

The Use of Extended Time by College Students with Disabilities

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Abstract

College students with disabilities represent approximately 11% of the general college population (U.S. Department of Education, 2013). These students are entitled to a variety of academic accommodations, including extended time to complete tests. Although extended time is frequently requested and granted, little empirical attention has been given to its use for exams taken by students with disabilities in a college classroom sample. The current study sampled records that were collected on all exams completed with extended time during two semesters at a midsize public university in the Northeast. The study explored two broad questions: What portion of typical time and extended time do students with disabilities use to complete exams? How does that use of time vary across common disabilities? Our findings indicated that more than half of the tests administered with extended time were completed within the time given to students in the sample classroom who took the tests. We also found, unexpectedly, that 12.9% of exams were completed in more than the extended time allotted. In this paper we discuss issues disability services providers could consider when making decisions about the provision of extended time and make recommendations for future research.

Keywords: *Extended time, students with disabilities, postsecondary education, test accommodations*

According to recent estimates, approximately 11% of students attending U.S. postsecondary institutions have a disability (U.S. Department of Education, 2013). Those with specific learning disabilities (LD), attention deficit hyperactivity disorder (ADHD), and/or psychological and psychiatric conditions account for the largest proportion of college students with disabilities (Raue & Lewis, 2011). These students are entitled to a variety of academic supports through Section 504 of the Rehabilitation and the Americans with Disabilities Act (ADA). Originally passed in 1990 (PL 101-336), ADA defined disability as a physical or mental impairment that has a substantial impact on a major life activity. The ADA Amendments Act of 2008 (ADAAA) provided a nonexhaustive list of those major life activities, including reading, concentrating, and thinking. Both the original law and the amendments further specify that individuals with disabilities must be

provided reasonable accommodations to access these major educational life activities, including academic accommodations.

Academic accommodations are meant to enable students with disabilities to access academic content and assessments (Goh, 2004). Accommodations can be provided in typical class settings, and under separate conditions. Lovett and Lewandowski (2015) defined test accommodations as modifications to the administration procedures that do not change the test content or the construct being evaluated. Test accommodations can include modifications to the timing and/or scheduling of a test, or to the response format, presentation, or setting (Thurlow, Elliott, & Ysseldyke, 2003). For example, a student with a visual impairment could be given an exam in large-text format to ameliorate the impact of their poor vision while retaining the original test items.

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Students with a variety of disabilities frequently request extended time to complete a test (Lazarus, Thompson, & Thurlow, 2006). Goh (2004) suggested that providing extended time can reasonably be applied in any situation where a student's disability causes them to process the test more slowly than is typical and thus impairs their ability to demonstrate their knowledge or skills. That is, students with LD or ADHD may have difficulty completing speeded tasks secondary to deficits in processing speed (Lewandowski, Cohen, & Lovett, 2013; Lewandowski, Lovett, Parolin, Gordon, & Coddling, 2007), while students with psychiatric impairments may require extended time to complete tests due to psychiatric symptoms or the use of psychotropic medication that impairs their processing speed (Eudaly, 2003).

Although extended time is frequently allowed in postsecondary settings (Bolt & Thurlow, 2004), its use has been debated in the literature. While a comprehensive review is beyond the scope of this discussion (see Lovett & Lewandowski, 2015; Phillips, 1994; Sireci, Scarpati, & Li, 2005), it should be noted that there is evidence to both support and contradict the fairness of extended time. For example, Gregg and Nelson (2010) found that, while extended time often improved the performance of students with and without disabilities, students without disabilities continued to outperform their disabled peers, even when those peers were given accommodations. Moreover, the results of Lewandowski and colleagues' empirical work (Lewandowski et al., 2013; Lewandowski, Lovett, & Rogers, 2008) has consistently shown that extended time improved nondisabled students' performance more than that of students with LD. In contrast, when Lewandowski et al. (2013) compared the results of students with LD who were given extended time to the results of their nondisabled peers given the typical time, students with LD showed a stronger performance than their nondisabled peers. These findings are certainly troubling, as they reveal that extended time may threaten the validity of test results by giving some students an unfair advantage.

Despite this spirited debate on the fairness of providing extended time in the college environment, the literature has given far less attention to the actual use of accommodations, and extended time specifically. In an experimental setting, Wadley and Liljequist (2013) found that, in a sample of college students with and without ADHD, both groups used less than the typical time and the extended time to complete a math task. Similarly, Cahalan-Laitusis, King, Cline, and Bridgman (2006) reported that individuals with LD and/or ADHD tended to use less than 25% of the

extended time allotted when taking the Scholastic Aptitude Test (SAT); however, the time used was noted to vary by task type. For example, students with disabilities used approximately 4% more time than their nondisabled peers to complete writing tasks but 14% more on mathematics tasks and 25% more on critical reading tasks. Although Lewandowski and colleagues (Lewandowski et al., 2007; Lewandowski et al., 2008; Lewandowski et al., 2013) shortened the standardized test administration time to eliminate ceiling effects, it cannot be assumed that the results from a standardized measure of reading administered in laboratory setting would generalize to content-rich tests administered in the classroom, with or without extended time. In fact, few studies have evaluated the extended time students with disabilities use to take tests in college courses. Stewart, Systma, Panahon, and Schreiber (2014) reviewed test logs provided by a university's office of disability services and found that, on average, students with disabilities used about the same amount of time to complete tests as their peers, regardless of how much extended time was allotted. Unfortunately, Stewart et al. aggregated data, thus limiting the opportunity for a specific exploration of the time used based on the type of disability and on the extended time allotted.

Despite concerns that the use of extended time on college campuses may give some students an unfair advantage and negatively influence the validity of test scores, few studies have explored how students with disabilities use extended time accommodations by disability type. Our primary goal in the current study was to expand the work of Stewart et al. (2014) to address two general research questions: What portion of typical time and extended time do students with disabilities use to complete exams? How does that use of time vary across disabilities common in the college population, such as LD, ADHD, and autism spectrum disorder? Given the lack of previous data to support empirical hypotheses, we sought to explore these questions descriptively to promote a more comprehensive understanding of the students who may be most likely to both under and over utilize the extended time accommodation.

Method

Prior to collecting data, all our procedures for the current study were approved through the campus institutional review board. We then gathered time data from the spring 2014 and fall 2014 semesters from archival records kept by the Office of Disability Support Services (DSS) at a midsize public university in the Northeast. These data were collected at the time

students with disabilities were presented to the DSS office to take a test with extended time. The records included the student name and the course name and number; the time the exam began and ended; support materials allowed, such as notes, calculators, and/or books; special notes from the instructor, such as whether the test-taker was given a 10-minute **extended** time limit rather than the entire class period. It was typical practice for the DSS office to collect these records in order to monitor exams completed under extended time conditions.

The authors then confirmed, through the archival records, the length of the class in which each test was taken with no specific time limit (as mentioned above). The accuracy of the time allotted and the time used to complete each test was verified prior to the data analysis through the following procedure. The two authors divided the time records between them and entered the total time allowed and utilized (in minutes) for each record. The authors then confirmed each other's data; when disagreements arose, the authors confirmed the time allotted and/or recalculated the time used, and agreed on the data before entering it. Time records that did not include a start time, end time, or course name/number were removed from the sample ($n = 52$).

Once we confirmed the data on time use, we calculated the proportion of time used (in minutes) out of the total class time allotted (in minutes) for each test administered. We then calculated the **percentage** of extended time allowed by multiplying the class time allowed by the extended time granted (either 1.5 [50% extended time] or 2.0 [100% extended time]) to obtain the total amount of time allowed for each test taken with extended time. We also created a categorical variable to reflect the proportion of class time used: up to 100% of class time, 101%-110% of class time, 111%-125% of class time, 126%-150% of class time, 151%-175% of class time, 176%-200% of class time, and >200% of class time. We selected these intervals because they align with the current standard of allotting either 50% or 100% more time than the class receives; they also provide more a more nuanced understanding of the patterns of time use.

The primary authors collected demographic information, including age, class standing, disabling condition, and amount of extended time allotted (1.5 or 2.0), from each participant's file and confirmed it using the same verification procedure as for time use data: The two authors divided the student records between them and noted each participant's age, class standing, disabling condition, and amount of extended time allotted. The authors then confirmed each other's information; when disagreements arose, the authors

verified the information by reviewing the student's record together.

The final sample included 1,093 unique exams completed by 187 individuals. The mean age of the sample was 22.01 years ($SD = 4.62$, range = 18-52 years). The sample included a nearly equal proportion of males (49.77%) and females (50.22%). Learning disabilities were the most frequent educational disability recorded (37.88%), followed by ADHD (23.88%) and multiple disabilities (13.36%). The greatest proportion of our sample were college juniors (33.76%), followed by seniors (28.27%), freshmen (21.41%), sophomores (16.38%), and graduate students (.18%). Of the sample, 605 exams (55.35%) were taken with 1.5 extended time and 488 (44.65%) were taken with 2.0 extended time.

Results

We utilized descriptive data analyses to answer our primary research questions. We began by exploring the general pattern of time use across the sample of tests taken with extended time by disability group, as presented in Table 1. We found that, on average, students who completed tests under extended time conditions used 103.18% of class time and 60.44% of the extended time allotted. Individuals with psychiatric disabilities used nearly 25% more than the class time allotted to complete their tests, while individuals with visual disabilities completed their tests in approximately 27% less than the time allotted in class. Individuals with LD and visual and medical disabilities on average completed the tests within the time allotted in the classroom. Across disability groups, we found individuals with physical (59.65%) and psychiatric (58.75%) disabilities used the greatest proportion of any extended time allotted to complete their tests, while individuals with medical (0%) and visual (21.88%) disabilities used the smallest portion of extended time allowed to complete their tests.

1.5 Extended Time

To further explore the amount of time used by individuals with disabilities to complete tests taken under extended time conditions, we split the dataset by tests taken with 1.5 and with 2.0 extended time (Table 1). For exams taken with 1.5 extended time ($n = 605$), the mean class time used was 96.11% ($SD = 55.73\%$), which indicates that, on average, exams were completed within the time allotted in the classroom. ; the mean extended time used was 64.03% ($SD = 37.13\%$). As displayed in Table 1, individuals with psychiatric disabilities on average used the highest percentage of class time (124.70%), while individuals with visual

disabilities on average used the lowest percentage of class time (73.36%).

Our analysis of the categorical variable of time used helps further explain patterns of time use by disability type (Table 2). Within the sample of exams taken with 1.5 extended time ($n = 605$), the majority ($n = 354$, 58.51%) were completed within the time given in the classroom. Of these 354 exams, LD ($n = 122$, 34.46%) and ADHD ($n = 101$, 28.53%) were most frequently represented. Of the sample of individuals with LD ($n = 185$) and ADHD ($n = 175$) given 1.5 extended time, the majority were able to complete the test within the time given in the classroom (65.95% and 57.71%, respectively). All individuals with medical disabilities were able to complete tests taken with 1.5 extended time within the time given in the classroom.

Of the individuals who used at least some of the extended time granted ($n = 251$), the largest proportion ($n = 89$, 35.46%) completed their tests within 126%-150% of class time, indicating that, when individuals with disabilities began to use their extended time to complete their test, approximately one-third completed it with 26%-50% more time than that given in the classroom. Across disability groups, individuals with ADHD most frequently used any portion of extended time (29.58%). Within specific disability groups, individuals with psychiatric diagnoses (60.71%) most frequently used any portion of extended time, while no individuals with medical diagnoses used any portion of extended time. We found that 16.53% ($n = 100$) of students who completed exams with 1.5 extended time used more than the time allotted. Of these, the most frequently represented disabilities were ADHD ($n = 27$, 35.06%) and psychiatric diagnoses ($n = 15$, 19.48%).

Extended Time 2.0

For the individuals who took exams with 2.0 extended time ($n = 488$), the average class time used was 111.96% ($SD = 62.83\%$), indicating that students given 2.0 extended time used more than the allotted class time, as presented in Table 1. On average, individuals with multiple disabilities used the most class time (140.99%) to complete exams, while individuals with visual disabilities used the least (97.00%).

As seen in Table 3, nearly a majority of the exams taken with 2.0 extended time were completed within the time allotted in the classroom ($n = 243$, 49.80%); LD was the most frequently represented disability ($n = 140$, 57.61%). Of these, the most frequently represented disabilities were ADHD ($n = 38$; 38.00%) and psychiatric diagnoses ($n = 21$; 21.00%).

For individuals who used at least a portion of the extended time allotted ($n = 245$), the largest portion (n

$= 61$, 12.50%) completed their tests within 126%-150% of the time allotted in the classroom. Across groups, individuals with LD ($n = 89$) represented the largest percentage of the sample (36.33%) that used any portion of extended time. Within disability groups, more than two-thirds (67.44%) of the individuals with multiple disabilities ($n = 29$) used more than the class time allotted, followed by individuals with ADHD, who used 63.95% ($n = 55$) of the extended time allotted. Forty-one (8.40%) completed their tests beyond the extended time allotted; the most frequently occurring disability among those individuals was LD ($n = 12$, 29.27%).

Discussion

The current study was designed to explore the extended time use patterns of college students with disabilities. We sought to expand the work of Stewart et al. (2014) to better understand the amount of students with disabilities use extended time to complete tests, and how these patterns vary across disabilities.

Our results revealed that a majority (54.62%) of students with disabilities who took tests under extended time conditions completed them in the time allotted in the classroom, irrespective of the amount of extended time allotted. These findings echo those of Cahalan-Laitusis et al. (2006) and Stewart et al. (2014), who found that when tests are administered with additional time, the majority of students with disabilities are able to complete the tests within the time given in the classroom. Across disability groups, we found that, on average, individuals with LD, visual disabilities, and medical disabilities were able to complete tests within the time allotted in the classroom, regardless of whether the tests were taken with 1.5 or 2.0 extended time. Furthermore, fewer than half of the individuals with LD, ADHD, visual disabilities, and medical disabilities used any extended time when taking tests.

Although these findings are noteworthy, some authors have suggested that providing extended time during testing reduces students' anxiety, frustration, and stress, in addition to allowing them sufficient time to access content and demonstrate their skills. For example, Elliott and Marquart (2004) found that middle school students with and without disabilities reported being more relaxed when taking a math test with extended time. Lang et al. (2005) found that students with and without disabilities reported being more comfortable taking tests under extended time conditions, and students with disabilities were more likely to report that taking tests was easier when given extended time. Another study found that high school and college students with and without disabilities perceived

that taking a test with 1.5 extended time would benefit their performance (Lewandowski, Lambert, Lovett, Panahon, & Sytsma, 2014). Given that anxiety, fatigue, motivation, and perceived likelihood of success may influence all student' test performance, providing an accommodation solely to reduce the impact of these factors could seriously threaten the validity of scores, especially in the absence of disability-related functional impairment (Ofiesh & Hughes, 2002).

Although the majority of individuals in the current study completed tests within the time given in the classroom, we found that nearly 17% who used 1.5 extended time and approximately 8% who used 2.0 extended time needed even more time than that allotted under the extended time conditions. We find these data concerning, given their potential impact on the validity and comparability of scores on tests taken under typical rather than extended time conditions. Scores on high-stakes exams like the SAT that were taken with extended time accommodations have been shown to have weaker predictive validity (Cahalan, Mandinach, & Camara, 2002) than those taken under typical conditions. Furthermore, Thornton, Reese, Pashley, and Dalessandro (2002) found that scores on the Law School Admission Test earned under extended time conditions tended to over-predict first-year law school performance for students with ADHD, LD, neurological impairment, and visual impairment. Although these findings indicate differential predictive validity in accommodated versus typically administered high-stakes tests, it is important to note that there is far less research on the impact extended time has on the validity of classroom test scores.

In a similar line of criticism, some have questioned whether test scores earned under extended time conditions are comparable to scores earned under typical time conditions. In a college sample, Lewandowski et al. (2013) found that, when students with LD were given doubletime to take tests, they were able to access more test items than nondisabled students taking the same test under typical time conditions. Practically speaking, this suggests that the scores of students who take tests under extended time may not be comparable to those who take the same test in the classroom. Given that approximately 12% of the students in the current study used even more than the extended time allotted, we emphasize the potential threat to the validity of test scores when students are given additional time to complete tests beyond the extended time accommodation.

In conjunction with the recommendations from Lewandowski et al. (2013) and other researchers (Ofiesh & Hughes, 2002; Ofiesh, Hughes, & Scott, 2004), our findings suggest that, when accommodating college stu-

dents with disabilities, we may need to provide smaller increments of extended time to balance their need for access to test content with the need to avoid creating an unfair advantage. In the current study, approximately 69% of tests administered with 1.5 extended time and 61.50% of tests administered with 2.0 extended time could have been completed with 25% extended time. While there is some research (see Ofiesh, 2000; Ofiesh, Mather, & Russell, 2005; Lovett & Leja, 2015) to suggest that measures of processing speed, retrieval fluency, and executive functioning may help identify individuals who will and will not benefit from extended time, the skills that best inform the allotment of extended time in a postsecondary setting, and the corresponding measures of these skills, have not been sufficiently explored. Absent additional research on the salient factors that can help inform the appropriate provision of extended time, such as processing speed or reading ability, we recommend that readers consider the relevant accommodation guidelines for each individual student, making sure to balance access with fairness.

While the current study is among the first to explore the use of extended time in an ecologically valid setting, it is important to consider the limitations of the data. We utilized archival data collected at the time each exam was given. We included all tests taken under extended time conditions, which ranged from brief quizzes to examinations. Given the diverse difficulty, content, and response formats of the tests, we cannot generalize our findings to a specific test or examination. Despite this limitation, our data support the findings of other studies (Stewart et al., 2014; Wadley & Liljequist, 2013) that a large portion of students who are given extended time do not use this accommodation to complete their tests. Although our sample included students with a variety of disabilities, we did not have equal representation across disability categories, which further limits the generalizability of our findings. Furthermore, we did not have access to the time use of nondisabled students enrolled in the same courses as our disabled sample who took tests under typical time conditions; thus it is impossible to determine the extent of the relationship between use of time, performance, and disabling condition. Finally, our findings were taken from exams completed during two semesters at one midsize public university. Differences in the admissions requirements and general academic standards across college campuses may prevent these data from being generalized to all schools.

Despite the limitations of the study, our findings are among the first to demonstrate the patterns of time use for college students with disabilities who were provided extended time accommodations to complete

classroom examinations. Our results provide evidence that students with disabilities may be able to access test content in less time than they are provided. Given the threats to the validity of scores on tests taken with accommodations, more research is needed to fully understand how extended time influences performance on classroom tests administered to students with and without disabilities both with and without this accommodation. Until then, we recommend that disability services providers continue to work to balance all students' right to access academic content without providing unnecessary accommodations that may produce an unfair advantage.

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Table 1

Mean and Standard Deviation of Percentage Time Utilized by Time Allotted and Disability

	1.5 Extended Time			2.0 Extended Time			Overall Sample		
	<i>n</i>	Class Time (<i>SD</i>)	Extended Time	<i>n</i>	Class Time (<i>SD</i>)	Extended Time (<i>SD</i>)	<i>N</i>	Class Time (<i>SD</i>)	Extended Time (<i>SD</i>)
LD	185	85.83 (50.50)	57.22 (33.67)	229	97.52 (56.24)	48.76 (28.12)	414	92.30 (54.00)	52.54 (30.97)
ADHD	175	100.61 (62.91)	67.07 (41.94)	86	123.69 (63.94)	61.84 (31.97)	261	108.21 (64.06)	65.35 (38.95)
ASD	28	107.30 (43.04)	71.53 (28.69)	40	119.60 (78.69)	59.80 (39.34)	68	114.53 (66.24)	64.63 (35.89)
PSY	56	124.70 (65.11)	83.13 (43.40)	53	124.67 (60.54)	62.33 (30.27)	109	124.68 (62.64)	73.02 (38.86)
Visual	22	73.36 (34.59)	48.91 (23.06)	10	97.00 (63.92)	48.50 (31.96)	32	80.75 (46.05)	48.78 (25.63)
Physical	30	113.93 (45.32)	75.12 (29.87)	27	120.09 (54.89)	60.05 (27.45)	57	116.85 (49.72)	67.98 (29.49)
Medical	6	73.60 (23.15)	49.07 (15.43)	0	--	--	6	73.60 (23.15)	49.07 (15.43)
Multiple	103	89.30 (49.17)	59.54 (32.78)	43	140.99 (68.22)	70.49 (34.11)	146	104.53 (60.06)	62.76 (33.43)
Total	605	96.11 (55.73)	64.03 (37.13)	488	111.96 (62.83)	55.98 (31.41)	1093	103.18 (59.50)	60.44 (34.91)

Note. LD=Learning Disability; ADHD=Attention Deficit Hyperactivity Disorder; ASD=Autism Spectrum Disorder; PSY=Psychiatric Disability

Table 2

Percentage of Tests Completed within Time Intervals by Disability for 1.5 Extended Time

Class Time	Disability								
	LD (n=185)	ADHD (n=175)	ASD (n=28)	PSY (n=56)	Visual (n=22)	Physical (n=30)	Medical (n=6)	Multiple (n=103)	Total (n=605)
Up to 100%	65.95 (n=122)	57.71 (n=101)	42.86 (n=12)	39.29 (n=22)	86.36 (n=19)	43.33 (n=13)	100 (n=6)	57.28 (n=59)	58.51 (n=354)
101-110%	6.49 (n=12)	4.00 (n=7)	10.71 (n=3)	1.79 (n=1)	0 (n=0)	10.00 (n=3)	0 (n=0)	5.82 (n=6)	5.29 (n=32)
111-125%	5.41 (n=10)	1.41 (n=2)	7.14 (n=2)	3.57 (n=2)	0 (n=0)	6.67 (n=2)	0 (n=0)	11.65 (n=12)	4.96 (n=30)
126-150%	13.51 (n=25)	15.43 (n=27)	17.86 (n=5)	17.86 (n=10)	13.63 (n=3)	16.67 (n=5)	0 (n=0)	13.59 (n=14)	14.71 (n=89)
151-175%	3.24 (n=6)	9.71 (n=17)	21.43 (n=6)	16.07 (n=9)	0 (n=0)	13.33 (n=4)	0 (n=0)	7.77 (n=8)	8.26 (n=50)
176-200%	2.70 (n=5)	5.71 (n=10)	0 (n=0)	10.71 (n=6)	0 (n=0)	6.67 (n=2)	0 (n=0)	3.88 (n=4)	4.46 (n=27)
>200%	2.70 (n=5)	6.29 (n=11)	0 (n=0)	10.71 (n=6)	0 (n=0)	3.33 (n=1)	0 (n=0)	0 (n=0)	3.80 (n=23)

Note. LD=Learning Disability; ADHD=Attention Deficit Hyperactivity Disorder; ASD=Autism Spectrum Disorder; PSY=Psychiatric Disability

Table 3

Percentage of Tests Completed within Time Intervals by Disability for 2.0 Extended Time

Class Time	Disability							
	LD (n=229)	ADHD (n=86)	ASD (n=40)	PSY (n=53)	Visual (n=10)	Physical (n=27)	Multiple (n=43)	Total (n=488)
Up to	61.14	36.05	47.50	43.40	60	37.04	32.56	49.78
100%	(n=140)	(n=31)	(n=19)	(n=23)	(n=6)	(n=10)	(n=14)	(n=243)
101-	5.68	2.33	5.00	5.66	0	0	2.33	4.30
110%	(n=13)	(n=2)	(n=2)	(n=3)	(n=0)	(n=0)	(n=1)	(n=21)
111-	7.42	9.30	2.50	5.66	10	14.81	4.65	7.38
125%	(n=17)	(n=8)	(n=1)	(n=3)	(n=1)	(n=4)	(n=2)	(n=36)
126-	8.73	22.09	2.50	15.09	10	18.52	16.28	12.50
150%	(n=20)	(n=19)	(n=1)	(n=8)	(n=1)	(n=5)	(n=7)	(n=61)
151-	4.37	6.98	10.00	5.66	0	14.81	4.65	5.94
175%	(n=10)	(n=6)	(n=4)	(n=3)	(n=0)	(n=4)	(n=2)	(n=29)
176-	7.42	13.95	12.50	16.98	20	7.41	23.26	11.68
200%	(n=17)	(n=12)	(n=5)	(n=9)	(n=2)	(n=2)	(n=10)	(n=57)
>200%	5.24	9.30	20.00	7.55	0	7.41	16.28	8.40
	(n=12)	(n=8)	(n=8)	(n=4)	(n=0)	(n=2)	(n=7)	(n=41)

Note. LD=Learning Disability; ADHD=Attention Deficit Hyperactivity Disorder; ASD=Autism Spectrum Disorder; PSY=Psychiatric Disability