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# Adolescents' Experiences of Distress and Well-being During Intensive Mindfulness Practice: A Mixed-Methods Study

**Michael J. Tumminia[1] · Shana E. DeVlieger[1] · Sharon Colvin[2] · Thomas Akiva[1] · Brian M. Galla[1]**

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## Abstract

**Objectives** In recent years, mindfulness has gone mainstream, reaching many adolescents through school programs and smartphone applications. Yet there is little empirical understanding of what mindfulness practice is like for adolescents. This mixed-methods study sought to capture adolescents' lived experiences as they embarked on a period of intensive mindfulness practice.

**Methods** Twenty-three self-selected youth ($M_{age}$ = 16.68 years, $SD$ = 1.55; 57% girls, 43% boys; 52% White, 13% African American, 4% Latino, 4% East Asian, and 26% Multiracial) participated in a 6-day residential mindfulness retreat. Participants completed self-report surveys, open-ended daily diaries, and discussed their experiences in focus groups. Qualitative data were analyzed using a two-cycle coding process to categorize common patterns of adolescents' experiences during mindfulness practice and quantitative data were examined for demographic subgroup differences.

**Results** Adolescents reported an array of experiences of distress from cognitive (83% of adolescents; e.g., self-loathing and rumination), to emotional (87% of adolescents; e.g., sadness), and to physical distress (44% of adolescents; e.g., physical pain) during mindfulness practice. They also described a range of well-being experiences from cognitive (87% of adolescents; e.g., self-inquiry and discovery), to emotional (65% of adolescents; e.g., acceptance), and to social well-being (39% of adolescents; e.g., loving-kindness and connection). The frequency of experiences of distress and well-being reported were relatively balanced overall, yet girls and experienced meditators reported greater distress.

**Conclusions** This study paints a descriptive picture of adolescents' experiences during mindfulness practice and suggested that their experiences might reflect core developmental concerns. Implications for adolescent development and contemplative science are discussed.

**Keywords** Mindfulness · Distress · Well-being · Adolescent development · Mixed-methods

What do adolescents experience while they practice mindfulness? In the past two decades, more and more contexts in which adolescents develop are incorporating mindfulness. Though data remain elusive regarding how widespread mindfulness practices are among youth, one school-based mindfulness program is promoted as having reached over three million students in the USA and beyond (www.mindfulschools.org). Educators, policymakers, and researchers also encourage the practice of mindfulness as a way to cultivate social-emotional competencies and reduce mental health problems (Davidson et al., 2012; Ryan, 2012). Indeed, a growing body of literature suggests that mindfulness can help adolescents cope with stress (Dunning et al., 2019) and reduce depressive symptoms (Reangsing et al., 2020).

Yet research to date has relatively little to say about adolescents' experiences as they practice mindfulness. From a purely descriptive perspective, it is important to know what might be occurring in the minds of millions of adolescents who engage in these practices. What are the unpleasant and distressing experiences, what are the pleasant and well-being experiences, and how do the unpleasant and pleasant balance out? From a theoretical perspective, we might assume that the mental activity that arises during mindfulness practice reflects adolescents' core developmental concerns, including identity development, social belonging, and purpose, but this

✉ Michael J. Tumminia
mjt94@pitt.edu

[1] School of Education, University of Pittsburgh, Pittsburgh, PA 15260, USA

[2] Department of Psychology, University of Maryland, College Park, MD, USA

too remains unknown. (We use the terms "unpleasant" and "distress," and "pleasant" and "well-being," interchangeably as heuristics intended to capture broad categories, not to parse subtle distinctions in adolescents' subjective experience.)

Qualitative and mixed-methods research on mindfulness training with adolescents has focused on two main areas. The first has examined the degree to which specific mindfulness interventions are well-received by adolescents (Bluth et al., 2016; Broderick & Metz, 2009; Himelstein et al., 2014; Simpson et al., 2019). For example, Bluth et al. (2016) audio-recorded an 11-week school-based mindfulness program to gauge its acceptability among at-risk high school students. Qualitative analysis of the audio recordings suggested that adolescents enjoyed the mindfulness program. As one adolescent reported, "This is the only place where I actually get time for myself…and where my mind is calm for a few minutes" (p. 100). After program completion, adolescents self-reported that the mindfulness program was more credible, provided more value to their lives, and helped them relieve stress more compared to an evidence-based substance abuse class. Other studies have found that adolescents typically report a high degree of satisfaction with mindfulness programs, independent of personal benefits they might experience from the training (Broderick & Metz, 2009; Burke, 2010).

The second area of qualitative and mixed-methods research has focused on adolescents' retrospective opinions on how mindfulness training has improved their well-being or how they view themselves and their surroundings following mindfulness training (Kerrigan et al., 2011; Monshat et al., 2013; Schussler et al., 2021; Sibinga et al., 2011). Most studies captured this information between 2 weeks and 5 months after mindfulness program completion. For example, Sibinga et al. (2011) interviewed 10 adolescents and young adults within four weeks after they participated in a mindfulness-based stress reduction program. Participants reported a range of positive changes in well-being (e.g., feeling calmer, having improved relationships with family and peers, and feeling more concentrated on schoolwork). In another study, Monshat et al. (2013) conducted a focus group and individual interviews with a small sample of adolescents and young adults within 7 weeks of program completion. Beyond feeling calmer and more relaxed, participants reported a shift in their perspective on the purpose of mindfulness. One participant expressed a shift in perspective this way, saying "It's a mindset, not just a stress-management technique" (p. 4). These findings align with other qualitative and mixed-methods studies that showed adolescents report transformational shifts in mindsets and well-being following mindfulness training (Kerrigan et al., 2011; Schussler et al., 2021).

Overall, existing research suggests that adolescents generally enjoy participating in mindfulness programs and report growth in well-being afterward. Yet very little is known about what kinds of experiences—good or bad—arise *while* adolescents are in the "thick of" their mindfulness training. Though they might look back favorably on their training weeks or months later and sense that it contributed to well-being, ideally, research would balance adolescents' retrospective reports with reports that occur as close to their experience of mindfulness as possible. While there is utility in learning whether training was beneficial for adolescents and how they incorporated lessons of practice into their daily lives, a deeper dive into the "raw material" that makes up adolescents' mindfulness practice is also warranted. By having adolescents reflect minutes or hours after their practice, we are in a better position to capture the salient but fleeting moments of difficulty or flashes of insights, all of which may be forgotten over time but help shape their impressions of mindfulness.

We can be somewhat confident that adolescents will report a variety of unpleasant experiences while they are practicing mindfulness. Why? Because the practice of mindfulness is inherently tied to becoming more consciously aware, on a moment-to-moment basis, of mental distress (Teasdale & Chaskalson, 2011a, 2011b). It is about becoming intimately familiar with the patterns of distress and keenly discerning when and how it arises, how it can subtly pervade much of conscious experience, and how habitual reactions to avoid distress can, ironically, perpetuate it. Given that mindfulness is inextricably linked to observing distress, it would be quite surprising if adolescents did *not* report a variety of unpleasant and negative experiences while engaged in the practice. Even retrospective studies after program completion find that adolescents report a variety of unpleasant experiences, including restlessness (Kerrigan et al., 2011), sadness, and self-doubt (Monshat et al., 2013).

Mindfulness, however, is not just about suffering. The promise of mindfulness is that developing a balanced and discerning awareness of mental distress leads to greater insight into its causes and the possibility of release (Teasdale & Chaskalson, 2011a, 2011b). By carefully peering into the nature of distress, adolescents might develop wiser and potentially even self-transcendent views about what it means to flourish and thrive. Such insights can be a wellspring of many positive states. Coupled with additional meditative practices (e.g., loving-kindness), training in mindfulness might also facilitate feelings of greater connection to others, compassion for others' suffering, and joy for others' accomplishments (Salzberg, 2011). For these reasons, we might expect adolescents to report a variety of pleasant and positive experiences while engaged in mindfulness practice.

Studying adolescents' in vivo experiences during mindfulness practice may also advance developmental theory. Adolescence is a period of development where the search for identity becomes particularly salient (Roeser et al., 2000). Drives to establish an identity during adolescence underpin an increased tendency to think about and evaluate themselves and others (Crone & Dahl, 2012). The result of these drives is the emergence of belief systems concerning positive and negative attributes of the self and one's relation to others (Roeser & Pinela, 2014). Given the centrality of identity-related concerns during adolescence, we would expect that some of the unpleasant and pleasant experiences that come up during mindfulness practice would reflect these concerns. We might find that youth talk about identity-related distress (e.g., self-loathing, family/peer relationships) and well-being (e.g., discovering "who they are"). Currently, there is very little empirical understanding of whether and how adolescents' developmental concerns map onto their experiences during mindfulness practice.

Mindfulness retreats might be particularly favorable contexts for capturing the landscape of experiences adolescents face while practicing mindfulness. Retreats allow adolescents to practice mindfulness for multiple hours per day, are typically staffed by highly experienced mindfulness teachers, and are entirely devoted to the practice of mindfulness. Accordingly, the retreat setting provides a more intensive form of practice than what is typically offered by mindfulness-based interventions (MBIs) in schools or clinics (Black et al., 2015). Until now, however, qualitative and mixed-methods studies of mindfulness practice on retreats have been limited to adult samples (Kornfield, 1979; Lindahl et al., 2017; McClintock et al., 2019). Findings from these studies affirm the value of a qualitative approach for capturing rich process-oriented experiences during practice that are not detectable by quantitative data alone. In a recent investigation, for example, one adult described a moment of an insight into their psychological suffering, saying "the unending cycle of wanting and not wanting ceases when you decide to stop expecting and become still. It's easier to let the turbulence pass by and remain unaffected" (Khandelwal & Koradia, 2020, p. 125).

In the current investigation, we sought to build on prior studies and provide a more ecologically precise description of adolescents' experiences during mindfulness practice as they engaged in a weeklong, intensive mindfulness training retreat. The primary research question that guided our inquiry was: What unpleasant and pleasant experiences do adolescents report during mindfulness practice? We hypothesized that adolescents would describe an array of unpleasant and pleasant experiences, some of which would reflect core developmental concerns. We also explored the following questions regarding the frequency and commonality of such experiences: (a) Do all adolescents report both unpleasant and pleasant experiences? (b) What is the relative balance between unpleasant and pleasant experiences? (c) Do experiences during mindfulness practice differ by gender or meditation experience?

## Method

### Participants

We collected data from 23 self-selected youth ($M_{age}$ = 16.68 years, $SD$ = 1.55 years, range = 13.95 to 19.73 years) who participated in a 6-day residential mindfulness retreat in the Northeastern United States during the summer of 2019. The retreat was offered through Inward Bound Mindfulness Education (iBme; www.ibme.info), a non-profit organization that hosts residential retreats for adolescents and young adults in the USA and abroad. We used convenience sampling to enroll study participants from a total of 53 youth enrolled in the retreat. According to self-reported demographic information, 52% ($n$ =12) of participants identified as White, 13% ($n$ = 3) as African American, 4% ($n$ = 1) as Latino, 4% ($n$ = 1) as East Asian, and 26% ($n$ = 6) as Multiracial; 57% ($n$ = 13) identified as female and 43% ($n$ = 10) identified as male. Approximately 57% ($n$ = 13) reported no prior experience with mindfulness retreats. The analytic sample appeared generally representative of the age and gender characteristics of all youth on the retreat (see Online Resource for more information on demographic comparisons). Parents and youth were made aware of the retreat through word of mouth and iBme's social media and newsletters. iBme offered scholarships and a tuition structure that was commensurate with family income to ensure equitable access for all interested youth.

### Procedure

#### Study Design

We utilized a convergent mixed-methods design in which we collected qualitative and quantitative data concurrently (Creswell & Creswell, 2017), but priority was given to the qualitative data (Morse, 1991). We collected two sources of qualitative data via daily diaries and focus groups to address the primary aim of describing adolescents' experiences during mindfulness practice. We then conducted a frequency count of reported experiences in order to explore the relative balance between unpleasant and pleasant experiences during mindfulness practice, as well as to test for potential subgroup differences. Our purpose for collecting quantitative data via self-report was to (a) describe the sample and (b) test for subgroup differences in measures of mindfulness and perceived stress.

All procedures were approved by the University of Pittsburgh Institutional Review Board. Prior to data collection, iBme sent an informational letter to parents of registered youth that also contained an opt-out permission form. Research personnel distributed study information to youth during retreat sign-in and those who were interested in participating provided informed consent and were enrolled in the study.

Participants completed a battery of quantitative self-report measures at baseline assessment (day 1 of the retreat). At the end of each of the four following days (days 2 to 5), participants provided written responses to a series of daily diary questions about their experiences with mindfulness practice. On the final day of the retreat (day 6), participants completed a posttest assessment consisting of the same quantitative self-report measures taken during baseline. At the conclusion of the retreat, youth participated in one of three, 30-min structured focus groups ($n = 8$, $n = 8$, $n = 6$, respectively) that were audio recorded. All 23 (100%) participants provided data for the baseline assessment and 22 (96%) provided data for the posttest assessment, 21 (91%) provided complete daily diary entries, and 22 (96%) participated in a focus group. All study activities were completed in private rooms at the retreat center.

#### Mindfulness Retreat

A staff of four mindfulness teachers and 17 volunteers facilitated the retreat (the adolescent-to-adult ratio was roughly three to one). Teachers had a minimum of 8 years of personal mindfulness practice, 100 days of silent retreat practice, recommendations from two or more senior teachers, and 2 years of experience in a teacher-training program.

Each day began with a light stretch and a seated mindfulness practice at 7:30 a.m. in the meditation hall. The time from 8:00 to 9:15 a.m. was for breakfast and free time. Then the morning meditation program occurred from 9:15 to 11:30 a.m., followed by the first 1-h small groups meeting of the day. The time from 12:30 to 2:15 p.m. was for lunch and free time. At 2:15 p.m., adolescents participated in various workshops for 90 min. The time from 3:45 to 5 p.m. was devoted to mindful movement and seated meditation. Dinner and free time began at 5:00 p.m. From 6:45 to 7:30 p.m., adolescents engaged in seated kindness meditation followed by a walking meditation. At 7:30 p.m. each day, teachers led 45-min wisdom talks in the meditation hall that were followed by the second small groups meeting at 8:30 p.m. Each day concluded with a final 30-min seated meditation at 9:30 p.m. and lights out at 10:30 p.m.

During periods of formal seated mindfulness practice and instruction, teachers taught adolescents common meditation techniques (e.g., breath awareness, body scans, and self-compassion) to cultivate concentration, nonreactive acceptance of present-moment experience, and kindness toward self and others. For example, during the morning meditation program on Day 1 (9:15–11:30 a.m.), a teacher guided adolescents through the fundamentals of mindfulness practice which included instructions on how to (a) have an active and alert meditation posture, (b) notice when thoughts wander and refocus attention, and (c) bring a nonjudgmental and nonreactive orientation toward the "stories" that arise in conscious awareness. Silent periods of formal sitting practice lasted between 20 and 30 min, and adolescents engaged in roughly 4 to 5 h of silent mindfulness practice per day. During the 1-h small group sessions, adolescents were divided into groups of approximately six individuals with two adult facilitators. The small groups were opportunities for adolescents to practice and discuss experiences with mindfulness with peers (see Online Resource for more information on the retreat schedule, designated silent periods, and workshops).

## Measures

### Demographic Characteristics

Participants self-reported their age, gender identity (i.e., male, female, or open response for other), racial identity, and prior mindfulness retreat experience ("Is this the first time you are attending a mindfulness meditation retreat?" [yes/no], "If yes, how many mindfulness meditation retreats have you attended?"). See Online Resource for sample and population comparisons.

### Daily Diaries

Participants individually responded in writing to five questions about their experiences with mindfulness practice during the day (e.g., "During meditation, a lot of thoughts, sensations, and emotions can come up for us, both unpleasant and pleasant. Please describe what came up for you during your silent meditation practice today."). See Online Resource for a complete list of the daily diary questions.

### Focus Groups

Paralleling the daily diaries, participants verbally responded in focus groups to a series of general questions about their overall experience with mindfulness practice during the retreat (e.g., "Can you please describe any reoccurring thoughts, sensations, or emotions that came up for you during your silent meditations over the course of the retreat?"). The Online Resource provides a complete list of the focus group questions.

### Self-reported Mindfulness and Perceived Stress

Mindfulness was measured using a 15-item short-form version of the Five Facet Mindfulness Questionnaire, which has been validated in high-school-aged adolescents (Abujaradeh et al., 2020). Perceived stress was measured using the 4-item Perceived Stress Scale (PSS-4; adopted from Cohen et al., 1983). The Online Resource provides more details on Cronbach's alpha and McDonald's omega coefficients at baseline and posttest for mindfulness facets (T1 $\alpha = 0.67$ to 0.90, T2 $\alpha = 0.59$ to 0.81; T1 $\omega = 0.69$ to 0.91, T2 $\omega = 0.61$ to 0.85), total mindfulness (T1 $\alpha = 0.86$, T2 $\alpha = 0.86$; T1 $\omega = 0.90$, T2 $\omega = 0.86$), and perceived stress (T1 $\alpha = 0.82$, T2 $\alpha = 0.68$; T1 $\omega = 0.84$, T2 $\omega = 0.81$).

### Data Analyses

The first author transcribed the focus group audio files verbatim and manually digitized daily diary entries and self-report survey data from paper. A research assistant independently verified transcriptions and data entry for accuracy. We first analyzed the qualitative data and then calculated the frequency of each qualitative code. We subsequently merged the frequency counts with the quantitative self-report data and conducted subgroup analyses.

#### Qualitative Data

Qualitative data collection and analyses were informed by phenomenology (Creswell & Poth, 2016). As specified by Creswell and Poth (2016), a phenomenological approach "describes the meaning for several individuals of their lived experiences of a concept or a phenomenon" (p. 57). Accordingly, we analyzed data using a cross-case analysis which is a method used to aggregate and make generalizations across cases. We deployed this method to identify common patterns of adolescents' experiences and classify the phenomena into cohesive categories and codes. We utilized a two-cycle hybrid coding approach, a deductive approach using an a priori template of codes to reduce the data to codes relevant to the research questions, followed by a data-driven inductive approach that allowed for codes to emerge from the corpus. We conducted all coding in Dedoose Version 8.0.35 (Dedoose, 2018). The Online Resource provides more details on the coding scheme which includes coding definitions, data source descriptions, data chunking criteria, and coding rules which are summarized below.

During first-cycle coding, we utilized holistic coding (a deductive coding technique) to apply a single code to large units of data to capture a sense of the overall contents and reduce the data into broad categories (i.e., "Distress" and "Well-Being"). We also used descriptive coding (an inductive coding technique) to add greater specificity to higher-order categories and identify key words and phrases (e.g., "rumination" and "acceptance"). Once we finished "tagging" specific codes across our data, we moved to second cycle coding. During second-cycle coding, we employed pattern coding to find relationships among first-cycle codes and group them by similarities (e.g., grouping "rumination" and "suppression" subcodes under the broader "cognitive distress" code). Finally, we utilized axial coding to eliminate low-frequency codes, merge conceptually similar codes, and reduce the number of codes generated from the first cycle of coding (e.g., merging "calmness" and "peaceful" under "sense of calm"; for a review of coding techniques, see Saldaña, 2015). While codes were removed, merged, or relabeled into cohesive categories and codes, coded excerpts were not removed but rather recoded to achieve the best fit (Glaser, 1978).

We categorized emergent codes into a codebook that consisted of the following: (1) concrete definitions of codes and (2) an exemplar quote from the data (Creswell & Creswell, 2017). The codebook served as a set of coding standards to consistently apply codes across the two data sources and informed second cycle coding. Table 1 provides a list of the codes and definitions used to code experiences of distress and well-being (see Online Resource for a full list of exemplar quotes).

Before and after each stage of analysis, the first author consulted with co-authors to review the wording of the codes and their definitions and reduce the number of codes. These conversations, along with analytic memos, were used to refine the codebook, and reflect on how emergent findings aligned with or departed from existing theory (Miles & Huberman, 1994).

To address threats to coding reliability and the trustworthiness of qualitative findings, the second author independently coded a random subset of twenty excerpts across both data sources and suggested codes and categories. We assessed interrater agreement between the first coder and second coder which resulted in 85% agreement, which is above the consensus minimum acceptable interrater agreement (80%) in qualitative literature (McHugh, 2012). Coding disagreements emerged from subtle distinctions between excerpts related to adolescents' orientation toward their thoughts versus reports of sheer thought content. Discussions between coders resulted in slight revisions to code definitions and interpretations of these nuances. The Online Resource provides more details on the nature of coding disagreements and resolutions.

#### Quantitative Data

To assess the total frequency and percentage of adolescents' who reported each type of experience, we quantified the qualitative data using a code application matrix (an analytical

**Table 1** Codebook used for categorizing adolescents' experiences of distress and well-being

| Category | Code | Subcode | Definition |
|---|---|---|---|
| Distress | Cognitive distress | Restlessness | Mental state of agitation, unease, or discomfort and the inability to "sit still" |
| | | Rumination | Repetitive and negative self-focused thinking |
| | | Suppression | Consciously forcing difficult thoughts and emotions out of awareness |
| | | Self-loathing | Thoughts of being inadequate, worthless, or self-directed ill will |
| | Emotional distress | Sadness | Feelings of unhappiness, sorrow, grief, and loss; low arousal state |
| | | Anger and Frustration | Feelings of annoyance, displeasure, or hostility; high arousal state |
| | | Fatigue and Boredom | Dullness, sleepiness, or disinterest; lacking clarity or energy; low arousal state |
| | | Anxiety | Feelings of tension, worry, nervousness, or unease; high arousal state |
| | Physical distress | Physical pain | Awareness of or resistance to physical ailments |
| Well-being | Cognitive well-being | Exploring thoughts | Observation and identification of thoughts with curiosity |
| | | Positive mind-wandering | Positive memories of loved ones and visualizations |
| | | Self-inquiry and discovery | Process of looking inward and learning more about oneself |
| | Emotional well-being | Acceptance | Allowing or willing to experience positive or difficult thoughts, emotions, or sensations |
| | | Sense of calm | A state of peace free from agitation, excitement, or disturbance; contentment and comfort |
| | Social well-being | Loving-kindness and connection | Kindness, connection, and benevolent affection toward or from others |

tool in Dedoose; see Table 2 for results) and then imported the data into SPSS v26 (IBM Corp 2019). We performed independent samples *t*-tests to test for potential subgroup differences in reported experiences between gender (i.e., girls and boys) and meditation experience (i.e., beginner and experienced meditators). We also conducted independent samples *t*-tests to examine subgroup differences in self-reported measures of mindfulness and perceived stress at baseline and posttest separately. Effect size estimates were calculated using Cohen's *d* and interpreted as 0.2 = small, 0.5 = medium, and 0.8 = large (Cohen, 1988). To account for the small sample size, we conducted nonparametric Mann–Whitney *U* tests, which revealed the same pattern of results. We report parametric tests for ease of interpretation. Deidentified data and syntax to reproduce subgroup findings are available on the Open Science Framework: https://osf.io/gfhke/

**Table 2** Frequency and proportion of experiences of distress and well-being reported by adolescents

| Experiences of distress | | | | Experiences of well-being | | | |
|---|---|---|---|---|---|---|---|
| Code (subcode) | Frequency | *n* | % | Code (subcode) | Frequency | *n* | % |
| Cognitive distress | **53** | **19** | **83** | Cognitive well-being | **57** | **20** | **87** |
| Restlessness | 21 | 11 | 48 | Exploring thoughts | 23 | 12 | 52 |
| Rumination | 12 | 10 | 44 | Positive mind-wandering | 18 | 10 | 44 |
| Suppression | 12 | 10 | 44 | Self-inquiry and discovery | 16 | 8 | 35 |
| Self-loathing | 8 | 5 | 22 | | | | |
| Emotional distress | **57** | **20** | **87** | Emotional well-being | **35** | **15** | **65** |
| Sadness | 13 | 10 | 44 | Acceptance | 24 | 11 | 48 |
| Anger and frustration | 15 | 9 | 39 | Sense of calm | 11 | 8 | 35 |
| Fatigue and boredom | 14 | 8 | 35 | | | | |
| Anxiety | 15 | 7 | 30 | | | | |
| Physical distress | **12** | **10** | **44** | Social well-being | **19** | **9** | **39** |
| Physical pain | 12 | 10 | 44 | Loving-kindness and connection | 19 | 9 | 39 |
| **Total** | 122 | 23 | 100 | **Total** | 111 | 23 | 100 |

*Notes*: Underlined codes represent higher-order codes. Code percentages (%) represent the percentage of adolescents who reported each experience out of 23 total adolescents. Bolded values represent totals for each higher-order code

## Results

### Descriptive Statistics

Baseline mindfulness scores were similar to other samples of US adolescents (Abujaradeh et al., 2020), and perceived stress scores were comparable to those of other studies of adolescents attending mindfulness retreats (Galla, 2016). The Online Resource provides means, standard deviations, alphas, omegas, and sample sizes for quantitative self-report measures.

### Qualitative Results: Experiences of Distress

Consistent with expectations, adolescents reported a variety of cognitive, emotional, and physical distress. Distress was the norm rather than the exception. All 23 adolescents reported at least one type of distress (total distress experiences = 122). Table 2 shows frequencies and the percentage of adolescents who reported each type of distress. Quotes below are labeled by data source and the day of the retreat (e.g., DD2 = Daily Diary, Day 2; FG6 = Focus Group, Day 6).

### Emotional Distress

The most common type of distress reported across adolescents was emotional distress (87% of adolescents; total emotional distress experiences = 57). Within emotional distress, sadness was reported most often (44% of adolescents; total sadness experiences = 13). A 16-year-old boy explained his experience of sadness during his mindfulness practice as follows: "For me during my meditation I had a lot of like sadness and like during the meditation the silent meditations um I just tried to like tried to start going through it like that one practice where it's like take a sliver of something and try to work with that" (FG6).

Adolescents also reported anger and frustration (39% of adolescents; total anger and frustration experiences = 15). One 14-year-old girl described self-directed anger during formal mindfulness practice: "Meditation for me today was difficult, especially during the morning. Any sit longer than 10 min is extremely difficult for me, as I begin to 'check out'. I would say the emotion that came up was anger with myself for not being able to sit longer" (DD2).

Some adolescents described experiences of fatigue and boredom (35% of adolescents; total fatigue and boredom experiences = 14). The following quote illustrates how one 14-year-old girl dealt with boredom during mindfulness practice which was the "most challenging" part of her day: "The most challenging would probably be the sitting meditation because I would kind of get bored so what I would do is I would focus on my breathing and it would kind of like get easier and easier" (DD2).

Anxiety was the least common type of emotional distress reported (30% of adolescents; total anxiety experiences = 15). However, adolescents who reported anxiety during their mindfulness practice described very powerful experiences. "For me it was just a lot of anxiety 'cause being with my thoughts got scary in that way," one 17-year-old boy remarked (FG6). An 18-year-old girl described in detail the sensations and thoughts associated with her anxiety: "Um it felt like my heart almost disappeared for a few moments and like my chest area would get really hot. And um I started to notice it more and more and then I guess um it made me…It was almost like the doorbell and then I would realize I was really tense and I had a lot of negative thoughts and it kind of let me explore that feeling of um anxiety, nerves, all of that yeah" (FG6).

### Cognitive Distress

The next most common type of distress described across adolescents was cognitive distress (83% of adolescents; total cognitive distress experiences = 54). About half of adolescents reported an experience of restlessness (48% of adolescents; total restlessness experiences = 21), which was the most frequently reported type of cognitive distress. Restlessness was commonly experienced as a cognitive state of unease that manifested as an inability to "sit still," as one adolescent put it. One 17-year-old girl responded to the prompt "what came up for you during your silent meditation practice today" by saying: "The first one I thought of was restlessness. I just like I had sometimes where I was calm and really feeling it and then other times I just felt like I needed to leave or get up and go. And yeah it was just interesting" (FG6).

A number of adolescents also reported experiencing rumination (44% of adolescents; total rumination experiences = 12). For adolescents, rumination meant engaging in and recognizing repetitive and negative self-focused thinking during their practice. In describing how the cognitive process of rumination unfolded, one 14-year-old boy reported: "My mind kept racing to all sorts of negative things in my life which made me feel horrible but I really did need to address some of the things I thought about" (DD4). A 15-year-old girl described the thoughts that came up during her mindfulness practice as "Ruminations on uncomfortable past events, apprehensions, thinking about what to say when someone talks to me" (DD2).

Nearly half of adolescents also reported experiences of avoiding and/or forcing difficult thoughts or emotions out of awareness, labeled as suppression (44% of adolescents; total suppression experiences = 12). One 14-year-old girl shared

her method for how she responded to judgmental thoughts: "Um I kept on having judgmental thoughts just like popping up all the time and then like I'd always just say 'don't think that'" (FG6).

About a quarter of adolescents also observed thoughts of being inadequate and worthless, or self-loathing (22% of adolescents; total self-loathing experiences = 8). One 17-year-old boy explained his persistent thoughts of self-loathing by saying: "Today during meditation I struggled a lot with self-hatred. My mind was just so focused on these feelings and the thoughts were in my head all day" (DD5).

### Physical Distress

The least common type of distress reported across all adolescents was physical distress (44% of adolescents; total physical distress experiences = 12). Physical distress was notably less frequently reported than cognitive or emotional distress. The only type of physical distress reported by adolescents was physical pain. Some adolescents who reported physical pain provided vivid accounts of their experiences. A particularly poignant reflection about an experience with physical pain was offered by one 18-year-old girl: "…And then the other sensations was like were feelings with my knee I could feel a lot of pain and I could see myself go into the worry of like my body is like decaying. That's what I was thinking" (FG6).

### Qualitative Results: Experiences of Well-being

Adolescents also reported a range of cognitive, emotional, and social well-being. Notably, every adolescent reported experiencing at least one type of well-being (total well-being experiences = 111). Table 2 provides frequencies and the percentage of adolescents who reported each type of well-being.

### Cognitive Well-being

The most common type of well-being was cognitive well-being (87% of adolescents; total cognitive well-being experiences = 57). The specific type of cognitive well-being most commonly reported was exploring thoughts (52% of adolescents; total exploring thoughts experiences = 23). When reflecting on their mindfulness practice, several adolescents discussed that they were observing and identifying their thoughts with a sense of curiosity. The experience of exploring thoughts was explained by a 16-year-old boy who investigated the causes of his anxiety to comfort himself: "Um I felt less anxious I was able to think through and get through the overwhelming stage and kind of into this like dissect it kind of comforting stage and like really think about why I was anxious" (FG6). A 15-year-old boy echoed the experience of exploring thoughts during mindfulness practice by stating: "Um I think I was trying to stop the like instant reaction of 'don't think that'. Um and just instead notice the judgmental thought and wonder where it came from and how else I can react and stuff" (FG6).

Approximately one-third of adolescents described that during mindfulness practice they were looking inward to learn more about themselves and feel more connected through experiences of self-inquiry and discovery (35% of adolescents; total self-inquiry and discovery experiences = 16). A 17-year-old girl remarked: "During the meditation I felt like more of a connection to myself and I found out new things about myself" (FG6). Another adolescent, a 17-year-old boy, became intimately aware of aspects of his personal identity as illustrated by the following quote: "Um it's not that like I found new parts of myself during the meditation I would like in my head just explore into like myself. I would just think about why I'm doing things, why I do them and that's where I found newer reasons as to why I am me. And that I could help myself a little more, a little better" (FG6).

Adolescents also reported experiences of positive mind wandering (44% of adolescents; total positive mind-wandering experiences = 18), where they described engaging in either comforting visualizations or reminiscing on positive memories of loved ones. One 18-year-old boy noted how imagining sensations helped him in his practice: "I started imagining sensations and it made me emotionally and physically more comfortable" (DD3). During positive mind-wandering, a 15-year-old girl recalled a specific pleasant family experience she was frequently having during her mindfulness practice: "I keep thinking of my dog and smiling. Also eating cheese with my mother in an adorable little window seat in Beaune, France, my father asleep five feet away. Happy times" (DD4).

### Emotional Well-being

The next most common type of well-being reported across all adolescents was emotional well-being (65% of adolescents; total emotional well-being experiences = 35). The specific type of emotional well-being most commonly reported was acceptance (48% of adolescents; total acceptance experiences = 24). Several adolescents shared that they were willing to fully experience difficult thoughts or emotional states during mindfulness practice. Allowing or "letting" a difficult experience be as it is during mindfulness practice was explained by a 15-year-old girl: "…So it was like so just by being easy to myself and just like letting the restlessness be as big as it needs to be and if I need to like take a break then I'll just take a break and then go back into that like mindful state" (FG6).

Adolescents also reported experiencing emotional states of contentment and comfort during practice, or a sense of calm (35% of adolescents; total sense of calm experiences = 11). One 18-year-old boy stated directly: "I felt calm and peaceful" (DD4), and a 16-year-old girl explained that her experience of calm was coupled with the ability to focus during her mindfulness practice: "Some anxiety but also calmness. Like today was just a day I was able to really really focus and be present" (DD5).

### Social Well-being

The least common type of well-being reported was social well-being (39% of adolescents; total social well-being experiences = 19). The only type of social well-being reported by adolescents was loving-kindness and connection (39% of adolescents; total loving-kindness and connection experiences = 19). These experiences tended to involve extending and receiving kindness or benevolent affection toward the self or others during mindfulness practice. One 17-year-old girl described her experience of accepting her family's affection during her mindfulness practice as follows: "Today a lot of memories of loved ones expressing their love for me came up and I began to accept the love" (DD3). For another adolescent, a 19-year-old male, this experience involved perspective-taking and thinking about others' situations during practice: "Today I really thought of others and just putting myself in their shoes" (DD4).

## Quantitative Results: Differences in Frequency of Distress and Well-being

To examine whether there were differences between the number of reported experiences of distress and well-being, we performed frequency comparisons. Somewhat in line with our expectations, a simple frequency count showed that the total number of distress experiences ($n = 122$) slightly outnumbered well-being experiences ($n = 111$), although this small numerical difference indicates relative balance overall.

## Subgroup Differences in Experiences of Distress and Well-being

Independent samples *t*-tests used to examine subgroup differences in experiences revealed that girls ($M = 6.46$, $SD = 3.84$) reported marginally more experiences of overall distress than boys ($M = 3.80$, $SD = 1.93$), $t(21) = -1.99$, $p = 0.06$, $d = 0.84$, driven perhaps by marginal differences between girls ($M = 3.15$, $SD = 2.30$) and boys ($M = 1.60$, $SD = 1.17$) in experiences of emotional distress, $t(21) = -1.94$, $p = 0.07$, $d = 0.82$. Although mean differences in overall distress and emotional distress were only marginally statistically significant, effect size estimates were large (Cohen, 1988).

Results also showed that experienced meditators ($M = 7.30$, $SD = 3.74$) reported significantly more experiences of overall distress compared to beginner meditators ($M = 3.77$, $SD = 2.17$), $t(21) = 2.85$, $p = 0.01$, $d = 1.12$. Closer examination of subtypes of distress revealed differences between experienced ($M = 3.20$, $SD = 1.81$) and beginner meditators ($M = 1.62$, $SD = 1.26$) on cognitive distress, $t(21) = 2.47$, $p = 0.02$, $d = 0.99$, and differences between

**Table 3** Subgroup differences in experiences of distress and well-being

| Variable | Gender | | | | | Meditation experience | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Boys | | Girls | | | Beginner | | Experienced | | |
| | *M* | *SD* | *M* | *SD* | *Cohen's d* | *M* | *SD* | *M* | *SD* | *Cohen's d* |
| Cognitive distress | 1.70 | 1.49 | 2.77 | 1.74 | 0.65 | 1.62 | 1.26 | 3.20 | 1.81 | 0.99* |
| Emotional distress | 1.60 | 1.17 | 3.15 | 2.30 | 0.82 + | 1.92 | 1.44 | 3.20 | 2.49 | 0.61 |
| Physical distress | 0.50 | 0.71 | 0.54 | 0.66 | 0.06 | 0.23 | 0.44 | 0.90 | 0.74 | 1.07* |
| Distress total | 3.80 | 1.93 | 6.46 | 3.84 | 0.84 + | 3.77 | 2.17 | 7.30 | 3.74 | 1.12* |
| Cognitive well-being | 3.20 | 3.36 | 1.92 | 1.75 | 0.50 | 2.85 | 3.18 | 2.00 | 1.56 | 0.36 |
| Emotional well-being | 1.00 | 1.25 | 1.92 | 1.80 | 0.58 | 1.54 | 1.71 | 1.50 | 1.58 | 0.02 |
| Social Well-being | 1.10 | 1.60 | 0.62 | 1.04 | 0.37 | 0.85 | 1.21 | 0.80 | 1.48 | 0.04 |
| Well-being Total | 5.30 | 4.03 | 4.46 | 2.82 | 0.25 | 5.23 | 3.75 | 4.30 | 2.83 | 0.29 |
| Experiences Total | 9.10 | 4.01 | 10.92 | 5.39 | 0.38 | 9.00 | 4.40 | 11.60 | 5.19 | 0.53 |

*Notes*: Boys ($n = 10$); Girls ($n = 13$); Beginner ($n = 10$); Experienced ($n = 13$); Beginner = first retreat, Experienced = one or more retreats; Well-being Total represents all well-being codes (cognitive, emotional, and social); Distress Total represents all distress codes (cognitive, emotional, and physical); Experiences Total represents all codes across both well-being and distress. T statistics, degrees of freedom, and *p*-values not shown for ease of presentation. * indicates $p < .05$; + indicates marginally statistically significant, $p < .10$

experienced ($M = 0.90$, $SD = 0.74$) and beginner meditators ($M = 0.23$, $SD = 0.44$) on physical distress, $t(21) = 2.72$, $p = 0.01$, $d = 1.07$. No other significant gender or meditation experience differences were observed (see Table 3 for full results).

### Subgroup Differences in Self-reported Measures of Mindfulness and Perceived Stress

Results of independent samples *t*-tests showed that girls and boys were equivalent on measures of self-reported mindfulness at baseline and posttest. Baseline perceived stress also did not differ significantly by gender, but girls ($M = 3.37$, $SD = 0.73$) reported significantly higher perceived stress at posttest compared to boys ($M = 2.50$, $SD = 0.84$), $t(20) = -2.57$, $p = .02$, $d = 1.12$. No baseline or posttest differences were found for measures of mindfulness or perceived stress when comparing beginner (zero retreat experiences) versus experienced (one or more retreat experiences) meditators (see Online Resource for full results of subgroup differences).

## Discussion

The present study utilized a mixed-methods approach to explore experiences of distress and well-being that adolescents report during intensive mindfulness practice. Adolescents described an array of distressing experiences, from sadness and physical pain to rumination and negative self-evaluations. Conversely, they also reported a range of well-being experiences, from acceptance and a sense of calm to self-inquiry and discovery. Every adolescent reported experiencing at least one type of distress and one type of well-being, and the total number of experiences of distress and well-being were relatively balanced across adolescents. Girls, however, reported more experiences of distress during mindfulness practice than boys did. Experienced meditators (i.e., those who had been on prior retreats) also reported greater experiences of distress during mindfulness practice compared to beginner meditators.

As expected, adolescents committed to a period of intensive mindfulness practice described an array of distressing experiences. Adolescents reported experiencing primarily emotional distress (87%), such as sadness and anxiety, and cognitive distress (83%), such as restlessness, suppression, and self-loathing. This is consistent with other retrospective qualitative studies where adolescents reported restlessness (Kerrigan et al., 2011), suppression, self-loathing, sadness, and anxiety (Monshat et al., 2013). Adolescents in our study also richly described a lot of other experiences of cognitive distress (e.g., rumination) and emotional distress (e.g., anger and frustration, fatigue and boredom) that may be more fleeting in nature, which to our knowledge have not been reported elsewhere. Less common, but still encompassing nearly 50% of adolescents, were reports of physical pain. Physical pain has not been reported much in prior work, and reports in this study could be driven by the fact that adolescents spent many hours engaged in formal sitting meditation—an experience that can produce uncomfortable pressure and tension in the body (Lindahl et al., 2017). Overall, results suggested that distressing experiences during mindfulness practice were mostly emotional and cognitive in nature.

In line with expectations, adolescents also reported a range of well-being experiences during mindfulness practice. Adolescents described predominately cognitive well-being (87%), such as exploring thoughts and self-inquiry and discovery, and emotional well-being (65%), such as a sense of calm and acceptance. These findings align with other qualitative and mixed-methods studies where adolescents reported exploring their thoughts (Kerrigan et al., 2011; Schussler et al., 2021), self-inquiry and discovery (Kerrigan et al., 2011; Monshat et al., 2013), and a sense of calm and acceptance (Monshat et al., 2013; Sapthiang et al., 2019; Sibinga et al., 2011). Our findings also revealed novel and potentially more transient cognitive experiences of positive mind-wandering, which adolescents commonly expressed as involving comforting visualizations and endearing memories of loved ones. We also found that over one-third of adolescents reported experiences of social well-being, specifically of loving-kindness and felt connection to family members, friends, significant others, and even fellow retreatants. These findings parallel other work showing positive shifts in the way adolescents view themselves and their relationships with others after a mindfulness program (Sibinga et al., 2011).

Comparison analyses revealed that experiences of distress and well-being were relatively balanced. Recall that all 23 adolescents reported at least one type of distress and one type of well-being. Overall, we tallied 122 accounts of cognitive, emotional, and physical distress and 111 accounts of cognitive, emotional, and social well-being. Somewhat contrary to our expectations—which were rooted in the idea that mindfulness practice is fundamentally about becoming aware of suffering—adolescents did not appear to encounter substantially more unpleasant experiences than pleasant experiences. This is reassuring insofar as it means that adolescents in our study did not seem to be dwelling in misery during intensive mindfulness practice, but in fact, experienced many positive and potentially transformative moments. Though our data suggested a relative balance between unpleasant and pleasant experiences, we are not able to answer how such experiences might influence one another. Do insights emerge following a period of distress? Do longing and rumination follow a period of relative calm? To what extent does the balance between unpleasant and pleasant experiences impact the long-term effects of

mindfulness training? Additional research will be needed to answer these questions.

Subgroup analyses showed some variation in distress across gender and mindfulness retreat experience. Girls reported more overall distress during the retreat than did boys, and this finding appeared attributable to greater emotional distress but not cognitive or physical distress. Although girls did not differ significantly in self-reported perceived stress prior to the retreat—thus ruling out a potential confound—they did report higher perceived stress immediately after the retreat. These results are generally consistent with findings in the developmental science literature showing that adolescent girls report more negative emotions (Oldehinkel & Bouma, 2011) and engage in more internalizing coping strategies, including rumination (Jose & Brown, 2008) and self-blame (Horwitz et al., 2011), compared to boys. It may also be the case that it is more socially acceptable for girls to report distress (Matheny et al., 2005). Despite reporting more unpleasant emotional experiences while on retreat, girls did not report significantly fewer well-being experiences compared to boys. More research is needed to explore gender differences in experiences of mindfulness and how such differences might impact training outcomes.

Somewhat unexpectedly, subgroup analyses also showed that experienced meditators reported more experiences of distress than did beginners. This difference was driven primarily by greater reports of cognitive and physical distress. It is worth noting that experienced versus beginner meditators did not differ significantly in self-reported perceived stress prior to or after the retreat or on experiences of well-being during the retreat. It may be the case that experienced meditators are better able to observe and describe subtle changes in distress that beginner meditators are not (Baer et al., 2008; Lilja et al., 2012). Whatever the cause may be for these differences in distress, experienced and beginner meditators did not differ significantly on any other variable captured in our study.

## Theoretical Implications

This study advances theory by integrating the mindfulness literature with a well-established body of literature describing adolescents' core psychological needs. Many of the experiences adolescents described while on retreat, including self-inquiry and self-loathing, loving-kindness and connection, and acceptance, can reasonably be seen as reflections of drives for identity (Erikson, 1968), positive relationships (Lerner & Steinberg, 2009), and self-transcendent purpose (Roeser & Pinela, 2014). Ample prior research has focused on how mindfulness might be an effective strategy for coping with the normative stressors of adolescence (Black, 2015), but this study suggests that mindfulness practice might also reflect the concerns that many adolescents care deeply about. Mindfulness practice then might offer a novel lens by which to study adolescent developmental processes as much as it is an opportunity to help adolescents navigate them. Such a perspective offers exciting directions for future research. For example, perhaps adolescents with committed identities have unique identity-related experiences—positive or negative—while engaged in mindfulness practice compared to adolescents who are exploring or reconsidering their identity commitments (Crocetti et al., 2013). Relatedly, it is possible that youth with differing drives for self-oriented vs. beyond-the-self oriented goals may have different experiences during practice which sensitize them to their own or others' suffering (Yeager et al., 2012). Of course, people of all ages question their self-worth and feel compassion for others' suffering, but these experiences might have a special resonance in the minds of adolescents.

## Limitations and Future Research

The findings of the current study should be considered in light of several limitations. Although this study builds from prior retrospective studies by having adolescents describe their experiences while engaged in mindfulness practice, the current study relied on adolescents' end-of-day reports and focus groups immediately following the retreat. Future studies may benefit from utilizing repeated open-ended assessments immediately after mindfulness practices to further minimize recall bias and provide a greater degree of ecological validity (Sapthiang et al., 2019). Additionally, several researchers (M.T., T.A., and B.G.) have personal and professional experiences with mindfulness, and this may have been a source of bias in focus group facilitation and data analysis. To allay this concern, other authors (S.D. and S.C.) involved in analysis and review did not have backgrounds in mindfulness. Our findings also reflect the experiences of adolescents who attended a mindfulness retreat, which may not represent the experience of most adolescents (Galla, 2016). Since the aims of this study were guided by phenomenology as opposed to achieving generalizability, caution is warranted in generalizing the findings beyond the current sample. Another limitation is sample size. Although the current sample size is consistent with norms for covering the variation in emergent themes in phenomenological research (Creswell & Creswell, 2017), future research with larger samples is required to further investigate potential subgroup differences.

Another opportunity for future research is to examine how the contexts in which mindfulness is delivered and practiced contribute to the kinds of unpleasant and pleasant experiences adolescents report. Retreats occur in highly curated settings that take place over a relatively short amount of time but encompass adolescents' entire lives, whereas mindfulness-based interventions in schools and clinics take place over

longer time frames but are much less intensive on any given day (Black, 2015). It is highly likely that the frequency, types, or intensity of experiences adolescents reported on retreat was directly influenced by the retreat context. For example, adolescents reported physical pain while on retreat, which could be attributed to the many hours per day of seated mindfulness meditation. Such prolonged periods of sitting do not occur in school-based MBIs, and so reports of physical pain may be less common in these programs. Contexts might also activate different concerns related to the developmental tasks of adolescence. For example, retreats might be more likely to activate concerns around identity, whereas MBIs in school contexts might activate concerns about competence. Future work will be required to disentangle those experiences which are more universal to the practice of mindfulness from those that are more heavily context dependent. Regardless, though, of the specific contexts, the results of our study and of prior work (Kerrigan et al., 2011; Schussler et al., 2021) suggest that teens will experience a rich landscape of both unpleasant and pleasant experiences while engaged in the deep introspective work of mindfulness. Documenting and understanding the textures and nuances of this inner terrain can go a long way toward designing better and more developmentally attuned mindfulness programs to help adolescents grow into thriving adults. This is a worthy goal of future qualitative and quantitative studies.

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**Author Contribution** MJT: designed the study, analyzed data and interpreted results, and drafted manuscript under the supervision of BMG. SED: assisted with data analysis, and provided critical revisions to the manuscript. SC: assisted with data analysis, and provided critical revisions to the manuscript. TA: assisted with data analysis, and provided critical revisions to the manuscript. BMG: collaborated with the design of the study, supervised execution of the study, supervised data analysis and interpretation of the results, and supervised manuscript preparation. All the authors approved the final version of the manuscript for submission.

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**Data Availability** All quantitative data are available at the Open Science Framework (https://osf.io/gfhke/). The qualitative datasets generated and/or analyzed during the current study are not publicly available due to the sensitive and potentially identifiable nature of the data and to protect the identities of minors. This study's design and its analysis were not pre-registered.

## Declarations

**Ethics Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. All procedures were approved by the University of Pittsburgh Institutional Review Board.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

**Conflict of Interest** The authors declare no competing interests.

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