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Occupation and ADHD:

Young adults' perspectives on the role of  
work in the manifestation of adult ADHD

A thesis submitted in partial satisfaction of the  
requirements for the degree Master of Arts

in Anthropology

by

Arielle Kamlot Lasky

2015



## ABSTRACT OF THE THESIS

Occupation and ADHD:

Young adults' perspectives on the role of  
work in the manifestation of adult ADHD

by

Arielle Kamlot Lasky

Masters of Arts in Anthropology

University of California, Los Angeles, 2015

Professor Thomas S. Weisner, Chair

Although much is known about the difficulties faced by children with ADHD in school settings, very little research has explored the functioning of adults with ADHD in work environments. Experimental studies demonstrate that certain contexts can significantly reduce ADHD symptom severity; we ask whether the lived experience of young adults with ADHD in different work settings parallels these findings. Are there particular occupations in which young adults report functioning better than others?

To examine this issue, we interviewed 125 young adults, originally diagnosed with ADHD as children ages 7-9, regarding their current work environments. Many young adults reported that their symptoms are context-dependent; working in specific occupations, they feel less encumbered by their symptoms. In some of these environments, participants report feeling

better able to focus; in others, their symptoms—such as high energy levels—become strengths rather than liabilities. Modal descriptions included work marked by high levels of stress or challenge, novel or varied tasks, a fast pace, hands-on work, physical labor, and/or work they found intrinsically interesting. For our subjects, ADHD is experienced as an interaction between themselves and their environment. These exploratory findings demonstrate the need to account for the role of context in our understanding of ADHD as a psychiatric disorder, especially as it manifests in young adulthood. Implications for clinical care and diagnostic conceptualization of the disorder are discussed.

The thesis of Arielle Kamlot Lasky is approved.

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University of California, Los Angeles

2015

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## **INTRODUCTION**

Attention deficit hyperactivity disorder (ADHD) is a psychiatric condition characterized by difficulties with attention, hyperactivity, and impulsivity. Individuals with ADHD struggle with organization, concentration, delayed gratification, and staying on task; they may often feel restless, fidgety, or as if they have excess energy (APA 2013). Diagnostic rates of ADHD have risen in recent decades, with prevalence currently estimated at 5-10% of the pediatric population and 4% of all adults (Kessler et al 2006, Scahill and Schwab-Stone 2000, Hinshaw and Scheffler 2014).

Concurrent with the rise in diagnosis, the concept of adult ADHD has become increasingly accepted. Its recognition as a legitimate disorder of adulthood is relatively recent: historically, ADHD was thought to be limited to childhood (Schwarz 2013, McGough and McCracken 2006). The concept of “adult hyperactives” first appeared in the early 1970s, becoming a progressively commonplace idea by the 1990s (Arnold et al 1972, Conrad and Potter 2000). The most recent version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), published in 2013, asserts that a “substantial proportion” of those diagnosed as children continue to be “relatively impaired” by the disorder in adulthood; by contrast, the DSM-IV (published in 1994) states that only a “minority” of children remain affected as adults (APA 2013).

Despite this increasing acceptance, questions about the natural history of the disorder persist. Although adults are more likely to receive diagnoses today than in years past, longitudinal studies demonstrate considerable declines in ADHD symptoms with age. Between half and two-thirds of children diagnosed with ADHD no longer meet full diagnostic criteria by

young adulthood (Barkley et al 2010, Biederman et al 2010, Hinshaw et al 2012). What explains this decrease? Why do ADHD symptoms appear to abate with age?

Some researchers assert that the prevalence of ADHD does not decline in adulthood, but rather that it has been underestimated (Faraone et al 2006, Biederman et al 2010, McGough and McCracken 2006). In their eyes, trends seen in longitudinal studies merely reflect a problem of faulty DSM criteria rather a true decline in disorder prevalence. As Biederman et al (2010) argue, “symptom decline may reflect the developmental insensitivity of the DSM-IV rather than the natural history of ADHD” (303). The experience of adult ADHD may not be “adequately captured in the existing symptom set,” which was initially designed with children in mind (Matte 2015:228). During the last DSM revision several modifications were made in an attempt to address this issue, including adjusting word choice “to render [criteria] more applicable to adults” and reducing the number of required symptoms to meet criteria (Tannock 2013:5, APA 2013).<sup>1</sup>

There is, however, another way of explaining symptom decline in adulthood: changing environmental context. As they age into adulthood, the contexts in which individuals find themselves change significantly. Many adults spend their days at work, in environments that differ considerably from those found in the K-12 educational system. Although much is known about the difficulties faced by children with ADHD in standard school settings (e.g., Bernfort et al 2008, Kent et al 2011, Barkley et al 2002), relatively little research has explored the functioning of adults with ADHD in their day-to-day work environments.

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<sup>1</sup> Though it’s clearly the case that how you define ADHD impacts the number of people diagnosed with it, this critique is not so straightforward. As social scientists like Peter Conrad (1975) and Allan Young (1997) have argued, changes to DSM criteria represent more than simply scientific concerns—they also represent value judgments about what constitutes dysfunction and pathology. Teasing apart these elements is challenging; it is no surprise that some clinicians express ambivalence about the diagnostic validity (Rafalovich 2005).

Of those studies which exist on work and ADHD, most report that, compared to their peers, individuals with ADHD have poor occupational outcomes. According to these studies, they tend to hold lower-ranking jobs, attain lower socioeconomic status, and have higher levels of unemployment, as well as lower productivity and higher absenteeism when employed (Mannuzza et al 1993 & 1997, Gjervan et al 2011, Galéra et al 2012, Küpper et al 2012, de Graaf 2008, Kuriyan et al 2013).

Though these findings paint a bleak picture, many questions remain. The studies of ADHD and work are almost exclusively quantitative in their methodology. While helpful for understanding trends in aggregate, these studies do not directly address how different occupations may affect individuals' experiences of ADHD, nor do they examine outcomes as a function of job type. They also employ measures of occupational and socioeconomic status whose validity has been questioned (Hauser and Warren 1997). Further, these measures do not explore the *reasons* for why individuals with ADHD experience poor occupational outcomes (and conversely, why those with better outcomes do well).

As adults, individuals with ADHD have significantly more latitude to control aspects of their environment, particularly in the domain of work. Are there specific occupations in which that these individuals feel they function better than others? Does their choice of work influence their experience of ADHD in adulthood? Qualitative work provides a way to explore these questions further. Unfortunately, minimal qualitative has been work done on adults with ADHD, let alone work and ADHD (Toner et al 2006, Ek and Isaksson 2013, Fleischmann and

Fleischmann 2012, Levinson and McKinney 2013, Gerber 2001).<sup>2</sup> This study analyzes narratives of young adults with ADHD on these topics.

*The role of environmental context in the presentation of ADHD*

Environmental, or task, context plays a role in the presentation of ADHD in two ways. Firstly, context supplies the norms around which behavior can be measured, and, subsequently, labeled as dysfunctional. As Charles Rosenberg (2006) explains: “The terms hyperactive or attention deficit are context-dependent by definition, reflections of specific institutional realities and cultural needs” (419). This point is clearly reflected in the diagnostic criteria for ADHD, which include such behaviors as getting up from one’s seat “in situations when remaining seated is expected” or talking “excessively” (APA 2013). In typical school environments, where students are asked to sit quietly, talkative and energetic individuals’ behavior patterns can be read as impairment; by contrast, in other environments, such as theater groups or dance classes, these behaviors align more closely with environmental norms and are thus deemed “functional.” “Children are expected to be able to contain their physical energies and to focus their mental energies in order to perform” in school, Ilina Singh explains; these “practices ... help to create cultural knowledge about what connotes ‘normal’ behavior” (2006:445).

Beyond its role in defining behavioral norms, environmental context also directly *interacts* with individuals’ neurobiology to produce ADHD behaviors. Brains, after all, are both “situationally embedded” and “enacted”: thoughts and actions arise from the interaction between our biologies and the environments in which they exist (Walter 2013). Findings in social

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<sup>2</sup> Qualitative work has instead primarily focused on childhood ADHD, examining how children and their parents relate to and make sense of the diagnosis (e.g., Singh 2007 & 2011, Garro and Yarris 2009, Carpenter-Song 2009, Malacrida 2003).

neuroscience research corroborate this: environment appears to significantly influence the effect of stimulant medication and the degree of ADHD symptom severity.

Indeed, the efficacy of stimulant medication has been shown to vary in distinct experimental contexts. For example, one study demonstrated that while methylphenidate (Ritalin) could improve performance on tests of working memory by itself, the addition of task-based incentives increased performance even further (Strand et al 2012). Another demonstrated that methylphenidate had significantly less of an effect on children's ADHD symptoms when on the playground than in the classroom (Swanson et al 2002).

Not only do environmental factors appear to modulate the effect of medication, highly stimulating environments have also been shown to decrease symptom severity independent of medication. One relevant study compared the performance of ADHD subjects to controls on two computer-based cognitive tasks. The first was a basic vigilance test; the second, a rapidly-paced complex task with frequent performance feedback. Although subjects with ADHD performed inferiorly on the monotonous vigilance test, they were indistinguishable from controls on the highly stimulating executive test (Delisle and Braun 2011). Similarly, after introducing positive feedback and verbal (rather than written) instructions into an experimental paradigm, ADHD children's performance on math problems could not be differentiated from unaffected controls (Bennett et al 2006). ADHD subjects appeared more like controls on fMRI scans when performing tasks with significant incentives, and were also indistinguishable under incentivized conditions on measures of impulsivity and reaction speed (Liddle et al 2011, Slusarek et al 2001).

Some neuroscientists explain this phenomenon using a "motivational impairment" model of ADHD, which emphasizes the interaction between environmental context and biology. This

model hypothesizes that, rather than a pure “attention deficit,” affected individuals have a higher threshold for “motivational salience,” becoming bored easily when performing uninteresting or menial tasks (Delisle and Braun 2011, Schecklmann et al 2008). Thus, “ADHD is not characterized by an inability to sustain attention, but rather by the inability to appropriately regulate the application of attention to tasks that are not intrinsically rewarding and/or that require effort” (Kaufmann & Castellanos 2000:624). In highly stimulating contexts—those that provide novel, challenging, and fast-paced tasks with concrete, frequent feedback and incentives—individuals are able to overcome their boredom and engage in tasks productively. It is as if they no longer suffer from ADHD—at least, as we traditionally understand the disorder.

Several clinicians have speculated that individuals with ADHD may be able to alleviate their symptoms in adulthood by selecting high-stimulating work environments better suited to their personalities (Jensen et al 1997, Barkley et al 2010, Weiss & Weiss 2004, Weiss et al 2008, Whalen 2001). The difference between school and work environments, in this view, may partially explain symptomatic remission seen among adults. Classrooms “funnel information in through one modality only, as in passive listening or reading. They limit opportunities for shifting attention and for motor response and demand delay of recognition for efforts” (Jensen et al 1997:1675). Children can “grow out” of ADHD as they age because adults “have far more freedom to choose the environment in which they live and the kind of work they do so that it better matches their cognitive style and reward preferences” asserts psychiatrist Richard Friedman (2014). “If you were a restless kid who couldn’t sit still in school, you might choose to be an entrepreneur or carpenter, but you would be unlikely to become an accountant.”

Thus, the core questions underlying this investigation are as follows: Does the lived experience of adults with ADHD mirror neuroscientific findings about the context-dependent

nature of ADHD symptoms? What is the role of occupation in ADHD symptom expression in adults? In this qualitative study, we examine narrative interviews about work and ADHD to characterize the impact of occupational choices on the experience of adult ADHD.

## METHODS

### *Participants*

125 young adults, originally diagnosed with ADHD as children, participated in semi-structured interviews. These data were collected as part of a larger qualitative add-on study to the Multimodal Treatment Study of ADHD (or MTA), one of the longest-running and largest longitudinal studies of ADHD. Demographic data for our cohort is provided in Table 1.

**Table 1. Sample demographics**

Age	21-27
Gender	
Male	95 (76%)
Female	30 (24%)
Race/ethnicity	
White	90 (72%)
African-American	13 (10%)
Mixed	15 (12%)
Other	7 (6%)

Participants were from four of the original seven MTA sites: University of California, Irvine, Duke University Medical Center, University of California, Berkeley, and Montreal Children’s Hospital. All subjects were initially enrolled in the MTA between ages 7-9 with a diagnosis of ADHD; they were followed at regular intervals after enrollment<sup>3</sup> and are a broadly

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<sup>3</sup>At the completion of the 14-month treatment phase, at 24 and 36 months, and again at 6, 8, 10, 12, 14, and 16 years after recruitment. Interviews were conducted between the 14 and 16 year time point.

representative sample of the ADHD cohort from the original MTA sample. They provide a unique source of information about the variety of lived experiences emerging through the multitude of individual trajectories, not simply adults continuing to seek clinical care. For further details of the MTA, see MTA Cooperative Group 1999; Jensen et al 2001.

### *Collection*

Interviews followed the Ecocultural Family Interview (EFI) model (Weisner et al 1997; Weisner 2014). They were conversational and open-ended; subjects were queried regarding a wide variety of subjects, such as their daily routine, school, friendships, family circumstances, turning points in their lives, substance use, and medication use. One topic addressed issues related to employment. Table 2 lists the prompts used to guide this section of the interview. The goal of these prompts was to explore the topic of work in an open manner, with participants using their own words, examples, and judgments. Participants describe their work experiences with narratives, not responding to forced-choice scales or yes/no questions. Interviews typically averaged over an hour and a half. Interviews were audio-recorded and transcribed.

**Table 2. Interview prompts related to employment**

Describe job – hours, responsibilities

Making ends meet?

Income

Job satisfaction

What would you change about your work situation if you could?

Difficulties encountered – supervisors, coworkers, any negative performance reviews?

Previous work experiences – similar or different to current?



### *Coding and analysis*

The interviews were initially coded by lead rating coordinators and assistant raters at each site for themes using Dedoose, a qualitative data analysis software program. Initial coding reliability was established in the following manner: 20% of excerpts from transcripts across the sample were randomly selected across all the topics for estimating reliability of coding. Assistant raters then coded these excerpts, which were then compared to lead rater scores across sites. Raters were blind to the scores of other raters and to the sites from which the excerpts were drawn. There was an 80% agreement, on average, between raters across all topics.

Excerpts coded for themes related to “work” and “ADHD effects and perceptions” were then selected and further analyzed by the first author to uncover salient sub-themes. As noted above, the interview prompts did not directly query how work environment might affect ADHD; subjects were instead prompted to talk about their occupational experiences and ADHD experiences generally. However, subjects frequently discussed the influence of work environment on their experience of ADHD. The prevalence of spontaneous commentary on this subject was notable, prompting an analysis of the joint confluence of these topics. Specifically, excerpts were analyzed for connections made between specific work contexts and ADHD symptoms (such as restlessness, boredom, changes in focus, and interest levels).

A second researcher provided a reliability check on this analysis by independently rating excerpts across all participants. There was 88% agreement with the first author identifying a connection from the narrative interviews between ADHD symptoms and work. The remaining 12% of interviews (9 cases) had only one of two raters endorsing a clear connection. We took a more conservative approach, analyzing only the 65 cases where both raters agreed.

Both the initial coding and the sub-coding process combined anticipated topics and themes from theory and pilot work, as well as emergent topics discovered through a grounded theory approach. This involves recursively examining the data, reading and distilling ideas in an iterative, inductive fashion (Strauss and Corbin 2007).

## **RESULTS**

### *Context and symptoms*

Over half (55%, n = 65) of our subjects described some aspect of their ADHD as contextual, reporting a connection between specific environments and symptoms such as restlessness, boredom, changes in focus, and interest levels. Many noticed that while certain environments amplified their symptoms, others seemed to make them disappear. This led individuals to situate their disorder in the environment, rather than wholly within themselves.

A number of these discussions centered on educational settings. Many described how secondary school had been a poor match for their strengths. As one subject explained, the way classes were taught did not suit his abilities:

Some teachers only have like one learning style that they'll try to teach their kids, they won't know multiple ways of how to approach a certain kid's like way, how they learn. So it's like I'm more of a hands-on type of a person ... if you can find a way to teach me like more hands on, then I'll grasp the material a lot better.

Another individual felt that traditional educational methods were partially responsible for the disorder. "The school curriculum is not designed the way an anatomy of a young child's mind may work," he contended. Instead:

I truly believe that kids at that age – they should be deciphering for themselves, at that age, what direction they wanna be going in, instead of being subjected to a heavy curriculum of heavy doses of lots of different things.

Several believed that their symptoms could be mitigated by altering their environments. Although less easy to accomplish during childhood, adulthood offered the opportunity to make these kinds of changes. “When you’re younger everything is just so rigid that it makes it difficult ... [to] figure out stuff that works,” one subject explained. As an adult he had successfully been able to find “so many different outlets” for his ADHD that it was “not as big a factor.” Another individual believed that “if you direct [ADHD] into other areas, and find out where people’s strong suits are, I’m pretty sure that they can naturally just go about – dealing with it, instead of having to give people medications.”

Believing the problem lay in their environments rather than solely in themselves helped individuals allay feelings of inadequacy while simultaneously encouraging them to seek out more congruous settings. They saw themselves as different rather than defective. “I just think that people have different personalities, and maybe instead of me having this ADHD diagnosis, or whatever, maybe I’m just talented in other ways,” one subject said. “Different people are talented in different areas. For me to sit down and do clerical work for eight hours would be really, really difficult. But, I know people that I work with that thrive on that kind of work – attention to detail, focused on little tiny things.” Another subject interpreted his disorder similarly:

There’s no perfect human being. Like some people have poor vision, or you know, they’re not too athletic or they’re born with some kind of deformity, and you know, it’s shades of gray, you know. And I think that this is my thing, you know, and I realize that it just means, “Hey, online class is a good idea for you because you will space out in a classroom.”

Sometimes choosing a better-fitting environment meant opting out of traditional measures of success, like higher education and prestigious work. “If I really wanted to continue doing [school] I could have but it’s just not what I wanted to do,” one college dropout explained.

“I don’t like going to school. I don’t like sitting in class. I don’t even like the idea really of having a desk job.” He described coping with ADHD by choosing work that “fit” him better. “I’d rather be a truck driver than be a manager at [POSTAL COMPANY] and sit at a desk in the center all day and do paperwork,” he explained.

Discovering that they functioned well in their new environments came as a surprise to some. It did not fit with what they had learned about ADHD as children. One student studying film, when asked if he felt he still had the disorder, expressed some confusion:

Originally, when I was first diagnosed with it, it was explained to me as attention deficit, just a lack of attention. An ability not to have an attention span for very long. But I can have an attention span for extremely long for the things that I care about. For the description of somebody with ADD, like having a very short attention span, that doesn’t sound like somebody that can finish an entire book let alone read an entire series of books or complete a test such as writing and directing an entire film. It requires a lot of attention to make a film, especially to direct one, because you have to notice everything that’s going on. ...

I used to be able not to focus, like, on schoolwork and stuff, but now at my point in life everywhere I’m at is where I want to be. Public education you’re forced into it. Maybe that’s why I didn’t pay attention that much. But now I’m in college in a subject that I want to be a part of, so me having a lack of attention, it hardly ever happens anymore because I’m not usually where I don’t want to be.

Another student felt similarly, describing his ADHD as a “lack of interest, that you’re actually constantly seeking out new stimuli, as opposed to you just can’t focus just because the brain tells you you can’t.” Because he had not experienced his ADHD as an attention deficit, he wondered if “a study should be done” to clarify this issue.

Although they often discovered these occupational (or, in the case of students still in college, educational) “niches” by chance, once they saw how productive and engaged they could be, subjects actively sought out these environments. A locksmith found his job “by accident,” but stuck with it after realizing how much he enjoyed the work. Another subject chose to work in

construction because he realized he could perform better if he enjoyed his work: “I figured I’ll go into something I like and then it forces me to think and you know pay attention to it.” A subject who loved working on cars and was training to be an auto technician, believed it was “finding where I fit in the most” that helped with his symptoms. “Finding, what I’m good at. Finding where I fit in and finding what my passion is,” he explained.

Developing an awareness of their interests was crucial for many subjects; until they did, they struggled. Before he discovered cooking, “I didn’t have anything I was really into or passionate about,” a sous chef said. “I never really liked anything to the point where I would want to concentrate on it all the time.” Working as a chef now, he no longer felt impaired by ADHD. Another subject, who was training to repair cars, had had significant problems with boredom at previous jobs. When asked if this was due to ADHD, he disagreed. “No, it’s just that I had to figure out what I wanted to do, I wanna work with cars. I don’t get bored doing that.”

### *The stimulating environment*

In which types of environments did these individuals feel best-suited? A common theme was the need for a highly stimulating environment. By contrast, many disdained the idea of having an under-stimulating “desk job.” As one subject explained, “sit[ting] in a cubicle” would “drive me nuts. Something that’s constant, that doesn’t have any change ... I get so bored with it so fast. I just can’t keep my mind focused on it.” “If I don’t have a lot of stimulation or if it’s a repetitive activity, I get bored pretty easily,” another subject described. For many, ending up “stuck behind a desk” in a “cube farm” was their worst nightmare.

Most individuals hoped to avoid this fate by obtaining a highly stimulating job; some were lucky enough to have already found it in their occupations. What characteristics defined these types of occupations? Several subjects described particular components of their work that

either directly improved their ability to focus (e.g. working more effectively under a high-stress deadline) or engaged their symptoms in a positive manner (e.g. utilizing high energy levels in a physically-demanding job). These subcategories include work that was stressful and challenging, highly novel and required multitasking, busy and fast-paced, involving physical or hands-on labor, and was intrinsically interesting. Each of these categories represents between 5 to 19 responses from subjects. We characterize these components below.

### *Stress and challenge*

Some found that highly stressful or challenging work alleviated their ADHD symptoms. Stressful situations, they explained, forced them to pay attention. As one fireman explained, “If we go out on a call I’m focused on that one thing. Like nothing else is going on. This is what I’m here to do. And then it’s almost like nothing else matters.” Similarly, a subject employed as a prison guard reported that he was able to focus because he had to: his job required him to be vigilant at all times. A software developer explained that, while his work was stressful, “It’s kind of like a good stress where there’s always something going on and so dynamic and the day just passes.” Likewise, one mortgage salesman stated that stress was crucial to his productivity:

I’ve never had a problem with high-stress situations. I do better whenever just the pressure’s on to the max, and I guess that’s why I’m such a procrastinator. I have to be forced to have that, “If I don’t do this then I’m gonna fail this class,” so I have to make sure that I do it. ... It just makes me perform better. If I just feel like that element’s missing, then I get kind of complacent and I don’t work as hard. I have to have the pressure on me to do what I need to do.

Having complicated challenges to tackle at work also improved symptoms. As one construction worker explained, having a complicated problem to work on “helps because I can like, hyper-focus on what I’m doing.” He elaborated:

Especially in the new construction, like if you’re going to run a toilet and it’s all new, you have to run it up, and then you have to run the vent out,

and you have to run the pipes. There's so much going on that you're thinking about that I think it actually helps. Because you have to think about step 1, but then if you put this here, is that going to mess you up down the line, and everything needs to be straight so that it looks good for when the inspector comes through and looks at it. So, thinking now, I really think that it helps because there's so much going on. My brain's so active, that I'm not just sitting behind a computer at a desk. Because I think I would just kind of zone out or fall asleep.

### *Novelty and multitasking*

Having many different or novel tasks to do also helped individuals engage in their work.

One subject, who worked at an energy start-up, liked that he could “bounce around a lot” at his job. “You can do more than one thing at a time and you learn a lot like that,” he explained. A chef, noting that many of his coworkers had been diagnosed with ADHD, believed that restaurants had a “high concentration of people with ADHD” because “we like multitasking ... it stimulates our brains enough to keep us interested.” Even though it required “a lot of patience,” a waitress who started working as an administrative assistant liked her new job because it was unlike anything she had done previously. “I don't like to work in the same job, having the same environment because it doesn't get exciting,” she said. “But when it's something totally different than I've done, it's very interesting to me.”

### *Busy and fast-paced*

Sometimes having novel tasks to perform at work was less important than simply staying occupied. Because of this, many subjects enjoyed busy or fast-paced jobs. With ADHD “you're always thinking you're always on the go,” a salesman explained, an asset in his line of work. As a chef told us, “I love being busy. I find when I'm not busy, I'm just – I just don't know what to do with myself.” Several others echoed this sentiment, noting that they couldn't “handle being bored.” A project manager explained: “One of the ways that I found to not let ADHD get to me

was to keep myself busy. And when I get bored, that's when it'll kick in a little bit." A subject who was planning to become a paramedic elaborated:

I have to either be a cashier, which is constantly doing something or I have to be a sales associate on the floor. I have to fix something or move something or do something or whatever. It's a necessity that I have to do something.

Another individual explained that he had never had a problem with ADHD at work because he was "constantly doing something" at all his jobs, whether it was washing cars, stocking shelves, or fixing water pipes. Because it required her to be continuously active, waiting tables was one subject's favorite job.

#### *Physical labor*

Having a physical component to the job also helped improve many individuals' symptoms. As one forklift operator explained, having a "highly intense and physical" job kept him from "being all ADD." When asked about traditional ADHD treatments (e.g., medication and therapy), he stated that he was only interested in making his lifestyle more active. For him, "something that taxes your energy instead of just trying to hide it somewhere" was the best medicine for his symptoms. With physical tasks, "you get into meditative state where you're just doing it," another subject described, noting that he only had attention problems when having to "sit down and think, and be confined to one space."

#### *Hands-on work and active learning*

Beyond being a way to release excess energy, physical jobs were appealing to some subjects because of their "hands-on" nature. Several individuals reported being "mechanically inclined," able to focus intently when fixing or building things. One individual, who worked in the Air National Guard, learned that he loved working with his hands while taking a few



industrial classes. He went into skilled manual labor, eventually ending up working on airplanes.

From these experiences, he realized: “All right, I love doing this. I need to find a career in it.”

As a plumber told us, realizing that he enjoyed this type of work had a significant influence on his occupational trajectory:

If it’s something I can do with my hands, I can focus on it ten times better than if you stick me in an English class or a science class or any kind of class. If it’s like – like I know in high school, if I had brought in my report card, it would, definitely, show on my report card, like auto tech I had – auto tech, tractor tech and drafting I had 98, 99 and 100 in this class. But then, if you look at my English grades and my science grades, I had 70s, just above passing. So I think it kind of affected my job, my career because of the fact that if it’s not something I can physically touch or do or something hands-on, I just don’t like it. I can’t focus on it, I can’t pay attention, I don’t really care for it.

Some subjects employed in more analytical jobs wished they could “get [their] hands dirty.” One subject working in information technology described his current job as “a little tedious,” elaborating that he would prefer to work on “the hardware side” of computers because “doing IT, you don’t get to work physically on the computer, taking them apart as much as I’d like to.”

Learning by doing, or “active” learning, was another appealing characteristic of hands-on work. As one construction worker explained, “If I read it in the book or get lectured on it, then my brain wanders.” In his current job, however, he was able to learn much more easily:

My boss would throw me in there tell me what to do. He would sort of show me and then he’d get in there he’d watch over my shoulder, no! do it like this. ... I was physically doing it with my hands instead of watching a projector or slide show, reading it in a book, so if I’m actually there doing it then I’m gonna retain more because I’m actually doing it by hand instead of just staring at a piece of paper.

Likewise, a student in trade school enjoyed his courses because they were “more hands on which is easier to learn for me because, well, instead of learning it, you’re doing it, and doing it you’re learning it.”

### *Intrinsic interest*

Intrinsic interest was a defining characteristic of many subjects’ occupational choices. When working on or studying something of great interest to them, subjects reported being able to focus easily on the work at hand; many experienced dramatic increases in the ability to retain information in these settings. Although they had had difficulty learning and recalling information in school, finding a compelling subject to focus on changed everything. Upon enrolling in courses that interested her deeply, one subject started to do extremely well in college. When studying anthropology, she explained, “I almost have a photographic memory.” Those holding jobs that were interesting to them also attested to increased recall. As a hairstylist described:

I have this crazy ability to retain information. If you sit up there and give me a lecture on a haircut ... I will remember everything you said, word for word, like I spent hours and hours and weeks and months and years studying it. It's like that. I remember it if I'm into it. Stuff that I'm into, I am so immersed in it. But in school, it was awful. ... I'm finding that if it's things that interest me that I can fully [engage].

Having a profound interest in a subject also made it easier to complete challenging work. One college student, who had discovered a passion for airplanes, contrasted his college classes with his flight training. Although he typically found studying for school “tedious and a little aggravating,” he relished in his flight courses: “I really enjoy it. It doesn’t seem like studying. It doesn’t seem like work.” Seeing this contrast, he was determined to pursue a career in aviation. Another subject, who had worked with deaf students, recalled that though his job required a lot of focus and diligence, it was “easier” because of his “personal investment in what I was doing.”

### *Maladaptive environments*

Though many of our subjects desired highly stimulating jobs, several did not hold these types of occupations at the time of interview. Many recognized this disconnect, describing the difficulties of conforming their personalities to these maladaptive environments. For example, a subject who wanted to become an ecologist but was currently managing a testing facility disliked her job “because I do work in a testing center I have to be strict and kind of Draconian. I have to be someone that is not quite what I would consider myself when I’m not at work.” Similarly, a bank teller reported wishing she felt less energetic because her job “doesn't really require too much energy. ... When work is really slow, I get really antsy.” An account manager disliked the amount of time he spent in the office, wishing that he could instead “spend time outside the office doing hands-on managing people.”

A few subjects were fired from jobs because of poor fit. At a job requiring a more subdued personality type, one individual was let go for having too much energy:

[My boss] said that if it was a place where I could be, you know, fun and crazy with the kids, that’s fine, but working with the kids with autism, that they need someone who can be calm, collected and organized, you know, and made plans. “You’re very fun to work with.” But she just says, “This, you know, this place just doesn’t seem to be for you. ... Your strengths can be better applied elsewhere.”

Likewise, a restaurant worker lost his job for making mistakes on tasks that required attention to detail.

Motivated by other factors, such prestige or financial security, a few individuals explicitly chose occupations that fit poorly with their ADHD. Consequently, some expressed reservations about going into these vocations. For example, two of our subjects fulfilled childhood aspirations of becoming lawyers. One, who was graduating from law school at the

time of his interview, expressed deep concerns about ADHD limiting his ability to succeed at work. “I feel almost certain that it's going to hinder me in things that I want to do,” he explained:

Productivity and opposite that procrastination ... is kind of my big downfall. It's kind of worrying me, because I'm about to start this very kind of intense job in [CITY] in this big corporate law firm and I know a lot is going to be placed on my ability to be productive and to get things done in a timely fashion. And to do them well. And you know I don't think I've ever been in a situation where it's been that much pressure on those sorts of abilities or attributes.

Similarly, a college student studying engineering was concerned that his lack of interest would interfere with success on the job. He had wanted to become an engineer for a long time but began to question this career choice after receiving a poor review at an engineering internship. Because it involved sitting at a computer all day, he found the work “boring and dull.” As a result, he “had a hard time staying on task. If I found something boring, or if I found that I couldn't solve it almost immediately ... I would just kind of go and browse and slack around.” He was concerned about “having trouble finding [his] niche.”

Some ADHD-friendly jobs require extensive higher education. Consequently, while the job itself may be a good fit for an individual, the credentialing environment may pose a significant barrier. A personal trainer who wanted to become a physical therapist was concerned about that his ADHD would make it difficult to get through PT school. “You're in class eight hours a day, you take a test every week, and it's just the amount of knowledge you have to absorb and you have to learn on your own scares me,” he worried. “It's like, ah, is this going to be a limiting factor when I get there?”

## **DISCUSSION**

Together, these narratives paint a picture of ADHD expression as context-dependent. When asked about their experience of ADHD, over half of our subjects associated environmental context with the exacerbation or amelioration of symptoms. In contrast to their experiences in K-12 educational environments, working in specific occupations they felt less encumbered by their disorder. In some of these environments, participants described feeling more able to focus; in others, their symptoms—such as high energy levels—became strengths rather than liabilities. Several subjects characterized these jobs most specifically. Jobs for which they felt best-suited often involved stress or mental challenge, novel or varied tasks, hands-on work, physical labor, and/or topics of intrinsic interest. In these contexts, they felt their symptoms lessen; in other types of occupational settings, they worsened.

The validity of this study is, of course, limited to an extent by the subjective nature of these reports. The very nature of first-person narratives prioritizes the individual's experience of his/her world; further studies could help corroborate assertions made by our subjects. For example, collecting additional sources of information (e.g., from employers or family members) or quantitative metrics (e.g., psychological testing) would provide a means to further test our hypothesis. However, that so many subjects in a large cohort drew connections between context and symptoms independent of each other and without direct prompting lends credence to the nature of their experiences.

Our choice to focus on qualitative, subjective reports was motivated by a desire to gain a fine-grained view of occupational outcomes in adults with ADHD. Rather than focusing on outcomes in aggregate, as previous quantitative work has done, our data reveals the impact of different occupational environments on individuals' lived experiences of ADHD. This is one of the strengths of qualitative research, providing a richer understanding of subjective experience.

Qualitative and mixed-method work can help further elucidate the meaning of patterns found in the psychiatric epidemiological and neuroscientific literature (Bernheimer & Weisner, 2007; O’Day 2002, Damico et al 2004, Jensen & Hoagwood 1997, Weisner 1996, Weisner & Duncan, 2014; Kleinman 2001).

### *Occupational fit as therapeutic intervention*

Many subjects felt that finding their occupational “niche” allowed them to overcome the limitations of their ADHD diagnosis and achieve success at work. Given these experiences, identifying occupational contexts where these individuals can function favorably should be an important component in the treatment of this disorder. Some practitioners, based on personal experience with patients, have been advocating this approach for years; this data provides further credibility to these assertions.

Though they may fall into jobs that suit them unintentionally—indeed, some subjects reported this—deliberately guiding individuals toward ADHD-compatible environments may help accelerate the process and, subsequently, improve their degree of functioning (Jensen et al 1997). As Whalen (2001) explains, clinicians can facilitate this by helping individuals to “(a) recognize their own assets, liabilities, and proclivities; (b) assess the characteristics of various occupational and social settings; and (c) optimize the match between the two” (138). While medication can be tremendously helpful to patients, these preliminary findings suggest that a good occupational “fit” could also improve their functioning. Non-pharmaceutical interventions for adults could play a role in conjunction with more standard therapies, such as stimulant medication, or as alternatives to them, depending on the patients’ needs and desires<sup>4</sup>.

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<sup>4</sup> Of course, work is not the only environment in which adults find themselves; it is certainly possible that, despite finding a good “fit” at work, they may continue to experience dysfunction elsewhere (such as at home). In this case, other interventions may be appropriate.

### *Incorporating context into our understanding of ADHD*

Our subjects' narratives are also consistent with a growing body of experimental data from cognitive neuroscience that demonstrates the impact of context on ADHD symptom expression. In line with our subjects' experiences, this literature characterizes the disorder as arising from the interaction *between* the brain and its environment.

Biomedical conceptualizations of ADHD, by contrast, sometime paint a “disembodied reality” of the disorder, reducing it to a “brain-based discourse of neurotransmitters, receptor sites, and chemical processes” (Singh 2002:598). Our capacity to resolve many of the controversies surrounding ADHD—its diagnostic validity, its remission in adulthood, its fluctuating symptoms— is limited by the desire to bracket out context as a variable to be controlled rather than a fundamental piece of the puzzle. Bracketing out context for *analytical* purposes for research is of course useful; neglecting to re-incorporate context perpetuates the false notion of ADHD and other mental illness as solely a neurological matter.

Even those who account for the role of environment may fail to see its true importance: Buitelaar (2011), for example, describes the adult environment as potentially masking, rather than interacting with, the disorder: diagnosis is less straightforward in adults, he argues, because “adults have more opportunities than children and adolescents to create their own environment and to avoid tasks and roles they do not like or find difficult to perform. These opportunities may therefore hide impairment of functioning.”

But what does impairment mean outside of any particular context? How can ADHD be understood without taking into account the environment in which it manifests? This confusion stems from the very framework we have used to examine ADHD. As Lakoff (2007) explains, the pervasive idea of disease specificity, that “illnesses are stable entities that exist outside of their

embodiment in particular individuals and that can be explained in terms of specific causal mechanisms that are located within the sufferer's body," falls flat in many psychiatric disorders (744, see also Rosenberg 2006). ADHD is not fixed in time and space; rather, it is contextually fluid. Therefore, we might better understand the disorder as a mismatch between a particular individual's biology and a particular environment. As Peter Jensen and Kimberly Hoagwood (1997) argue:

[T]he relationships between organism and environment become critical areas for assessment, perhaps even central for the understanding of a given "disorder" ... one must ask whether a given disorder need be conceptualized as 'within the person' or even 'mental' per se (238-9).

This critique is not a rejection of the role of biology, but rather a call to incorporate context as fundamental to our understanding of ADHD. "ADHD has biopsychosocial elements that cannot be disaggregated," Ilina Singh (2002) aptly explains. Rather than reinforcing a false dichotomy between biology and context, "the most productive way forward is to recognize the multifactorial processes inherent in ADHD" (360, see also Singh et al 2013).

By expanding our understanding of ADHD beyond the brain, we can begin to investigate its adaptive qualities alongside its maladaptive ones. When individuals stop meeting full criteria as adults, it's not necessarily that their biology has changed. Rather, the disorder doesn't simply arise from their biology: it arises from a mismatch between this biology and their environment. Rather than reinforcing a false dichotomy between biology and context, we need to incorporate both to more fully understand ADHD.

These are not new ideas: many clinicians and social scientists alike have called for the contextualization of psychiatric illness (Drabink 2009, Rutter and Sroufe 2000, Livingston 1999, Kleinman 1977). And though medicine as a whole employs biologically-oriented language, work has documented a more ambivalent and nuanced view amongst some researchers and clinicians



(Pickersgill 2009, Rafalovich 2005, Whooley 2010). As Faraone et al (2000) states, ADHD research “should focus not only on the validity of the disorder, but also on the validity of the theories that buttress the diagnosis” (17). Our hope is that, by accounting for context, clinicians and scientists can improve both their understanding and treatment of the disorder.

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