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|  |  | **TABLE 1 Characteristics of Included Studies** | | |  | | | |  | |
| Study | Population (F: female) | Age | Disorder | participants | | Clinical measure | Task | Task | | Explore vs. exploit results results results |
| Robb B. Rutledge | 26 Ex (12F), 26 HC (12F), 26 HC2 (14F) | Ex = 65.7, HC = 67.3, HC2 = 22.8 | Parkinson | 78 paid volunteers participated in the experiment: 26 patients with Parkinson’s disease (12 females; mean age, 65.7 years), 26 matched healthy elderly control subjects (12 females; mean age, 67.3 years), and 26 healthy young subjects (14 females; mean age, 22.8 years). | | Hoehn–Yahr scale, (UPDRS) | foraging task | FT | | The use of dopaminergic drugs in both elderly groups and people with Parkinson's disease improves some components of exploitation |
| Constantino | 23 Ex (12F), 21 HC (11F) | Ex = 67.3, HC = 61.2 | Parkinson | 23 PD patients [mean age 67.3 years; 12 female] and 21 matched, neurologically intact controls [mean age 61.2 years; 11 female] participated in this study | | Hoehn and Yahr scale | foraging task | FT | | Use of drug Exploit > Explore |
| Jennifer K. Lenow | 36 Ex (22F), 29 HC (19F) | Ex = 67.3, HC = 61.2 | Stress | The control group and stress group were composed of 29 and 36 subjects, respectively. The proportion of females in the stress group was 0.64 and in the control group 0.60 | | Perceived Stress Scale (PSS) | foraging task | FT | | Explore> Exploit |
| Samantha V. Abram | 100 Ex (81F) | Ex = 20.2 | Addiction | 100 students (81% female, average age 20.2 years) | | criteria outlined by Johnson and  Bickel | foraging task | FT | | Explore> Exploit |
| Kristjánsson | 44 Ex (32F) | Ex = 24.8 | Eating disorder | 44 participants were recruited for the foraging task (32 women, 12 men; mean age = 24.8 (SD = 3.5),ranging from 21 to 42 years) | |  | foraging task | FT | | Exploit > Explore |
| Djamshidian, A. | 27 Ex1 (5F),  25 Ex2 (4F), 24 HC (10F) | Ex1 = 54.2,  Ex2 = 64.2, HC = 57.8 | Parkinson | 27(PD+ICB) [Age (yrs.)= 54.2 ± 9.2 , Gender (male)=22] & 25 PD-ICB [Age (yrs.)=64.2 ± 8.0 ,Gender (male)=21 ]& 24 healthy controls[Age (yrs.)= 57.8 ± 10.7, Gender (male)=14] | |  | Bandit Task | BT | | Explore> Exploit |
| Addicott, M. A. | 37 (21F) | 34 | Addiction/Smoking | 37 smokers and non-smokers (21 women), aged 20–55 years (mean ± S.D.: 34 ±10 years) | |  | Bandit Task | BT | | Exploit > Explore |
| Blanco | 133 |  | Depression | 133 | | CES-D | Bandit(Leapfrog Task) | BT(LFT) | | Explore> Exploit |
| Addicott, M. A. |  | Ex = 36 | drug addiction/ cigarette smokers | Participants were 36 ± 11 (M ± SD) years of age and smoked 12 ± 6 cigarettes per day  (range 1-20) | |  | Bandit Task | BT | | Exploit > Explore |
| Addicott, M. A. | 60 (F36) | 34 | Gambling | A total of 60 participants completed the study and provided useable data (40% male, aged Mean ± SD 34 ± 10 years) | | SOGS, QDQ, RAS, GRCS | Bandit Task | BT | | Explore> Exploit |
| Harlé | 16 Ex (6F), 16 HC (5F) | Ex = 35.4, HC = 37.1 | Addiction/methamphetamine-dependent individuals(MDI) | 16 (40% female; mean age =35.4) &16 healthy comparison subjects (HCS; 33% female; mean age = 37.1) | | DSM-IV | Bandit Task | BT | | Exploit > Explore |
| Harle | 53 (38F) | 20.5 | Anhedonia and anxiety | 53 undergraduate students (71% female; mean age = 20.5, age range:18–26) participated in this study | | BDI-II | Bandit Task | BT | | Explore> Exploit |
| Martinelli | 20 Ex (3F), 24 HC (3F) | Ex = 41.5, HC = 40.5 | schizophrenia | 20 patients [Age: mean (SD) 41.50 (6.76) & Gender/male: n (%) 17 (85)] and [24 controls Age: mean (SD) 40.50 (7.58) & Gender/male: n (%) 21 (87.5)] | | ICD-10 | Bandit Task | BT | | Explore> Exploit |
| Aylward | 44 Ex (28F), 88 HC (50F) | Ex = 28, HC = 23 | Anxiety | N = 88 healthy controls (50 female; age = 23 ± 5 yr.) and N = 44 people with unmediated mood and anxiety symptoms  (28 female; age = 28 ± 9 yr.) | | STAI, BDI | Bandit Task | BT | | Explore> Exploit |
| Lamba, A. | 97 Ex, 257 HC |  | Anxiety | healthy subjects (n = 257) and subjects with anxiety (n = 97) | |  | Bandit Task | BT | | Exploit > Explore |
| Ryan Smith | 147 Ex (75F), 54 HC (30F) | Ex = 34.05, HC = 32.27 | Substance use disorders (SUDs) | SUDs (N = 147 age= 34.05 (9.17) & Sex (Male)=0.49 (0.50)) and HCs (N = 54) age=32.27 (11.35) & Sex (Male)=0.44 (0.50) | | OASIS, DAST-10 | Bandit Task | BT | | Explore> Exploit |
| Kristoffer C. Aberg | 28 (20F) | 27.57 | Anxiety | 28 participants (eight males; average age ± SEM: 27.571 ± 0.730) | | trait-anxiety scores | Bandit Task | BT | | Explore> Exploit |
| Addicott, M. A. | 26 Ex (12F), 23 HC (13F) | Ex = 34.2, HC = 27.7 | ADHD | ADHD[26 (14m/12f)(age=34.2+-8.3& HC[23 (12M/13f) age(27.7+-6.6)] | | DSM-IV | Bandit Task | BT | | Explore> Exploit |
| Cathomas, F. | 45 Ex (14F), 19 HC (10F) | Ex = 34, HC = 32.53 | Schizophrenia | 45 patients(age=34.00 (10.47)(31 M 14 F) and 19 HC(age=32.53 (9.45) (9 male-10 female) | | DSM-V | Bandit Task | BT | | Explore> Exploit |
| Wiehler | 23 Ex (Male), 23 HC | Ex = 25.91, HC = 26.52 | Gambling Disorder | n = 23 frequent gamblers [age mean (SD) =25.91 (6.47), all male], n = 23 healthy control age= 26.52 (5.92) | | DSM-V, SCL-90-R, BDI-II, KFG, SOGS, GRCS | Bandit Task | BT | | Exploit > Explore |
| Nikoletta Bo´ di | 26 Ex1 (8F), 22 Ex2 (5F)  20 HC (5F) | Ex1 = 44.8,  Ex2 = 45.3, HC = 45.3 | Parkinson | [Controls=(Number/male/female)=20 (15/5) ,age=45.3 (8.5)] , [Never medicated Parkinson’s disease=(Number/male/female)=26 (18/8) ,age= 44.8 (5.2)] , [Recently medicated Parkinson’s disease=(Number/male/female)=22 (17/5),age= 45.3 (8.2)] | | Hoehn– Yahr Scale | PRL task | PRL | | Exploit > Explore |
| Dombrovski, A. Y. | 65 | ≥ 60 | Depression | 65 participants age 60 and older: 15 depressed suicide attempters, 12 depressed suicide ideators, 24 non-suicidal depressed elderly, and 14 non-depressed, non-suicidal elderly comparison subjects. | | DSM-IV, HAM-D, SCID | PRL task | PRL | | Exploit ≈ Explore |
| Solomon, M. | 28 Ex,  30 HC | Ex = 23.5,  HC = 24.4 | Autism | 28 adults with ASDs (Mean age 5 23.5;(SD) 5 5.50) and 30 adults with typical development (Mean age 5 24.4 (5.08)) | | DSM-IV-TR, ADOS-G | PRL task | PRL | | Explore> Exploit |
| Waltz, J. A. | 29 Ex (5F),  21 HC (6F) | Ex = 39.6,  HC = 39.6 | Schizophrenia | 29 chronic SZ patients [Age 39.6 & Gender 5 F] and 21 matched normal controls (NCs)[Age=39.6 & Gender 15 M] | |  | PRL task | PRL | | Explore> Exploit |
| Tobias U. Hauser | 20 Ex (7F),  20 HC (10F) | Ex = 14.6,  HC = 14.8 | ADHD | [20 ADHD, Age, mean (SD)=14.60 (1.67),Sex (male/female)=13/7] and [20 control, Age, mean (SD)=14.80 (1.46), Sex (male/female)= 10/10] | | DSM IV | PRL task | PRL | | Explore> Exploit |
| Patzelt, E. H. | 45 Ex (10F), 41 HC (10F) | Ex = 41, HC = 40 | Addiction/Cocaine | 45 cocaine users [Age 41.0 (6.9) , Gender (% male) 77%] and 41 non-using controls[Age 40.0 (7.4) , Gender (% male)75%] | | DSM IV ,SCID-IV | PRL task | PRL | | Explore> Exploit |
| Culbreth | 45 Ex (14F), 19 HC (10F) | Ex = 34, HC = 32.53 | Schizophrenia | [ 57 SZ, Age (y) =37.0 ( 8.6), Sex (% male) =66.7] and [36 CN=Age (y) 36.6 (9.2), Sex (% male) 52.8] | | DSM-IV | PRL task | PRL | | Explore> Exploit |
| Lena Felice Reddy | 126 Ex (40F), 72 HC (32F) | Ex = 48.8, HC = 46.7 | Schizophrenia | [126 individuals with schizophrenia=Sex (% male) 68%, Age 48.8 (11.2)] and [72 healthy controls=Sex (% male) 55%, Age=46.7 (8.1)] | | PANSS,CAINS | PRL task | PRL | | Explore> Exploit |
| psychosis Vinckier, F. | 21 (10F) | 28.7 | psychosis | Twenty-one healthy, right-handed volunteers (11 males), aged 25–37 years  (mean 28.7, s.d. 3.2), | |  | PRL task | PRL | | Explore> Exploit |
| Urošević, S. | 47 Ex, 57 HC |  | Bipolar disorders | 47 with BD; 57 healthy controls (HC) | | DSM-IV, K-SADS, KDRS,KMRS Scales | PRL task | PRL | | Explore> Exploit |
| Kaileigh A. Byrne | 56 Ex (34F), 55 HC (33F) | Ex = 19.09, HC = 16.16 | Stress | 111 participants (67 females, M age = 19.13, SD age = 1.25) were included in the analysis. Fifty-six participants (34 females, M age = 19.09, SD age = 1.38) were randomly assigned to the stress manipulation condition, and 55 participants (33 females, M age = 19.16, SD age = 1.12) were randomly assigned to the control condition | |  | PRL task | PRL | | Explore> Exploit |
| Marzuki, A. A. | 50 Ex (29F), 53 HC (30F) | Ex = 16.6, HC = 46.4 | OCD | 50 patients (29 female patients [58%]; median age, 16.6 years [IQR, 15.3-18.0 years]) and 53 controls (30 female participants [57%]; median age, 16.4 years [IQR, 14.8-18.0 years]) | |  | PRL task | PRL | | Explore> Exploit |
| Perandrés-Gómez, A | 84 Ex (2F), 65 HC (2F) | Ex = 36.26, HC = 33.78 | Gambling Disorder | 84 treatment-seeking patients with gambling disorder [ Mean(SD)=36.26 (11.32),2F/82M ] and 65 controls[ Mean (SD)=33.78 (8.74), 2F/63M | | DSM5 criteria and severity assessed using the SOGS questionnaire | PRL task | PRL | | Explore> Exploit |
| Goudriaan, A. E. | 48 Ex1,  47 Ex2,  49 Ex3 |  | Pathological gamblers, alcohol dependents/Tourette | he PG group (n = 48), AD group (n = 46), TS group (n = 47), and a normal control (NC) group (n = 49) | | DSM IV | Iowa Gambling Task (IGT) | IGT | | Explore> Exploit |
| Cella, Matteo | 19 Ex,  20 HC |  | Depression | 19 outpatients with MDD and 20 healthy controls were recruited | | SCID | Iowa Gambling Task (IGT) | IGT | | Exploit > Explore |
| Cordovil De Sousa Uva, M. | 35 Ex (18F), 22 HC (8F) | Ex = 48.4, HC = 44.36 | Alcohol-Dependent | Alcoholic group AT1/AT2 n = 35 [Mean age, ± SD= 48.40 ± 8.2, Male= 17 (48.5%)] Control group n = 22 [Mean age, ± SD =44.36 ± 9.64, Male= 14 (63.63%)] | | DSM-IV | Iowa Gambling Task (IGT) | IGT | | Exploit > Explore |
| de Visser, L. | 108 (43F) | 20.8 | Anxiety | Men (n = 65, mean age ± SEM = 22.4 ± 0.6 years) and women (n = 43, mean age ± SEM = 20.8 ± 0.7 years) | |  | Iowa Gambling Task (IGT) | IGT | | Men : Exploit > Explore  Women : Explore> Exploit |
| Eldad Yechiam | 15 (1F) | 15.6 | Autism | 15 high functioning children (14 out of the 15) were male. The mean group age was 15.6 (SD = 2.8). | | ICD-10 | Iowa Gambling Task (IGT) | IGT | | Exploit > Explore |
| Matsuzawa, D. | 61 Ex (28F), 50 HC (17F) | Ex = 34.3, HC = 31.9 | Schizophrenia | Normal controls (n = 50)[Sex, male/female=33/17 & Age (years)=31.9 ± 7.8] Schizophrenia(n = 61)[Sex, male/female=33/28 &Age (years)=34.3 ± 8.3 ] | | DSM-IV | Iowa Gambling Task (IGT) | IGT | | Explore> Exploit |
| Mussey, J. L. | 15 Ex, 18 HC | Ex = 18.75, HC = 19 | Autism | 33 participants completed this study: 15 individuals with high-functioning ASD[Age (Years-Months)=18-9 (3-3) ] and 18[Age (Years-Months)=19-0 (2-1)] individuals with typical development | | ADI-R | Iowa Gambling Task (IGT) | IGT | | Explore> Exploit |
| Christina O. Carlisi | 24 Ex1 (0F),  20 Ex2 (0F) 20 HC (0F) | 11-17 | Autism and OCD | 64 right-handed boys (20 typically developing control boys, 24 boys with ASD, 20 boys with OCD), 11–17 years old, IQ ≥ 70 | | ICD-10, ADOS, ADOS, ADI-R, ADOS | Iowa Gambling Task (IGT) | IGT | | Explore> Exploit |
| Giannunzio, V. | 109 Ex1 (F), 201 Ex2 (F),  32 HC1 (F),  269 HC2 (F) | Ex1 = 16.8, EX2 = 26.2,  HC1 = 16.5  HC2 = 26.8 | Anorexia nervosa | 310 female patients[Adolescent girls with AN (n = 109) Age (years)=16.8 (1.2), Adult women with AN (n = 201)Age (years)26.2 (6.6)] 301 healthy female individuals[Adolescent girls (n = 32)Age (years)16.5 (1.3), Adult women (n = 269)Age (years)26.8 (5.5) | |  | Iowa Gambling Task (IGT) | IGT | | Exploit > Explore |
| Saperia, S. | 51 Ex1 (23F), 43 Ex2 (23),  51 HC (26F) | Ex1 = 34.5,  Ex2 = 32.3, HC = 31.7 | Schizophrenia- major depressive | 51 patients with schizophrenia[Sex (M:F) 28:23, 34.5 (10.4)] , 43 patients with major depressive disorder[ Sex (M:F)20:23, 32.3 (11.2)], and 51 healthy controls[Sex (M:F)25:26, 31.7 (11.0)] | | DSM-IV | Iowa Gambling Task (IGT) | IGT | | Explore> Exploit |
| Verharen, J. P. H. | 60 Ex1 (F),  216 Ex2 (207F), 55 HC (F) | Ex = 27.28, Ex2 = 22.25,  HC = 24.47 | Anorexia Nervosa | First cohort =[AN patients =60 all women , 27.28 (9.93) & Healthy controls =55 all women , 24.47 (8.31)] Second cohort=[216 AN 96% women 22.25 (7.27)] | | DSM-IV | Iowa Gambling Task (IGT) | IGT | | Exploit ≈ Explore |
| Robinson, A. H. | 106 Ex (27F), 48 HC (12F) | Ex = 31.2, HC = 31.59 | People with Methamphetamine Use Disorder (PwMUD | PwMUD=[27F/79M-AGE=31.20 (7.25)] Controls=[12F/36M AGE=31.59 (8.67)] | | DSM-V |  |  | | Explore> Exploit |