Table 1

*Summary of Studies Included in the Meta-Analysis*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Study | Sample | Measures | Empathy | Findings |
| Beavin (2014) | * 149 ICSO (CO-A) * 30 Controls (General Population- Age Matched) | IRI | Affective | *p* = .764  *d* = .069 |
| Chaplin (1995) | * 15 ICSO (NO-C-NF) * 15 Controls (General Population- Unemployed) | HES | Cognitive | *p* < .02  *d* = -1.03 |
| Cornelius (2001) | * 20 ICSO (NFOC) * 20 Controls (General Population) | BEES | Affective | *p* <.0001  *d* = -1.30 |
| Cremer (1996) | * 10 ICSO (IOC) * 10 Controls (General Population) | IRI | Cognitive and Affective | Cog: *p* = .313  *d* = -.58  Aff: *p* = .766  *d* = -.14 |
| Cuevas (2004) | * 40 ICSO (General) * 32 Controls (General Population) | HES | Cognitive | *p* = .005  *d* = -0.70 |
| D’Orazio (2002) | * 30 Juvenile ICSO (General) * 30 Adult ICSO (General) * 30 Controls (Juvenile- General Population) * 30 Controls (Adult- General Population) | IRI | Cognitive and Affective | Cog: *p* > .05  *d* = .07  Aff: *p* > .05  *d* = .14 |
| Fisher, Beech and Browne (1999) | * 149 ICSO (NFOC) * 81 Controls (General Population) | IRI | Cognitive and Affective | Cog: *p* > .05  *d* = -.04  Aff: *p* = .0001  *d* = .76 |
| Gery et al. (2007) | * 10 ICSO (NFOC) * 10 Controls (Prison Guards) | IRI, EQ | Cognitive, Affective, and General | Cog: *p* = .003  *d* = -9.70  Aff: *p* = .004  *d* = -8.52  Gen: *p* < .003  *d* = -9.85 |
| Graham (2003) | * 14 ICSO (CO-A) * 14 ICSO (NFOC) * 14 Controls (General Population) | IRI | Cognitive and Affective | Cog: *p* = .058, .253  *d* = .75, .44  Aff: *p* = .811, .577  *d* = -.09, .21 |
| Hayashino, Wurtele and Klebe (1995) | * 22 ICSO (IOC) * 21 ICSO (NFOC) * 33 ICSO (CO-A) * 26 Controls (General Population) | IRI | Cognitive and Affective | Cog : *p* >.05  *d* = -.02, .02, .22  Aff: *p* >.05  *d* = .51, .29, .38 |
| Hockley and Langdon (2015) | * 19 ICSO (General- Diagnosed as having an Intellectual Disability) * 16 Controls (Diagnosed as having an Intellectual Disability) | EQ | General | *p*  = .005  *d* = -.97 |
| Jones (2010) | * 18 ICSO (General) * 21 Controls (General Population) | IRI | Cognitive and Affective | Cog : *p* >.05  *d* = -.12  Aff: *p* >.05  *d* = .12 |
| Lindsey, Carlozzi and Eells (2001) | * 27 Juvenile ICSO (General) * 27 Juvenile Controls (General Population) | IRI | Cognitive and Affective | Cog: *p* > .05  *d* = -.55  Aff: *p* < .001  *d* = -.36 |
| Lo (2007) | * 53 ICSO (General) * 49 Controls (General Population) | IRI | Cognitive and Affective | Cog: *p* <.01  *d* = -.75  Aff: *p* >.05  *d* = -.34 |
| Marshall et al. (1993) | * 20 ICSO (NFOC) * 20 Controls (General Population – IQ, Level of Education, Employment History, and Marital Status Matched) | IRI | Cognitive and Affective | Cog: *p* > .05  *d* = -.09  Aff: *p* > .05  *d* = .04 |
| Marshall and Maric (1996) | * 29 ICSO (NFOC) * 29 Controls (General Population) | QMEE and HES | Cognitive and Affective | Cog: *p* < .001  *d* = -1.24  Aff: *p* < .05  *d* = -.48 |
| Moriarty et al. (2001) | * 15 Juvenile ICSO (General) * 49 Controls (General Population) | IRI | Cognitive and Affective | Cog: *p* > .05  *d* = -.28  Aff: *p* > .05  *d* = -.16 |
| Moulden (2008) | * 52 ICSO (IOC) * 70 ICSO (NFOC) * 30 Controls (General Population) | EM-AV and ESQ-SR | Cognitive and General | Cog: *p* = .26  *d* =-.02,  -.17  Gen: *p* < .01  *d* = .25,-.52 |
| Orthopedagogiek (2014) | * 55 Juvenile ICSO (General) * 55 Controls (Age, Education, Ethnicity Matched) | BEES | Cognitive and Affective | Cog: *p* > .05  *d* =.29  Aff: *p* < .05  *d* = .39 |
| Pickett (2006) | * 51 ICSO (CO-A) * 46 ICSO (NFOC) * 53 Controls (General Population) | IRI | Cognitive and Affective | Cog: *p* < .01  *d* = -1.27, -.86  Aff: *p* = .57, .74  *d* = .08, -.10 |
| Randall et al. (2011) | * 103 ICSO (General) * 30 Controls (General Population) | IRI | Cognitive and Affective | Cog: *p* > .01  *d* =.38, .31  Aff: *p* < .001  *d* = 1.10, .65 |
| Sturgeon (2003) | * 66 ICSO (General) * 58 Controls (General Population) | IRI | Cognitive and Affective | Cog: *p* > .05  *d* = -.05  Aff: *p* > .05  *d* = -.04 |
| Tidefors, Goulding and Arvidsson (2011) | * 45 ICSO (General) * 42 Controls (General Population) | IRI | General | *p* = .353  *d* = -21 |
| Tierney and McCabe (2001) | * 36 ICSO (NFOC) * 31 ICSO (General) * 40 Controls (General Population) | EETS, Empat (General) | General | Gen: *p* > .05,  *p* < .03, *p* < .01, *p* < .05  *d* =-.45, -.24, -.09,-.80 |
| Varker (2007) | * 16 Juvenile ICSO (General) * 16 Controls (General Population- Age Matched) | IRI | Cognitive and Affective | Cog: *p* < .05  *d* = -.88  Aff: p > .05  *d* = .54 |

BEES – Balanced Emotional Empathy Scale

EETS- Emotional Empathetic Tendency Scale

EM-AV – Empathy Measure- Adult Version

EQ – Empathy Quotient

ESQ-SR – Empathy Skills Questionnaire- Self-Report

HES – Hogan Empathy Scale

CO-A – Individuals convicted of having engaged in a contact offense against an adult

IOC – Individuals convicted of having engaged in a sexual offense against children

NFOC – Individuals convicted of having engaged in non-familial sexual offenses against children

ICSO – Individuals convicted of a sex offense

IRI – Interpersonal Reactivity Index

QMEE- Questionnaire Measure of Emotional Empathy

Table 2

*Synopsis of the Psychometric Properties of the Empathy Measures*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale | Description | Consistency/Validity | Form of Empathy | Number of Studies |
| Balanced Emotional Empathy Scale (BEES; Mehrabian, 1996) | 30-item  Self-report  Likert-Scale | Correlation with the EETS of r = .77, validity data from EETS applied to the BEES | Affective | 1 |
| Empat General (McGrath et al., 1998) | 34-item  Self-report  True-False | Internal consistency of r = .77 | General | 1 |
| The Empathy Measure- Adult Version (EM-AV; Moulden & Marshall, 2001) | 8- item  Self-Report  Likert-Scale | Internal consistently of alpha = .84 and test retest r = .82 | Cognitive | 1 |
| The Empathy Quotient (EQ; Lawrence et al., 2004) | 60- item  Self-Report  Likert-Scale | Item consistency of r = 0.92 (Allison, Baron-Cohen, Wheelwright, Stone, & Muncer, 2011) | General | 2 |
| The Empathy Skills Questionnaire Self-Report (ESQ-SR; Preston & Murphy, 1996) | Modified structured interview  Self-Report | Interrater consistency of r = .73 | General | 1 |
| The Hogan Empathy Scale (HES; Hogan, 1969) | 64-item  Self-Report  True-false | Internal consistency ranging from r = .6- .71. Test-retest at r = .84 | Cognitive | 3 |
| The Interpersonal Reactivity Index (IRI; Davis, 1983) | 28-item  Self-report  Likert Scale | Internal reliabilities range from r = .71 - .77; test-retest reliabilities range from r = .62-.71 | Cognitive (subscale), Affective (subscale), General (total) | 17 |
| Mehrabian Emotional Empathetic Tendency Scale (EETS; Mehrabian, 1997) | 33-item  Self-Report  Likert Scale | Split-half consistency of r = .84 | General | 1 |
| The Questionnaire Measure of Emotional Empathy (QMEE; Mehrabian & Epstein, 1972) | 33- item  Self-Report  Likert Scale | Split-half consistency of .84; test-retest over 2 weeks r = .83 (Bryant, 1982) | Affective | 1 |

Table 3

*Results of the Empathy Meta-Analysis, Arranged by Moderator*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Populations | K Value | I2 Value | Standardized Mean Difference | Standardized Deviations (95% CI) | Sig |
| General Empathy | ICSO (*n* = 1,309) and General Population (*n*=823) | 59 | 82.861 | -0.188 | (-0.346, -0.030) | *p*=.020 |
|  | NFOC (*n*=430) and General Population (*n*=338) | 21 | 89.786 | -0.579 | (-0.949, -0.210) | *p*=.002 |
|  | CO-A (*n* = 247) and General Population (*n*=123) | 7 | 80.179 | -0.062 | (-0.447, 0.197) | *p=*.754 |
|  | IOC (*n*=81) and CO-A (*n*=98) | 8 | 0 | -0.085 | (-0.269, 0.099) | *p*=.368 |
|  | Juvenile ICSO (*n* = 143) and Juvenile General Population (*n* = 177) | 8 | 64.867 | -0.076 | (-0.365, 0.212) | *p=*.604 |
| Cognitive Empathy | ICSO (*n*=917) and General Population (*n*=) | 27 | 80.676 | -0.303 | (-0.522, -0.084) | *p*=.007 |
| Affective Empathy | ICSO (*n*=1,031) and General Population (*n*=598) | 23 | 79.814 | 0.023 | (-0.210, 0.256) | *p*=.849 |
| IRI (General Empathy) | ICSO (*n*=889) and General Population (*n*=566) | 42 | 81.745 | -0.066 | (-0.247, 0.115) | *p*=.475 |

IOC – Individuals convicted of having engaged in a sexual offense against children

NFOC – Individuals convicted of having engaged in non-familial sexual offenses against children

CO-A – Individuals convicted of having engaged in a contact offense against an adult

ICSO – Individuals convicted of a sexual offense