacks at school. However, Kelly described feelings of sadness and loneliness related to her reactions to sounds, which she recognized were problematic. Kelly also noted that her symptoms often made it harder for her to learn challenging subjects (e.g., taking more time on schoolwork than others her age).

According to the criteria suggested by Schröder (2013), Kelly met all criteria for misophonia. She described aversive reactions (e.g., anger, tension) to sounds produced by humans (e.g., chewing, her sibling's beatboxing) that often grew into outbursts (e.g., yelling). Kelly also recognized that her reactions were disproportionate, as demonstrated by her description of sadness and loneliness from her inability to respond to sounds “normally.” Lastly,

these symptoms had been causing Kelly distress for years, causing discord in her family, interrupting schoolwork, and disrupting social activities.

History

Kelly and Darbie agreed that she had struggled with sounds in this manner since she was five years old, gradually getting worse and more impairing with time. Darbie emphasized that the same sounds have always bothered Kelly (e.g., breathing, chewing) and that Kelly had grown less tolerant with time. However, Kelly noted that the symptoms were much less bothersome when she was younger and underscored that she did not find the symptoms disruptive prior to the last year. Both Kelly and Darbie denied symptoms beginning because of any major event or trauma. Kelly also described struggling with headaches alongside misophonia symptoms for as long as she could remember. Darbie noted that Kelly had been formally diagnosed with migraines by a headache clinic. They both were unsure whether the headaches were directly related to sound sensitivities or in response to the stress provoked by misophonia generally.

Darbie reported previously seeing a therapist with Kelly primarily for support with improving their relationship in the last six months. Darbie and Kelly described working on spending quality time together and building a better understanding and connection between the two of them during therapy. They both described this previous treatment as generally helpful, but that they wanted to receive therapy focused on misophonia, as the previous therapist was not familiar with misophonia. In consultation with this therapist, it was disclosed that Darbie had been struggling with depressive symptoms, which sometimes interfered with Darbie and Kelly's relationship. Darbie also shared that she had familiarity with CBT and ACT concepts from her previous time in therapy. Besides their family therapy, Kelly additionally had seen an occupational therapist for help with stress management when she was 8 years old. During these

sessions, the occupational therapist provided some strategies for coping with sound sensitivities, but Kelly described them as unhelpful, particularly because the strategies were not tailored to her specific symptoms.

Assessment

Amsterdam Misophonia Scale (AMISOS; Schröder et al., 2013)

The AMISOS is a seven-item scale measuring misophonia severity, life interference, and anger and anxiety associated with misophonia. Although the AMISOS is intended for adults, there are no current measures of misophonia available for youth, thus making it the only option for gathering structured and quantitative data for the present case. Because the AMISOS was based off a clinical interview (Goodman et al., 1989) and was not validated on children, the AMISOS was delivered as a clinical interview to Kelly. Scores on the AMISOS range from 0-24, with scores of 0-4 considered subclinical misophonia, 5-9 mild, 10-14 moderate, 15-19 severe, and 20-24 extreme. However, because the measure is not psychometrically validated on children or adults, these score ranges should be considered with caution.

Avoidance and Fusion Questionnaire for Youth – short form (AFQY8; Greco et al., 2008)

The AFQY8 is an eight-item, self-report questionnaire of psychological inflexibility. Each item can be ranked on five-point Likert scale (0 = *Not at all true*, 4 = *Very true*), with higher scores indicating greater psychological inflexibility. The AFQY8 has good internal consistency in youth ($\alpha = .86$; Greco et al., 2008). Due to technological limitations of the electronic health record system, the AFQY8 was delivered via Zoom by screensharing.

Revised Children's Anxiety and Depression Scale (RCADS; Ebesutani et al., 2012)

The RCADS is a 25-item measure of child anxiety and depression. Each item can be ranked on a four-point Likert scale (0 = *Never*, 3 = *Always*). Total scores are converted into t-

scores based off the child's sex and grade level. T-scores greater than 65 are considered clinically relevant. A change in 6 or more points is considered reliable change (Fugard, 2014). The RCADS has good internal consistency in youth (alphas ranging from .80-.91; Ebesutani et al., 2012).

Case Conceptualization

In general, it is unclear how misophonia develops, although it is currently understood as a conditioned response (e.g., Dozier, 2015b; Jastreboff & Jastreboff, 2014). In Kelly's case, she may have heard noises she did not like as a young child and was unable to manage and/or process her own aversive reaction, perhaps via disrupted openness, awareness, and active engagement in meaningful activities. It is also possible that Darbie's depression may have impacted Kelly's emotion regulation abilities, as there is some evidence supporting that maternal depression may negatively impact child emotional development (Priel et al., 2020). Regardless, because Kelly may not have known how to manage her internal experiences, she began to avoid sounds and/or have outbursts as attempts to control the sounds and her emotions (i.e., low openness). She became hyper-focused on noises, unable to move her attention from them even if they were occurring in a separate room (i.e., less awareness). As her avoidance and control attempts increased, sounds gradually became more difficult to tolerate because she became less accustomed to the thoughts and feelings associated with them. She also began to see herself as inseparable from her emotions and thoughts about sounds (e.g., "They have to stop or I'm going to lose control"), rigidly responding to these internal "rules" (i.e., low openness).

Furthermore, her reactions subsequently generated familial conflict and Kelly's symptoms began to worsen as she became further removed from things she cared about, such as her family and religion, due to her avoidance behaviors (i.e., reduced active engagement in

values). At intake and throughout treatment, Kelly articulated the importance of being a good friend and family member, which to her meant being understanding, kind, and productive. While discussing what she enjoys doing and her values, Kelly demonstrated the cognitive ability to work with metaphors and concepts associated with ACT for youth (e.g., enjoying writing her own stories, ability to understand others' perspectives when sounds upset her). Because of her cognitive ability, articulation of what was meaningful to her, and awareness of her symptom interference in her life, ACT presented a promising treatment approach for her.

In sum, the aim of ACT was to target Kelly's openness, awareness, and actions in the context of her misophonia. We hypothesized that ACT would help reduce Kelly's avoidance and change her relationship with internal experiences (i.e., improve openness to sounds and associated feelings), bring her to the present moment beyond bothersome sounds (i.e., build awareness), and connect her back to what brought her joy (i.e., encourage active engagement with what is most meaningful to her).

Course of Treatment and Assessment of Progress

Treatment Planning and Goals

Kelly received treatment for 16 weekly, 50-minute sessions. Kelly and the therapist agreed that Darbie would come in for the last 10 minutes of each session to review concepts learned, establish homework assignments, and discuss rewards for practicing skills or engaging in session. Kelly and Darbie's treatment goals were as follows: 1) improve Kelly's daily functioning by increasing her ability to engage in schoolwork with her mom, spend time with family, and remain in difficult but important situations (e.g., school lunches, online streaming of religious services), 2) gain skills to manage difficult sounds and associated internal experiences, and 3) improve Kelly's communication when difficult sounds are present. To address these

goals, a treatment plan was developed based on acceptance-enhanced approaches for OCRDs (Woods & Twohig, 2008).

For the first goal, the beginning of treatment focused on functional adaptations to Kelly's environment whenever possible, like techniques in habit reversal training. In other words, if Kelly can reasonably change or improve the sound, she should (e.g., choosing to sit across from instead of next to her mom, asking for music to be played during car rides with family). For Kelly's second goal, treatment aimed to teach ACT skills for when big feelings are present, and she is unable to change a sound. This treatment approach was rooted firmly in the functional emphasis of ACT—if Kelly could behave in a values-consistent manner while changing the sound, she was encouraged to do so. If not, she was encouraged to make space for the discomfort in service of those values. Lastly, Kelly's final goal was addressed by teaching interpersonal communication skills for asking someone to stop making a noise or to advocate for herself in another way (e.g., asking for a break). The strategy for interpersonal communication was drawn from DBT, in concordance with previous literature combining elements of ACT and DBT for misophonia (Schneider & Arch, 2017).

Course of Treatment

The first 40 minutes of each session were spent individually with Kelly and the last 10 with Darbie. At the beginning of each session, Kelly was prompted to discuss the most challenging aspect of misophonia from that week and the focus of each session was based on her report, consistent with the functional and present-moment orientation of ACT. Before bringing Darbie in, Kelly selected an environmental adaptation, an ACT skill, and a values-based activity for home practice. Sometimes these overlapped into one activity and other times she chose multiple, separate ones.

The first three sessions involved basic psychoeducation about misophonia, treatment rationale for ACT, and an introduction to mindfulness (*open and aware processes*). The rationale for treatment was presented: change what sounds you can and use ACT skills to make space for what you cannot change. With the therapist, Kelly brainstormed a list of possible options for improving her environment (e.g., adding music to the background, changing positions during online church services). She received education on misophonia and related it to a “fire alarm” in her brain, discussing when her mind’s warning signals might be drills or a real sign of an emergency. She also named her misophonia symptoms “Mary” (pseudonym that will be used hereafter to refer to misophonia symptoms) after a noisy character from her favorite movie in service of cognitive defusion (improving *openness*). Kelly also received the rationale for present moment awareness (PMA) and mindfulness practice and consented to doing one practice at the start of every session. PMA practices included basic breathing and/or mindfulness (e.g., observing silly putty), balloon breathing, the sensory countdown, and so forth.

Sessions 4-6 focused on helping Kelly understand herself and Mary (the misophonia) better, along with furthering the separation between the two (*open and active*). Kelly began this process by practicing the “pink elephant” thought experiment (i.e., illustrating ironic process theory; Wenzlaff & Wegner, 2000). She then imagined a more detailed version of Mary and practiced letting Mary sit next to her instead of pushing her away or fighting with her. Kelly also practiced opening up to discomfort generally, turning her palms up and imagining the discomfort gently resting on her hands. This practice was specifically done with the annoyance and embarrassment that naturally arose when discussing Mary. Additionally, Kelly brainstormed the type of person she wants to be (e.g., good listener, understanding) and who she does not want to be (e.g., selfish, lazy) by making several different lists. She explored who Mary wanted her to be

and how Kelly can oversee where her “bus” is driving, even if Mary is a passenger. In this metaphor, Mary is the bus driver, and her thoughts and feelings are passengers telling her where to go. It is Kelly’s role to keep driving towards her values. Kelly also discussed and identified activities that connect her to a sense of meaning, like writing notes to her friends.

Sessions 8-10 were focused on continuing to make space for Mary and how to best communicate her needs in a values-consistent manner when sounds are present (i.e., committed action; *open and active*). These sessions were primarily spent learning and practicing DEARMAN from DBT, which was shortened and adapted to be more developmentally appropriate and values-based by focusing on how she wanted to be treating other people. Kelly practiced DEARMAN with me and outside of session (e.g., asking her uncle to stop shaking his leg). She also related the strong emotions (e.g., anger, annoyance) that show up with Mary to an annoying classmate, considering how she wants to treat the classmate. Going beyond misophonia, she also related her emotions to an ocean and herself as seaweed, actively practicing what it would look like if she was flowing with her feelings (gently moving back and forth with the current) versus fighting against them (standing stiffly).

At this point in treatment, Kelly reported understanding the skills. However, she was struggling with selecting which skills to use because she was often unsure what emotions were present. Darbie observed that Kelly’s most bothersome symptoms appeared to be generalized sadness and irritability. Sessions 11-16 therefore focused on highlighting engagement in meaningful activities (*active*), practicing self-compassion (*open*), and engaging in emotion identification practice (*aware*). She practiced identifying emotions of her favorite TV show characters while watching clips on screenshared YouTube, played feelings Pictionary on the Zoom whiteboard, and continued to practice imagining her feelings as seated with her. She also

learned how to practice self-care by choosing activities that lift her up “like balloons” (e.g., dancing) versus weigh her down “like rocks.” Her final session was spent reviewing skills she learned and when to use them. Kelly demonstrated a strong memory of the skills and concepts, independently making a comprehensive list in a binder designated for therapy skills.

Complicating Factors

The primary complicating factor in this case was the overlap between Darbie’s position as Kelly’s tutor, primary caregiver, and biggest trigger for misophonia. This was further complicated by Darbie’s ongoing struggle with depression and her overlapping difficulties with managing Kelly’s distress and their relationship. Because interpersonal factors alone are not considered theoretical causes and/or treatment targets of misophonia (Cowan et al., 2022), treatment was instead focused on values-based engagement for Kelly with Darbie. These behavioral commitments (i.e., active engagement in meaningful activities) therefore functioned as exposures and practices for dealing with misophonia in the service of quality time with Darbie. Because treatment was primarily done one-on-one with Kelly, Darbie’s depression was not directly addressed in this study. However, Darbie had discussed, as previously noted, familiarity with ACT concepts from her own therapy and agreed to begin to try to apply those generally with Kelly and her personal distress in response to Kelly’s reactions.

A secondary complicating factor is the lack of available research and guidance on how to treat misophonia generally, especially in children. At intake, both Darbie and Kelly were informed the state of the literature and provided with what we currently know about misophonia. While it was important to proceed with treatment because of Kelly’s significant impairment, we collaboratively worked to build awareness around the lack of available research, while leaning on theory and other case studies for guidance.

Access and Barriers to Care

Because of the ongoing COVID-19 pandemic, Kelly and Darbie were unable to access services appropriate for misophonia in-person. This barrier was therefore addressed via the use of telehealth, including a secure videoconferencing platform, electronic medical records, and so forth. Because the clinic that Kelly was seen through was already equipped to engage in telehealth services, there were few issues engaging her in treatment. However, because of the lack of measures available for youth misophonia, questionnaires that would ordinarily be delivered via paper and pencil in-person had to be adjusted for the teletherapy format (e.g., reading them aloud, screensharing). Kelly and her mother reported few other barriers to care, coming from a financially secure family with many resources to draw upon.

Follow-up

Kelly appeared to respond well to treatment via formal and informal assessments. Overall, she reported improved functioning and psychological flexibility, along with reduced misophonia symptoms. Kelly attended all 16 scheduled sessions with zero no-shows. She also described enjoying most of treatment, particularly mindfulness skills, thinking about the type of person she wants to be, and reconceptualizing her misophonia as Mary. In sum, Kelly demonstrated a promising prognosis; while misophonia is likely chronic, her engagement in and knowledge about treatment by her last session was impressive. Continuation of ACT concepts and skills, along with environmental adaptations, is key for maintenance of her gains.

In her formal assessments throughout treatment, Kelly showed improvement on all measures (see Figures 1 and 2). She began treatment with a 10 on the AMISOS, a 5 on the AFQY8, and RCADS t-scores of 66 for depression and 51 for anxiety. These scores respectively represent moderate misophonia, normal levels of psychological inflexibility, slightly elevated

depressive symptoms, and normal levels of anxiety. At Session 5, she scored a 7 on the AMISOS, a 30% decrease since pre-treatment that represents a mild score of misophonia. At Session 9, she remained at a 5 on the AFQY8 and a 7 on the AMISOS. At Session 13, she reported normal levels of anxiety (a t-score of 48 and percent decrease of 5.8% since pre-treatment). At this time, she fell below the clinical cut-off for depression with a t-score of 60—a change in 6 points (9% decrease) from pre-treatment. At posttreatment, she reported a 28.6% decrease on the AMISOS since Session 9, scoring in the low, mild range (5). This AMISOS score represents a 50% overall decrease since pre-treatment. She also scored another 5 on the AFQY8. While there is no research available on reliable or clinically significant change with the AMISOS due to limited samples, Kelly's 50% decrease of misophonia symptom indicated promising improvement.

Informally, Kelly and Darbie reported much improvement in her symptoms throughout therapy. At the start of treatment, Kelly and Darbie described contentious mealtimes and tutoring sessions, often marked with arguments and storming out. However, as treatment progressed, they both described Kelly's improved engagement in schoolwork, even if she was bothered by a sound. Darbie also noted that Kelly had become more respectful, vocal, and proactive about her needs related to sounds when they become too challenging to handle on her own (e.g., shifting positions quietly, asking for breaks from schoolwork). Kelly also shared that she was now able to engage in family prayer and religious activities, which previously was very challenging. With these promising results in mind, it would have been beneficial to formally track Kelly's behavior and skill use, rather than rely on hindsight report.

Treatment Implications of the Case

As the first study to use ACT for misophonia in a child, this case presents promising and unique outcomes. First, it suggests further exploration of ACT and related treatments for misophonia in younger groups. Growing research has begun to demonstrate effectiveness for ACT as a treatment for anxiety (Hancock et al., 2018) and OCDs (Shabani et al., 2019) in youth; this case study is consistent with the results from these larger trials and points towards ACT as a potential treatment option for misophonia. However, future research should focus on systematic treatment development for misophonia in youth using ACT or other approaches, including randomized controlled trials. The transdiagnostic nature of ACT would allow the same concepts used to treat misophonia also to be applied to other conditions simultaneously, such as depression (Twohig & Levin, 2017). This may have been especially beneficial when working with Kelly.

Additionally, the ongoing uncertainty of the COVID-19 pandemic during treatment presented a challenge that had to be addressed via telehealth, alongside her misophonia. While Kelly never reported exacerbations in her symptoms in conjunction with the pandemic, it is possible that increased time at home resulted in worsening of symptoms over time. Specifically, that her mother (who was triggering) was spending more time with and near Kelly as religious services and other activities had moved online. Thus, it is promising to see improvements over the course of treatment, even as uncertainty around COVID-19 remained. This is an important observation for the delivery of therapy via telehealth in future public health emergencies—Kelly was able to learn and practice the skills even in the face of uncertainty.

Lastly, the collaboration between Kelly and Darbie during treatment also suggests that the incorporation of family members, while it can be contentious, may be important for values-based actions and/or further generalization of learning in misophonia treatment. Previous case

studies of misophonia have similarly confirmed this concept (Dover & McGuire, in press). Further research on the impact of youth misophonia on families may also inform treatment development and/or improve delivery.

Limitations

There are a few limitations of this case study to keep in mind. First, the AMISOS was an adult self-report measure delivered as an interview for a child. The reported severity ranges are therefore based on previous smaller studies with adults (e.g., Schröder et al., 2013), although typically used in research on child misophonia (e.g., Dover & McGuire, in press). To address this gap, it may be especially important to prioritize validation of misophonia measures for youth in future research endeavors. While Kelly's AMISOS scores appeared to align with her anecdotal symptom descriptions, the scores should be considered carefully. Because the interview measure was given by the therapist, it is also important to consider a possible response bias. The AMISOS is also highly symptom-focused (e.g., "How much control do you have over thoughts about misophonic sounds?") and is thus somewhat inconsistent with ACT; it may have not captured the full scope of Kelly's improvement. Second, the AFQY8 was likely not fully representing Kelly's symptoms, as she had reported significant difficulties responding to internal experiences at pre-treatment. It is possible that the AFQY8's focus on cognitive fusion may have not accurately measured her struggles. Furthermore, current research suggests that it may be better to use disorder-specific psychological inflexibility measures for OCDs (e.g., Ong et al., 2019). Additionally, the AFQY8 was presented via screensharing and therefore may be susceptible for response bias as well. Lastly, formal parent-report data was not collected due to therapist oversight, along with limitations from telehealth and time. While Darbie informally reported on

Kelly's symptoms, more thorough assessment would have been useful because Darbie was greatly impacted by Kelly's symptoms and may have provided an important perspective.

Recommendations to Clinicians and Students

First, it may be beneficial to address emotion identification and awareness abilities earlier on in treatment. Starting with these skills likely would have improved Kelly's ability to implement ACT and related concepts. Second, Kelly's treatment course did not include any exposure exercises. Because the literature on exposures for anger and disgust outside of misophonia is mixed (e.g., Olatunji et al., 2009), it may be important to, when using an ACT model, consider how formal, in-session exposures could promote psychological flexibility around these feelings. Because Kelly was already engaging in practices functionally equivalent to exposures in an ACT-consistent manner (e.g., choosing to play a board game with her mom), the use of in-session exposures did not seem the best use of time for this case. However, it is unclear if Kelly would have received further benefit from engaging in guided exposures during session. Some previous research has supported positive outcomes from using exposure with misophonia (e.g., Dozier, 2015a; Frank & McKay, 2019). Clinicians working with similar cases should examine the possible benefits of guided exposures and how it may facilitate psychological flexibility as compared to another experiential exercise. Researchers may also consider further exploration of how to best implement exposures with misophonia trigger sounds, including benefits, limitations, and parameters for using them. Third, it is important to balance between endurance of trigger sounds at all costs and completely blocking trigger sounds. For example, frequent use of earplugs can be painful and/or have harmful ramifications to the auditory system (e.g., Mraz & Folmer, 2003). However, as seen in Kelly's case, judicious and values-based use of headphones and/or music with trigger sounds may be appropriate depending on the context. Lastly, when working

with a child and/or adolescent with misophonia, it may be important to involve family members implicated in the symptoms. In Kelly's case, bringing her mother in at the end of every session provided beneficial, as Kelly was given the chance to repeat what she had learned in session (i.e., solidifying her learning) while opening the door for collaborative work with her mother. Lastly, we recommend being upfront with clients about the lack of research around treatment and diagnosis of misophonia. It is important to be clear with clients, especially younger ones, to receive truly informed consent.

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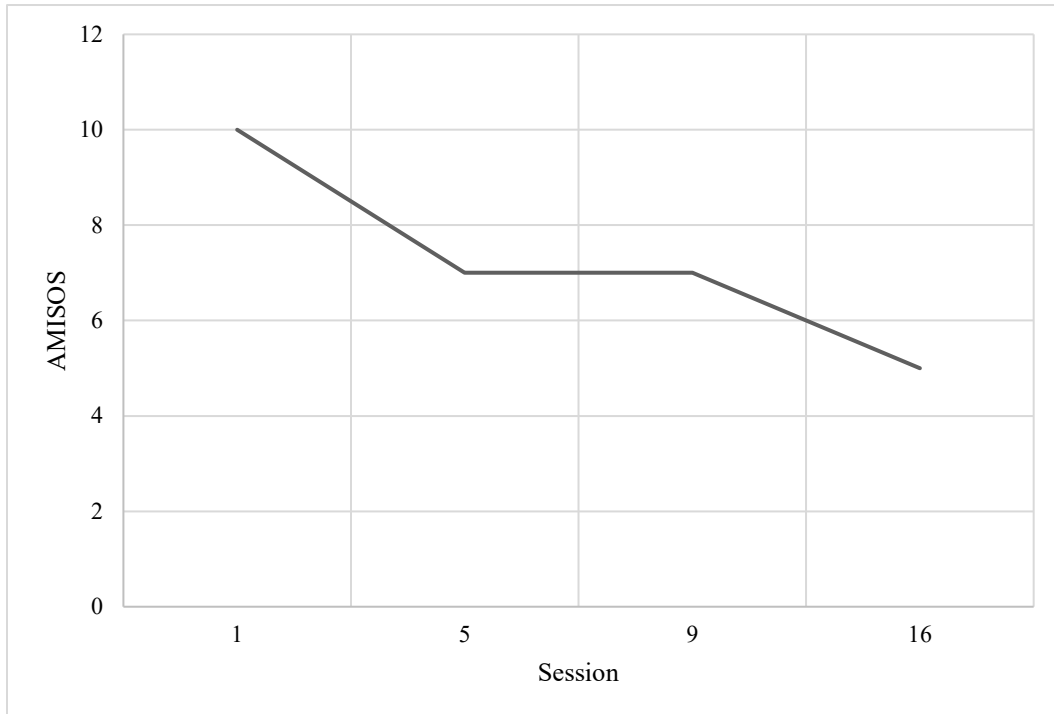
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Figure 1

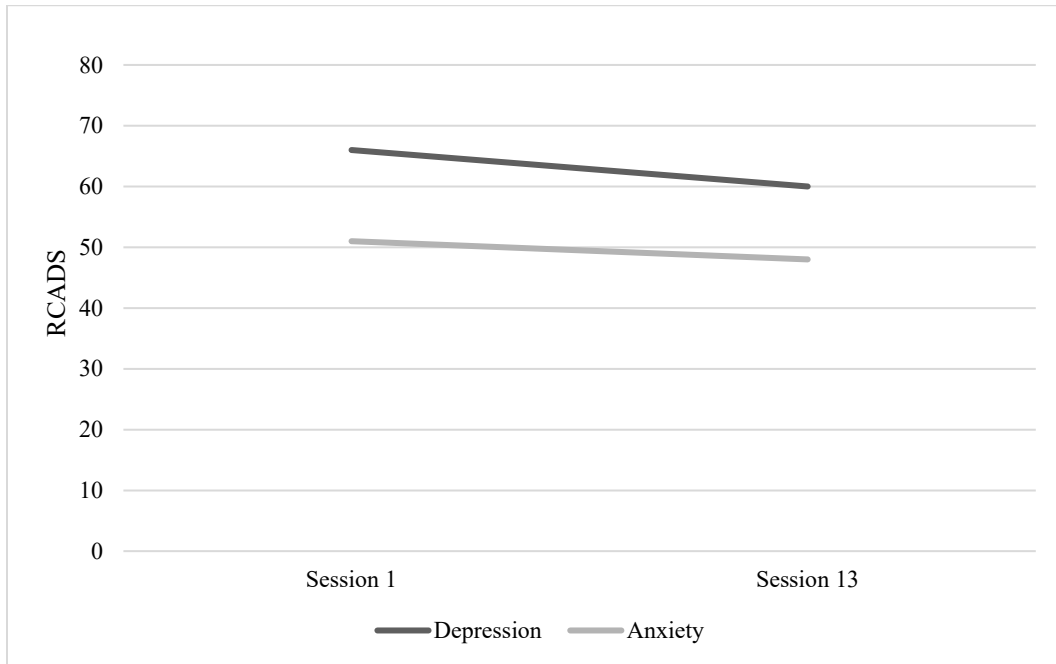
AMISOS scores throughout the course of treatment.



Note. AMISOS = Amsterdam Misophonia Scale.

Figure 2

RCADS child rated anxiety and depression scores at sessions 1 and 13.



Note. RCADS = Revised Children’s Anxiety and Depression Scale.