

Université de Montréal

**Study of the psychological and physiological characteristics of a community sample of
pedophiles**

par

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Résumé

La littérature scientifique regroupe un large éventail d'études ayant trait à la pédophilie, soit l'attirance sexuelle marquée et persistante envers les enfants prépubères, et bon nombre de ces études ont ainsi testé diverses hypothèses dans le but de dresser un portrait général des individus pédophiles. À cet effet, de multiples différences ont été observées entre les pédophiles et les groupes de contrôle, permettant ainsi de dresser une liste de diverses caractéristiques où les pédophiles apparaissent se distinguer. Une limitation importante à ces études s'avère toutefois être leur emploi quasi systématique d'échantillons judiciairisés ou cliniques. En effet, rien ne permet de statuer que ces échantillons sont représentatifs de l'ensemble des pédophiles de la population générale. Cet emploi marqué d'échantillons judiciairisés et cliniques dans les études sur les pédophiles est d'autant plus problématique considérant que les conclusions des études employant de tels échantillons sont souvent généralisées à l'ensemble des pédophiles.

Plusieurs études ayant démontré que les pédophiles d'échantillons judiciairisés et cliniques présentent de multiples différences lorsque comparés aux groupes de contrôle, nous avons donc sélectionné cinq de ces différences afin d'examiner si elles s'observeraient toujours au sein d'un échantillon communautaire de pédophiles. Nous avons ainsi comparé un échantillon communautaire de 190 hommes pédophiles à un groupe de contrôle composé de 151 hommes issus de la population générale quant à leurs symptômes dépressifs, leur estime de soi, leurs traits psychopathiques, leur taille et leur préférence manuelle. Tous les participants ont été recrutés via internet et ont rempli un questionnaire disponible en ligne. Les données ont ensuite été testées au travers de trois différents niveaux d'analyse, chacun d'eux étant basé sur une division particulière des participants quant à leur orientation sexuelle.

La différence entre le groupe de pédophiles et le groupe de contrôle n'était pas significative quant aux symptômes dépressifs, l'estime de soi, la taille et la préférence manuelle. La différence quant aux traits psychopathiques était toutefois significative aux trois niveaux d'analyse, les pédophiles présentant ainsi des traits psychopathiques moins élevés que les participants du groupe de contrôle. Ces résultats diffèrent de ceux de la grande majorité des études employant des échantillons judiciairisés et cliniques de pédophiles. Le fait de conduire à nouveau les analyses en contrôlant, cette fois-ci, pour l'âge, la race, le pays de résidence, et l'orientation sexuelle de genre des participants n'a que modérément changé les résultats, sauf pour la différence au niveau des traits psychopathiques qui n'était alors significative que pour un seul des trois niveaux d'analyse. Nos résultats suggèrent donc que les pédophiles issus d'échantillons judiciairisés et cliniques seraient différents de ceux issus d'échantillons communautaires et que généraliser les conclusions tirées d'échantillons judiciairisés et cliniques sur l'ensemble des pédophiles est un important biais méthodologique et conceptuel.

Mots-clés : Pédophilie, échantillon communautaire, caractéristiques psychologiques, caractéristiques physiologiques, symptômes dépressifs, estime de soi, traits psychopathiques, taille, préférence manuelle, orientation sexuelle

Abstract

Scientific literature holds a large array of studies on pedophilia, which is the marked and persistent sexual attraction towards prepubescent children, and many of these studies tested various hypotheses in order to gain a general picture of pedophiles as a population. In this regard, a number of differences have been observed between pedophiles and controls, which lead to the identification of specific characteristics for which pedophiles appear to distinguish themselves. However, an important limitation of these studies is their almost systematic use of forensic and clinical samples. Indeed, there is little to suggest that such samples are representative of the general pedophile population. This extensive use of forensic and clinical samples in studies on pedophiles is especially problematic considering that the conclusions of such studies are often generalised to all pedophiles.

As many studies have found that pedophiles from forensic and clinical samples display multiple differences when compared to controls, we decided to assess five of these differences in order to determine if these results would be replicated within a community sample of pedophiles. We compared a community sample of 190 male pedophiles with a control group composed of 151 males from the general population, examining differences in their depressive symptoms, self-esteem, psychopathic traits, height, and handedness. All participants were recruited on the internet and filled an online questionnaire. Data were tested based on three different levels of analysis, each assessing a particular division of participants regarding their sexual orientation.

Differences between pedophiles and controls were not statistically significant for depressive symptoms, self-esteem, height, and handedness. Difference between pedophiles and controls reached statistical significance for psychopathic traits, with pedophiles displaying fewer

psychopathic traits compared to controls. These results contradict the findings of the large majority of studies using forensic and clinical samples of pedophiles. An analysis of the data controlling for age, race, country of residence, and sexual gender-orientation did not substantially change the overall pattern of results, except that the difference between the two groups for psychopathic traits was now only significant for one of the three levels of analysis. Our results therefore suggest that pedophiles from forensic and clinical samples are different from those in community samples and that generalizing the conclusions drawn from forensic and clinical samples to all pedophiles is an important methodological and conceptual bias.

Keywords: Pedophilia, community sample, psychological characteristics, physiological characteristics, depressive symptoms, self-esteem, psychopathic traits, height, handedness, sexual orientation

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Liste des abréviations

BDI-II: Beck Depression Inventory-II

LSRP: Levenson Self-Report Psychopathy Scale

RSES: Rosenberg Self-Esteem Scale

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Article

Study of the psychological and physiological characteristics of a community sample of
pedophiles

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ABSTRACT

Studies, over the years, have found that pedophiles from forensic and clinical samples exhibit many differences when compared to teleiophiles from various settings or when compared to controls from the general population (with no regard to their sexual orientation). We therefore selected five of these differing characteristics (depressive symptoms, self-esteem, psychopathic traits, height, and handedness) to examine the differences between a community sample of 190 male pedophiles and a control group composed of 151 males from the general population. All participants were recruited on the internet and filled an online questionnaire. Data were tested based on three different levels of analysis, each assessing a particular division of participants regarding their sexual orientation. Differences between pedophiles and controls were not statistically significant for depressive symptoms, self-esteem, height, and handedness. Difference between pedophiles and controls reached statistical significance for psychopathic traits, with pedophiles displaying fewer psychopathic traits than controls, which contrasts with what most studies found when using a forensic sample of pedophiles. Reconducting the analyses while controlling for age, race, country of residence, and sexual gender-orientation did not greatly change the findings, except that the difference between the two groups for psychopathic traits became no longer significant for two of the three levels of analysis. Therefore, our results suggest that pedophiles from forensic and clinical samples are different from those in community samples and that generalizing the conclusions drawn from forensic and clinical samples to all pedophiles is an important methodological and conceptual bias.

Keywords Pedophilia; community sample; psychological characteristics; physiological characteristics; sexual orientation

INTRODUCTION

Pedophilia (defined as a marked and persistent sexual attraction towards prepubescent children) is a topic of study that has attracted the attention of many authors over the years and which has led to the testing of many hypotheses aimed at gaining a better general picture of pedophiles as a population. Despite these efforts, the scientific literature still presents, to this day, a serious lack in the understanding of the *general* pedophile population; that is, pedophiles living in the community. Indeed, the vast majority of studies on pedophiles either use forensic samples, composed of individuals criminally convicted for child sexual abuse or child pornography offenses, or clinical samples, composed of individuals often in treatment for reasons related to their attraction to children (Seto, 2008, 2009).

The underrepresentation of community samples in research on pedophiles was first criticized, to the best of our knowledge, by Okami and Golberg (1992), and has since been highlighted by numerous other authors over the years (e.g. B4U-ACT, 2013; Cash, 2016; Cohen & Galynker, 2012, n.d.; Durkin & Bryant, 1999; Freimond, 2013; Green, 2002; Houtepen, Sijtsema, & Bogaerts, 2016; Jahnke, Schmitt, & Malón, 2017; Riegel, 2004a, 2004b; Seto, 2004, 2008, 2009). Possibly as a consequence of such repeated observations, there has been an increase in the use of community samples in studies on pedophiles over the last 10 years. Still, despite this recent change, the use of community samples remains an exception. While the number of papers reporting the results of studies using forensic and clinical samples of pedophiles amounts to many hundreds, we could only identify 32 papers¹ that report the results of studies using

¹ We only included papers that report the results of studies that concretely recruited participants, therefore excluding studies that examined the written publications of activist organisations of pedophiles (e.g. de Young, 1988, 1989), or the written content of internet forums dedicated to pedophiles (e.g. Crittin, 2009; Durkin, 1996; Durkin & Bryant, 1999; Holt, Blevins, & Burkert, 2010; O'Halloran & Quayle, 2010) or other types of forums where pedophiles participated (e.g. Williams, 2017).

community samples, and many of those studies used mixed samples of pedophiles and hebephiles (a term derived from *hebephilia*, defined as a marked and persistent sexual attraction towards pubescent adolescents). Among these 32 papers, only 13 are published in peer-reviewed journals (Bailey, Bernhard, & Hsu, 2016; Bailey, Hsu, & Bernhard, 2016; Bernhard, 1975; Houtepen et al., 2016; Hsu & Bailey, 2016; Jahnke, Schmidt, Geradt, & Hoyer, 2015; Jahnke et al., 2017; Mitchell & Galupo, 2016a, 2016b; Riegel, 2004a, 2004c; van Leeuwen et al., 2013; Wilson & Cox, 1983a), while five are books (Bernard, 1985; Goode, 2010; Hoffmann, 1996; Riegel, 2004b; Wilson & Cox, 1983b) and four are master's theses (Cash, 2016; Freimond, 2013; Pedersen, 2017; Raven, 2014). The 10 remaining reports consist of unpublished non-peer-reviewed manuscripts (B4U-ACT, 2011a, 2011b; Extein, 2005; Riegel, 2003, 2005, 2007, 2008, 2009, 2011, 2016), meaning that approximately a third of the literature on community samples of pedophiles is of marginal nature.

In addition to the lack of knowledge regarding the general pedophile population, the scientific literature on pedophiles also presents important methodological and conceptual biases, including the fact that the conclusions of studies using forensic and clinical samples are often generalized to all pedophiles. There is also a tendency to use the term *pedophile* as a synonym for *child molester* (Feelgood & Hoyer, 2008; Marshall, 2008; Okami & Goldberg, 1992). These practices represent clear biases, especially as there are no clear empirical data to precisely estimate the proportion of pedophiles who will engage, during their lifetime, in sexual behaviors with children, or who will consume child pornography. Such data is relatively limited as one needs to study a community sample of pedophiles in order to gain representative results.

To the best of our knowledge, only six studies have directly examined the question of

sexual contact with children using community sample of pedophiles². Such studies found a large variability in the proportion of participants who declared that they never had any sexual contact with a child. From the lowest to the highest, such proportions were 6% (Bernard, 1975), 46.7% (Riegel, 2016), 50% (van Leeuwen et al., 2013), 66.7% (Houtepen et al., 2016), 68% (Goode, 2010), and 70% (Mitchell & Galupo, 2016a, 2016b). Some of these results should be interpreted with caution given that there is some variation with regard to how these studies define a "child". For example, Bernard's (1975) questionnaire appears to define "children" as individuals who can even be older than 15, while Riegel (2016) defines "boys" as individuals who are as old as 17. Such definitions, therefore, include not only prepubescent individuals, but also pubescent individuals, and even individuals with fully developed secondary sex characteristics who also may have reached the age of consent in their respective jurisdiction. Nevertheless, the large variability of the results found in these six aforementioned studies, combined with the definition problems exposed earlier, highlight the need for more research regarding sexual contact with children among pedophiles from the community. Still, it is worth mentioning that four of these six studies suggest that at least 50% of pedophiles reported never having had sexual contact with a child. The generalization of the conclusions to all pedophiles from studies using forensic samples along with the common interchangeable use of the terms *pedophile* and *child molester* in scientific literature appear therefore unjustified.

Similarly, the frequent generalization of the conclusions of studies using clinical samples appears to be just as biased. According to Seto (2008), "[Pedophiles from clinical samples] may differ from other pedophiles in having more psychological problems because they are distressed by their sexual interests in prepubescent children, receiving pressure (e.g., from a spouse) to see

² The samples of Bernard (1975) and Riegel (2016) were mixed samples composed of pedophiles and hebephiles.

a mental health professional, or facing criminal charges" (p. 48). Any sample derived from a clinical setting is unlikely to be representative of the general population and there is little reason to believe that it would be any different with pedophiles.

Another methodological bias that is sometimes found in studies on pedophiles is that participants are not always confirmed to be pedophiles. Some studies define their participants as *pedophiles* on the sole basis of their criminal conviction for child sexual abuse offenses (e.g. Bogaert, 2001; Cohen, Grebchenko, Steinfeld, Frenda, & Galynker, 2008; Levant & Bass, 1991). However, not all people who engage in sexual behaviors with children are pedophiles (Freund, Watson, & Dickey, 1991). According to Seto (2012), between 50% and 65% of individuals convicted for child sexual abuse or child pornography offenses are pedophiles. Indeed, engaging in sexual behaviors with a child is neither necessary nor sufficient to determine pedophilia. Some people engage in such behaviors not because of a marked sexual attraction towards children, but for various other reasons, such as antisocial tendencies, hypersexuality, temporary disinhibition as a result of substance use, or lack of preferred sexual opportunities (Seto, 2008, 2009). More rigorous methods of assessment should be used to confirm participants' pedophilia, such as self-report through clinical interviews or questionnaires, or by selecting participants with a known *DSM* diagnosis of pedophilic disorder (*pedophilia* in editions prior to *DSM-5*), although the latter method would result in a sample from which no conclusions could be generalised to the general population of pedophiles due to its clinical nature. Phallometry, although not infallible, is also a sufficiently rigorous method that can be used to determine a participant's pedophilia.

Therefore, considering the lack of empirical evidence to justify such a practice, it appears highly questionable to try to understand the general pedophile population via the use of forensic and clinical samples, just as it appears highly questionable to try to understand this population

via individuals not confirmed to be pedophiles. It appears not only necessary to recognize and understand the limits of the conclusions that can be drawn from such samples, but also necessary to develop a diverse and accurate understanding of the general pedophile population.

The Present Study's Aim

Studies, over the years, have demonstrated that pedophiles from forensic and clinical samples exhibit many differences when compared to teleiophiles (a term derived from *teleiophilia*, defined as a marked and persistent sexual attraction towards postpubescent adults) from various settings, or controls from the general population (with no regard of their sexual orientation). Within the framework of this study, five of these differing characteristics were selected to examine differences between a community sample of pedophiles and a control group composed of people from the general population. Three of the chosen characteristics are of psychological nature, namely, depressive symptoms, self-esteem, and psychopathic traits, while the two others are of physiological nature, namely, height and handedness.

Characteristics of Interest: Studies Using Forensic and Clinical Samples

Here we review the existing forensic and clinical literature on the five aforementioned characteristics among pedophiles. It should be noted that all participants referred to as *pedophiles* in this section were confirmed as such using either a pre-*DSM-5* diagnosis of pedophilia, or phallometry. Some studies also combined phallometry assessment with self-reported sexual interest in children or a sexual offense history involving prepubescent children.

Depressive Symptoms

Many studies demonstrate that criminally convicted pedophiles tend to be more depressed

than controls from the general population. Bridges, Wilson, and Gacono (1998) examined the *Rorschach* protocols of 60 incarcerated pedophiles and found that a high rate of these protocols showed signs indicating the presence of depressive symptoms as assessed by Exner's *Comprehensive System*. Of the 60 participants, 31.7% obtained a *Depression Index (DEPI)* score of 5 (which is the critical cut-off for this index) or higher. In comparison, only 5% in Exner's 2001 normative sample of 600 nonpatient American adults (Exner, 2001) and 13.8% in his 2007 normative sample of 450 nonpatient American adults obtained similar scores (Exner, 2007).

Cohen et al. (2002) found that pedophiles in a forensic sample obtained significantly higher scores compared to controls on the *Dysthymia* scale of the *Millon Clinical Multiaxial Inventory-II* and the *Sadness/depression* scale of the *Dimensional Assessment of Personality Impairment-Questionnaire*. Schiffer et al. (2007) found similar results with pedophiles in a forensic sample scoring significantly higher than controls on the *D* scale (Depression) of the *Minnesota Multiphasic Personality Inventory-II*.

Highly depressive profiles are also observed when looking at the prevalence of major depressive disorder. While the twelve-month prevalence rate of major depressive disorder in the adult male population of the United States has been found to be about 3.6% (Hasin & Grant, 2015), the prevalence among forensic and clinical samples of pedophiles has been found to be higher. Indeed, studies found current rates of major depressive disorder reaching 5.5% (Schiffer et al., 2007), 7% (Adiele, Davidson, Harlow, & del Busto (2011), 20.0% (Raymond, Coleman, Ohlerking, Christenson, & Miner, 1999), and 23% (Bradford et al., 1996, as cited in Bradford & Greenberg, 1996). Similarly, while the lifetime prevalence of major depressive disorder in the adult male population of the United States has been found to be about 9% (Hasin, Grant, 2015), the lifetime rates of major depressive disorder among forensic samples of pedophiles are

reported to be higher, reaching 38.8% (Schiffer et al., 2007) and 55.6% (Raymond et al., 1999).

Highly depressive profiles are also observed when looking at the prevalence of dysthymia. While the twelve-month prevalence of dysthymia in the adult male population of the United States has been found to be about 0.9% (Hasin & Grant, 2015), the prevalence among forensic and clinical samples of pedophiles has been found to be much higher. Indeed, studies found current rates of dysthymia reaching 6% (Adiele et al., 2011), 8.9% (Raymond et al., 1999), 11.1% (Schiffer et al., 2007), and 14% (Bradford et al., 1996, as cited in Bradford & Greenberg, 1996). Similarly, while the lifetime prevalence of dysthymia in the adult male population of the United States has been found to be about 2.1% (Hasin, Grant, 2015), the lifetime rates of dysthymia among forensic samples of pedophiles have been found to be much higher, reaching 8.9% (Raymond et al., 1999) and 11.1% (Schiffer et al., 2007).

Self-esteem

Many studies demonstrate that criminally convicted pedophiles tend to have weaker self-esteem than controls from the general population. Bridges et al. (1998) conducted one such study which examined the *Rorschach* protocols of a group of 60 incarcerated pedophiles. As assessed by Exner's *Comprehensive System*, the pedophile participants tended to exhibit disturbances in their self-worth, either by showing poor self-esteem or excessive self-focus. For example, the proportion of pedophile participants with an *Egocentricity Index* ($3r+(2)/R$) score smaller than 0.33, which is a sign of low self-esteem, was 28.3%. In comparison, only 13.3% of Exner's 2001 normative sample of nonpatient American adults (Exner, 2001), and 19.8% of his 2007 one (Exner, 2007) had similar scores. Also, the average score for pedophile participants on the *Fr+rF* variable, which is positively correlated with narcissistic traits, was 1.25. In comparison, the

average score in Exner's 2001 normative sample was only 0.11, while it was 0.20 in his 2007 normative sample.

Cohen et al. (2002) also reported that pedophiles in a forensic sample exhibited a significantly weaker self-esteem than controls as assessed by the *Self-esteem* scale of the *Dimensional Assessment of Personality Impairment-Questionnaire*, but did not display a statistically significant difference in their average score on the *Narcissistic* scale of the *Millon Clinical Multiaxial Inventory-II* when compared to controls.

A pattern of weak self-esteem is also observed when looking at the prevalence of narcissistic personality disorder. While the prevalence of narcissistic personality disorder in the adult male population of the United States has been found to be about 7.7% (Hasin & Grant, 2015), the prevalence among forensic samples of pedophiles has been found to be a lot higher on two different occasions. Indeed, Schiffer et al. (2007) found a rate of narcissistic personality disorder reaching 16.6% while Raymond et al. (1999) found a rate reaching 20.0%. Still, Adiele et al. (2011) report a much lower rate of narcissistic personality disorder in their forensic sample of pedophiles, with only 3% of the sample being given this diagnosis.

Psychopathic Traits

Some studies demonstrate that criminally convicted pedophiles tend to have a more psychopathic profile than controls from the general population. Cohen et al. (2002) found that pedophiles in a forensic sample obtained a significantly higher score than controls on the *Antisocial* scale of the *Millon Clinical Multiaxial Inventory-II*, as well as on the *Societal attitudes* and *Societal behavior* scales of the *Dimensional Assessment of Personality Impairment-Questionnaire*. Schiffer et al. (2007) report similar results as they found that pedophiles in a

forensic sample obtained a significantly higher score than controls on the *PD* scale (Psychopathic Deviate) of the *Minnesota Multiphasic Personality Inventory-II*. Still, Strassberg, Eastvold, Kenney, and Suchy (2012) found opposing results as pedophiles in their forensic sample obtained a significantly lower score than controls on the *Psychopathic Personality Inventory*.

Prominent psychopathic traits among criminally convicted pedophiles are also observed when looking at the prevalence of antisocial personality disorder, a construct that overlaps with psychopathy on many levels (Coid & Ullrich, 2010; Ogloff, 2006), therefore suggesting the presence of some psychopathic traits among individuals with an antisocial personality disorder diagnosis. While the prevalence of antisocial personality disorder in the adult male population of the United States has been found to be about 5.5% (Hasin & Grant, 2015), the prevalence among forensic samples of pedophiles has been found to be a lot higher on two different occasions. Indeed, Schiffer et al. (2007) found a rate of antisocial personality disorder reaching 16.6% while Raymond et al. (1999) found a rate reaching 22.5%. Still, Adiele et al. (2011) report a much lower rate of antisocial personality disorder among their forensic sample of pedophiles, reporting that only 3% of the sample was given this diagnosis.

Height

Some studies suggest that criminally convicted pedophiles tend to be shorter than teleiophiles. Mellan, Nedoma, and Pondělícková (as cited in Cantor et al., 2007) found that their sample of individuals described as "pedophilic men" (we do not know the method that was used to assess pedophilia) was 1.1 cm shorter than the control group. However, this difference was not statistically significant. Taylor, Myers, Robbins, and Barnard, (1993) examined a group of incarcerated sex offenders and found that those who committed sexual abuse offenses against

individuals who were less than 18 years old, still then classified as "pedophiles" by the authors, were on average 4.3 cm shorter than those who committed similar offenses against individuals who were 18 and older. Here again, the difference in height was not statistically significant. Cantor et al. (2007) hypothesised that Mellan et al. (1969) and Taylor et al. (1993) might not have achieved statistical significance due to insufficient power associated with their sample size. They decided to use a much larger clinical sample of pedophiles who committed sexual offenses and found that they were, on average, 2.1 cm shorter than teleiophilic nonoffender controls. This difference was statistically significant. The pedophiles were also, on average, 1.3 cm shorter than the teleiophilic sexual offenders, although this difference was not statistically significant.

Jung, Klaver, and Pham (2014) examined a sample of men criminally convicted for various kinds of sexual offenses and found no statistically significant association between height and four different correlates of pedophilic sexual interest. However, McPhail and Cantor (2015) rejected Jung et al.'s conclusions for methodological reasons, criticizing the methods that were used to assess pedophilia. McPhail and Cantor argued that the use of the *Sexual Deviation* item from the *Sexual Violence Risk-20* lacked the discrimination necessary to specifically evaluate pedophilia and that the *Screening Scale for Pedophilic Interests* had been improperly used during the study. They also considered that using the presence versus absence of a child pornography offense was a deficient method to assess pedophilia among participants. Following this, McPhail and Cantor (2015) conducted a meta-analysis regrouping data from Mellan et al. (1969), Taylor et al. (1993), Cantor et al. (2007), and Jung et al. (2014) in which they found a small but significant aggregate effect size ($d = 0.210$) for the relationship between pedophilia and height. Finally, pedophiles were once again found to be significantly shorter than teleiophiles in a study conducted by Fazio, Dyshniku, Lykins, and Cantor (2017).

Handedness

To the best of our knowledge, only four studies specifically compared handedness between pedophiles and teleiophiles. All of these studies included participants recruited from the *Kurt Freund Laboratory* at the *Centre for Addiction and Mental Health* (Toronto, Ontario, Canada) "which provides evaluation services to male patients referred as a result of illegal or clinically significant sexual behaviors" (Cantor et al., 2005, p. 450). All studies found an association between pedophilia and non-right-handedness, defined as being either left-handed, ambidextrous, ambiguously handed or mixed-handed.

Cantor et al. (2004) and Cantor et al. (2005) reported a statistically significant negative correlation between participants' right-handedness scores on the *Edinburgh Handedness Inventory* and their phallometric responses to stimuli depicting prepubescent children. Additionally, Cantor et al. (2005) found that the odds of non-right-handedness were about 3.5 times greater among pedophiles than teleiophiles. The third study, which was conducted by Blanchard et al. (2007), found that the difference in handedness between pedophiles and teleiophiles was still significant even after controlling for patients' referral source. Also, when participants were categorised in a dichotomous manner (non-right-handed versus right-handed), 25.47% of pedophiles were found to be non-right-handed, compared to 11.92% of the teleiophiles. The fourth study, which was conducted by Fazio, Lykins, and Cantor (2014), recruited a large sample of 1 857 participants and found a statistically significant negative correlation between participants' right-handedness scores on the *Edinburgh Handedness Inventory* and their phallometric responses to stimuli depicting prepubescent children. The authors also found a large discrepancy in the proportion of non-right-handed participants when comparing pedophiles (25.6%) and teleiophiles (16.2%).

Characteristics of Interest: What to Expect From a Community Sample?

As previously stated, generalizing the conclusions from studies using forensic and clinical samples to the whole pedophile population is unjustified, hence the need for more studies using community samples. Thus, it is reasonable to wonder what could be expected from a community sample of pedophiles regarding our five selected characteristics. In this section, we explore various empirical studies that can offer some insight into this question. Additionally, we review the methodological biases and uncontrolled confounding variables in the existing studies on pedophiles' height and handedness which could explain the results obtained in these studies, and potentially provide some insight into what could be expected from a community sample.

Depressive Symptoms

One could hypothesise that the depressive symptomatology that has been found within forensic samples of pedophiles could be due to the various consequences of being condemned by the criminal justice system (e.g. being incarcerated, being registered as a sex offender, facing negative reactions from family and friends following the criminal charges, etc.). Although such consequences may play a role, it should be noted that various studies using community samples of pedophiles suggest that these pedophiles are also more likely to be depressed than members of the general population. Wilson and Cox (1983a, 1983b) observed that their sample, composed of members from the *Paedophile Information Exchange*, a now defunct self-help activist group of pedophiles, were more suicidal than controls, when assessed using the death wish item of the *Eysenck Personality Questionnaire*. Similarly, Riegel (2004a) studied a group of pedophiles and hebephiles recruited on the internet and found that, using a Likert scale ranging from "Never" to "Almost all the time", a relatively large proportion of the participants exhibited signs of

clinically significant depression. Indeed, 7.9% of the participants answered "A good bit of the time", "Most of the time", or "Almost all of the time", when asked at what frequency they were "dysfunctionally depressed", and 7.9% answered the same when asked at what frequency they considered suicide. Another internet survey on pedophiles and hebephiles (B4U-ACT, 2011a) also found high rates of suicidal tendencies among participants as 45% declared that they had seriously thought about ending their life for reasons related to their attraction to minors, while 32% said that they had planned a method of suicide and 13% declared that they had attempted suicide. Similarly, in a qualitative study on pedophiles and hebephiles recruited online, Freimond (2013) reported that her participants tended to struggle with depression. Finally, Houtepen et al. (2016) found that seven out of their 15 pedophile participants recruited on the internet (46.7%) were often troubled by feelings of depression.

Such indications of the elevated presence of depressive symptomatology among pedophiles from the community are possibly due to the social stigmatization of pedophiles. Indeed, recent studies have shown that strong stigmatizing and prejudicial attitudes against pedophiles are widely spread among people in society (Imhoff, 2015; Jahnke, Imhoff, & Hoyer, 2015) and that pedophiles living in the community can be emotionally affected by such perceived stigma (Jahnke, Schmidt, Geradt, & Hoyer, 2015).

Still, none of the aforementioned studies using community samples employed a psychometric instrument specifically designed to assess depressive symptoms and only one study (Wilson & Cox, 1983a, 1983b) compared pedophiles' scores with those of controls. Further studies are needed.

Self-esteem

In the same vein as depressive symptoms, one could hypothesise that the weak self-esteem that is found among forensic samples of pedophiles could be due to the various consequences of being condemned by the criminal justice system. Such a hypothesis remains pertinent as few empirical studies have assessed the self-esteem of pedophiles from the community, and those that did have found inconsistent results.

A survey of pedophiles and hebephiles recruited on the internet (B4U-ACT, 2011b) found that 67% of participants who saw a mental health professional for an issue related to their attraction to minors had, as a therapeutic goal, the objective of improving their self-concept. For participants who wished to see a mental health professional but did not do so, 48% had this same objective. These results suggest that pedophiles from the community would also tend to have low self-esteem. Jahnke, Schmidt, Geradt, and Hoyer (2015) found that pedophiles recruited on internet forums obtained significantly higher scores than controls from the general population on the *Rosenberg Self-Esteem Scale*, which suggests that they would have higher self-esteem. Conversely, Cash (2016) found that pedophiles recruited on the internet obtained significantly lower scores than controls from the general population on the *Rosenberg Self-Esteem Scale*.

These inconsistent results are even more difficult to interpret when other confounding factors are taken into account. Indeed, B4U-ACT's survey results (2011b) concerned only pedophiles who saw a mental health professional and those who wished to see one, therefore excluding those who did not see such a professional and those who did not wish to see one. Also, the two studies that compared the scores of pedophiles and controls on the *Rosenberg Self-Esteem Scale* (Cash, 2016; Jahnke, Schmidt, Geradt, & Hoyer, 2015) did not control for various and possibly important confounding variables, such as the age of participants, their sex, their

country of residence, their ethnicity, etc. More studies on the self-esteem of pedophiles from the community are therefore needed.

Psychopathic Traits

It appears likely that the greater number of psychopathic traits that have often been found among forensic samples of pedophiles could simply be explained by the forensic nature of these samples. In a review of 62 studies evaluating prisoners' mental disorders, 47% of the male prisoners evaluated for antisocial personality disorder were found to meet the criteria for this diagnosis (Fazel & Danesh, 2002). This proportion is considerably higher than that found in forensic samples of pedophiles, which varies between 3% and 22.5% (Adiele et al., 2011; Raymond et al., 1999; Schiffer et al., 2007). Studies using community samples are therefore needed in order to gain an accurate representation of the amount of psychopathic traits among pedophiles as a population.

Height

In their 2015 meta-analysis, McPhail and Cantor found a small but significant aggregate effect size ($d = 0.210$) for the relationship between pedophilia and height suggesting that pedophiles tend to be shorter than non-pedophiles. The validity of this result is questionable for various reasons. From a methodological perspective, the inclusion of the results from Taylor et al. (1993) is problematic considering the lack of rigor in the method chosen by the authors to assess pedophilia, which consisted of selecting participants who had committed sexual abuse offenses against individuals under the age of 18 years old. The inclusion of results from Jung et al. (2014) is also questionable for similar reasons.

In addition to these methodological problems, two important confounding variables were not controlled in these studies, which could explain, in whole or in part, the association found between pedophilia and height. The first confounding variable is the average height difference between heterosexual and homosexual men. Indeed, many studies found that, on average, homosexual men tend to be significantly shorter than heterosexual men (Blanchard & Bogaert, 1996; Bogaert, 2010; Bogaert & Blanchard, 1996; Skorska & Bogaert, 2017), although other studies found no such difference (Bogaert & Friesen, 2002; Evans, 1972; Martin & Nguyen, 2004) or found mixed results (Bogaert & Liu, 2013). The four studies included in McPhail and Cantor's meta-analysis (2015) did not specifically assess participants' sexual orientation with regard to gender preferences (heterosexuality versus homosexuality) and therefore failed to control for this factor. The lack of statistical control for this variable is problematic as the proportion of homosexuals (versus heterosexuals) appears to be different among pedophiles and teleiophiles. According to the studies cited in Blanchard et al. (2000), 2–4% of male teleiophiles prefer men while 25–40% of male pedophiles prefer boys. Such proportions are very similar to the ones reported in previous reviews (Freund, Heasman, Racansky, & Glancy, 1984; Freund, Watson, & Rienzo, 1989). Therefore, it appears possible that the statistically significant effect size found by McPhail and Cantor (2015) could be explained, in whole or in part, by the greater proportion of homosexuals among pedophiles.

The second confounding variable not taken into consideration is the association between height and criminality. Using a large sample of more than 700 000 Swedish men, Beckley et al. (2014) found that short men were more likely to commit violent crimes (including sexual crimes), although this association disappeared after controlling for confounding factors such as general cognitive ability and childhood sociodemographic characteristics. Such a finding is

relevant when considering that in McPhail and Cantor's meta-analysis (2015), all pedophiles had committed sexual offenses while many of the teleiophiles did not. Thus, it appears possible that the statistically significant effect size that they found could be explained, in whole or in part, by a higher proportion of participants who committed a sexual offense among the pedophile group.

Finally, it should be noted that the average height difference between heterosexual and homosexual men and the association between height and criminality were also not controlled in the Fazio et al. (2017) study, which was not included in McPhail and Cantor's meta-analysis (2015). More studies on the height of pedophiles are needed and these studies need to properly assess participants' pedophilia while controlling for the aforementioned confounding variables.

Handedness

As previously stated, the four studies that specifically assessed handedness in pedophiles (Blanchard et al., 2007; Cantor et al., 2004; Cantor et al., 2005; Fazio et al., 2014) all recruited their participants at the same institute, which is the *Kurt Freund Laboratory* at the *Centre for Addiction and Mental Health*. Thus, it would be relevant to assess handedness among pedophiles from other settings. As studies on neuroimaging, neurocognitive functioning, and electroencephalography tend to report the handedness of their participants, we therefore examined this literature in search of articles about pedophiles. Excluding single-case studies, we identified 24 articles that report the handedness of pedophile participants. Of these 24 articles, nine were excluded (Gerwinn et al., 2015; Habermeyer et al., 2013a; Kruger & Schiffer, 2011; Massau et al., 2017; Poepl et al., 2013; Schiffer et al., 2008b; Suchy, Eastvold, Strassberg, & Franchow, 2014; Suchy, Whittaker, Strassberg, & Eastvold, 2009a, 2009b) as they used the same sample or an overlapping sample from previously identified studies, and three were excluded as

their samples were also recruited at the *Kurt Freund Laboratory* (Cantor et al., 2008, 2015, 2016). The remaining 12 articles revealed proportions of non-right-handedness that tended to be considerably lower than the values reported by Blanchard et al. (2007) and Fazio et al. (2014), which were 25.47% and 25.6% respectively. Indeed, seven studies found proportions of non-right-handedness among pedophile participants that were below 10% (Habermeyer et al., 2013b; Kärigel et al., 2015; Knott, Impey, Fisher, Delpero, & Fedoroff, 2016; Sartorius et al., 2008; Schiffer et al., 2008a; Schiltz et al., 2007; Walter et al., 2007), while three studies found proportions that were between 10% and 13% (Eastvold, Suchy, & Strassberg, 2011; Hucker et al., 1986; Schiffer et al., 2007), leaving therefore only 2 studies with proportions exceeding 20% (Poepl et al., 2011; Ponseti et al., 2012).

To get a more inclusive representation, we combined the samples of these 12 aforementioned articles, resulting in a total sample of 228 pedophiles (all males). Among them, only 22 were non-right-handed, which represents 9.65% of the total sample. Such a proportion is even lower than that found among males from the general population, which is about 12–14% as reported by two large scale studies (Gilbert & Wysocki, 1992; Manning & Peters, 2009). Such a result underlines the need to study handedness among pedophiles from different backgrounds.

Another element worth considering is that the vast majority of the pedophiles who participated in the four studies concerning pedophilia and handedness (Blanchard et al., 2007; Cantor et al., 2004; Cantor et al., 2005; Fazio et al., 2014) had committed child sexual abuse or child pornography offenses. This represents a potentially important confounding variable as many studies have found a positive association between non-right-handedness and criminality (Ellis, 1990), including child sexual abuse offenses (Bogaert, 2001), although it seems probable that this association is explained by unassessed confounding variables. Therefore, it appears

possible that the high prevalence of non-right-handedness among pedophiles found in those studies could be explained, in whole or in part, by the fact that almost all of these participants had committed a criminal offense. Such a hypothesis further highlights the need to study handedness in a community sample of pedophiles.

One study (Riegel, 2016) did examine handedness among a community sample of 296 pedophiles and hebephiles recruited online (all participants were specifically attracted to boys) and found that 9.1% of the participants described themselves as left-handed. Still, a large proportion of the participants were not pedophiles as many participants declared to have little to no attraction to prepubescent children. Such a preliminary result nevertheless underlines the need to further study handedness specifically among pedophiles.

METHOD

Recruitment Procedure

Participants for the experimental group were recruited via an online advertisement posted on websites highly frequented by pedophiles. One of these websites was the one of *B4U-ACT*, an American organism regrouping mental health professionals and people attracted to minors (either children or adolescents). This organisation has many objectives, including the public promotion of professional services and resources for individuals who are sexually attracted to minors and who desire assistance, and also the education of mental health providers regarding the approaches needed to understand and respond to these individuals (B4U-Act, 2015). The other websites were four internet forums for people attracted to minors: *Enchanted Island*, *GirlChat*, *Virtuous Pedophiles*, and *Visions of Alice*. Additionally, a snowball sampling effect occurred as

people unrelated to the research project decided to promote the study on other internet forums for people attracted to minors, as we witnessed such promotion on *BoyChat* and *ČEPEK*.

Participants for the control group were recruited via online advertisement on three internet platforms specifically designed for the recruitment of research participants. These three websites were *Call For Participants*, *FindParticipants*, and */r/SampleSize*, which is a subforum of *Reddit*.

The study's advertisement included a link to an online questionnaire which was hosted on *SurveyMonkey*. Although all participants answered the same questionnaire, the data were gathered independently for the experimental group and the control group. All participants were required to be adult males aged 18 years or older. Participation was completely anonymous and no compensation was provided to participants.

Participants

A total of 230 people completed the questionnaire for the experimental group. Among them, 23 were excluded as they could not be classified as pedophiles (most were hebephiles); nine were excluded as they answered inconsistently to the items evaluating sexual orientation; three were excluded as their questionnaires were considered to be duplicates of previously submitted questionnaires; two were excluded as their answers showed evident signs of lacking validity; one was excluded as his questionnaire was deemed too incomplete; one was excluded as the participant identified as biologically female, and one was excluded for being under 18 years old. In the end, a total of 190 participants remained for the experimental group.

For the control group, a total of 158 people submitted a questionnaire. Among them, four were excluded as their questionnaires were considered to be duplicates of previously submitted

questionnaires; two were excluded as their answers showed evident signs of lacking validity, and one was excluded as his questionnaire was deemed too incomplete. In the end, 151 participants remained for the control group.

Measures

Demographic Information

Participants were asked to provide their age, race, and country of residence. Among the 190 participants of the experimental group, 32 (16.8%) did not provide their age, as compared to only three (2.0%) participants out of 151 for the control group. As it was the only measure with an appreciable difference in the rate of response between the two groups, we theorized that some participants in the experimental group were concerned about confidentiality issues and so chose to not report their age. Among the participants who provided their age, an independent samples *t*-test revealed that participants in the experimental group were, on average, significantly older ($M = 34.08$, $SD = 12.18$) than those in the control group ($M = 30.15$, $SD = 11.43$); $t(304) = 2.90$, $p = 0.004$.

With regards to race, as the vast majority of participants identified as white (about 85% for both groups), we opted to categorize them as either "white" or "non-white" for the purpose of our analyses. As for country of residence, we decided to regroup participants into three different categories for the purpose of our analyses. Participants residing in the United States or Canada were grouped into the first category *USA-Canada*. Participants residing in a European country were grouped into the second category *Europe*. All other remaining participants (about 10% for both groups) were grouped into the third category *Others*. Participants' demographic characteristics are shown in Table 1.

Table 1 Demographic characteristics and sexual gender-orientation of participants.

	1 st level of analysis		2 nd level of analysis		3 rd level of analysis	
	Pedophiles	Controls	Pedophiles	Controls	Pedophiles	Controls
Total <i>n</i>	190	151	140	141	81	134
Age						
<i>n</i>	158	148	114	138	69	131
Mean	34.08	30.15	33.89	30.28	34.29	30.36
SD	12.18	11.43	12.01	11.43	12.07	11.32
Min	18	18	18	18	18	18
Max	70	64	70	64	67	64
Race						
<i>n</i> (%)	190 (100.0)	151 (100.0)	140 (100.0)	141 (100.0)	81 (100.0)	134 (100.0)
White	165 (86.8)	127 (84.1)	124 (88.6)	119 (84.4)	72 (88.9)	113 (84.3)
Non-white	25 (13.2)	24 (15.9)	16 (11.4)	22 (15.6)	9 (11.1)	21 (15.7)
Country of residence						
<i>n</i> (%)	184 (100.0)	149 (100.0)	136 (100.0)	139 (100.0)	78 (100.0)	132 (100.0)
USA-Canada	120 (65.2)	104 (69.8)	84 (61.8)	99 (71.2)	45 (57.7)	95 (72.0)
Europe	43 (23.4)	26 (17.4)	34 (25.0)	21 (15.1)	18 (23.1)	19 (14.4)
Others	21 (11.4)	19 (12.8)	18 (13.2)	19 (13.7)	15 (19.2)	18 (13.6)
Sexual gender-orientation						
<i>n</i> (%)	190 (100.0)	146 (100.0)	140 (100.0)	141 (100.0)	81 (100.0)	134 (100.0)
Heterosexual	127 (66.8)	119 (81.5)	98 (70.0)	114 (80.9)	64 (79.0)	108 (80.6)
Homosexual	52 (27.4)	22 (15.1)	38 (27.1)	22 (15.6)	16 (19.8)	22 (16.4)
Bisexual	11 (5.8)	5 (3.4)	4 (2.9)	5 (3.5)	1 (1.2)	4 (3.0)

Sexual Orientation

Sexual orientation was determined in four steps. In the first step, we assessed participants' sexual attraction to females of various age-groups, which were 0–1, 2–3, 4–5, 6–7, 8–9, 10–11, 12–13, 14–15, 16–17, 18–20, 21–25, 26–30, 31–40, 41–50, 51–60, 61–70, 71–80, and 81 and older. More specifically, they were asked to select the age-group(s) to which they felt a "strong sexual attraction", as we consider that one's attraction to certain age-group(s) needs to be marked in order to be classified as either pedophilia, hebephilia, or teleiophilia. Participants also

had the opportunity to indicate if they did not feel a strong sexual attraction for females. In the second step, we assessed participants' sexual attraction to males of various age-groups. This assessment was the same as in step 1, but for males instead of females. For the purpose of this study, pedophilia was operationalised as being attracted to at least one age-group between 0–1 and 10–11 inclusive, regardless of the gender. Similarly, hebephilia was operationalised as being attracted to at least one age-group between 12–13 and 16–17 inclusive³, regardless of the gender, while teleiophilia was operationalised as being attracted to at least one age-group between 18–20 and 81 and older inclusive, regardless of the gender.

In the third step, participants were asked to specifically select the age-group(s) to which they felt the "strongest" sexual attraction, regardless of the gender. Such a method allowed us to assess the participants' sexual age-orientation in a more *relative* manner. Indeed, pedophilia is sometimes defined as having a sexual attraction to prepubescent children that *exceeds* one's attraction to pubescent or postpubescent individuals (e.g. Blanchard et al., 2007; Cantor et al., 2004). Finally, in the fourth step, participants were asked to indicate towards which gender they felt the strongest sexual attraction, regardless of the age. Participants could choose between females, males, or indicate that their attraction was similarly strong for both genders. Such a method allowed us to classify participants as heterosexual, homosexual, or bisexual (see Table 1 for participants' sexual gender-orientation).

Depressive Symptoms

Depressive symptoms were evaluated using the *Beck Depression Inventory-II* (BDI-II; Beck, Steer, & Brown, 1996), a self-report inventory of 21 multiple-choice items. Each item

³ Some authors describe the attraction to individuals around 15 and 17 years of age as ephebophilia. As the main focus of this study is on pedophilia, we chose to not overmultiply our categories regarding sexual age-orientation and so operationalized hebephilia in a broader manner.

evaluates a specific depressive symptom, such as sadness, loss of pleasure, or change in appetite. All answers are scored on a scale from 0 to 3, with a total score that can vary between 0 and 63. A higher score corresponds to an elevation in the gravity of the depressive symptoms. In the present study, the internal consistency of the BDI-II was excellent for both the experimental group (Cronbach's alpha = 0.94) and the control group (Cronbach's alpha = 0.93).

Self-esteem

Participants' self-esteem was assessed using the *Rosenberg Self-Esteem Scale* (RSES; Rosenberg, 1965), which is a self-report inventory of 10 items relating to positive and negative attitudes towards the self (e.g. "I feel that I have a number of good qualities" and "I feel I do not have much to be proud of"). All items are answered on a 4-point Likert scale (Strongly Agree, Agree, Disagree, and Strongly Disagree) with scores ranging from 1 to 4, and total scores varying between 10 and 40. Items related to negative attitudes towards the self are reversely scored, so a higher score corresponds to a higher level of self-esteem. In the present study, the internal consistency of the RSES was excellent for both the experimental group (Cronbach's alpha = 0.93) and the control group (Cronbach's alpha = 0.91).

Psychopathic Traits

Psychopathic traits were evaluated using the *Levenson Self-Report Psychopathy Scale* (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995), a self-report inventory of 26 items designed to measure psychopathic traits in noninstitutionalized populations. All items are answered on a 4-point Likert scale (Disagree strongly, Disagree somewhat, Agree somewhat, and Agree strongly) with scores ranging from 1 to 4, and total score varying between 26 and 104. Seven items are reversely scored as they assess dispositions and attitudes that are in opposition with a

psychopathic profile (e.g. "I would be upset if my success came at someone else's expense"), so a higher score corresponds to more prominent psychopathic traits.

Similar to the two factors assessed in the *Hare Psychopathy Checklist – Revised* (Hare, 1991), the LSRP is divided into two factors: *Primary psychopathy*, which measures callous, selfish, and manipulative interpersonal attitudes (with items such as "I enjoy manipulating others people's feelings"), and *Secondary psychopathy*, which measures impulsivity and a self-destructive lifestyle (with items such as "I don't plan anything very far in advance"). In the present study, the internal consistency of the LSRP was good for the total scale (Cronbach's alpha = 0.84 for the experimental group and 0.87 for the control group) and the *Primary psychopathy* scale (Cronbach's alpha = 0.86 for the experimental group and 0.87 for the control group), while it was acceptable for the *Secondary psychopathy* scale (Cronbach's alpha = 0.74 for the experimental group and 0.73 for the control group).

Height

Participants were asked to provide their height, in either metric or imperial units. All answers were then converted into centimeters for the analysis.

Handedness

Using the same method as Cantor et al. (2005) and Blanchard et al. (2007), participants' handedness was accessed using a single item of the *Edinburgh Handedness Inventory* (Oldfield, 1971), which is "Which hand do you write with?" Participants could then choose between the following answers: "Right hand", "Left hand", or "No preference". Once the data was gathered, "Left hand" and "No preference" answers were combined into a single category called "non-right-handed". Therefore, participants were either classified as right-handed or non-right-handed.

Levels of Analysis

All data were tested at three different levels of analysis, with each level corresponding to a particular division of participants regarding their sexual orientation. For each level, data were first tested without controlling for any confounding variables, after which they were subsequently tested with the inclusion of such variables. Confounding variables were demographic variables (age, race, and country of residence) and sexual gender-orientation (being heterosexual, homosexual, or bisexual).

First Level of Analysis – Comparing Pedophiles to the Male General Population

In this first level of analysis, all participants were included from both the experimental and the control group. The 190 participants in the experimental group were all classified as pedophiles as they declared to have a "strong sexual attraction" to at least one age group between 0–1 and 10–11 inclusive, regardless of gender. No distinction was made regarding the age-group(s) for which they identified as having the "strongest" sexual attraction. All 151 participants in the control group were included, regardless of their sexual orientation, as the objective was that they would represent the general male population.

Second Level of Analysis – Comparing Pedophiles to Teleiophiles (Overlap With Hebephilia Allowed)

In the second level of analysis, participants were selected solely based on the age group(s) for which they identified as having the "strongest" sexual attraction, allowing for a more restrictive selection of participants. For the experimental group, participants were required to have selected at least one age group between 0–1 and 10–11 inclusive, without having selected an age-group between 18–20 and 81 and older inclusive. Conversely, for the control group,

participants were required to have selected at least one age group between *18–20* and *81 and older* inclusive, without having selected an age-group between *0–1* and *10–11* inclusive. In the end, 140 participants from the experimental group and 141 participants from the control group met the criteria for inclusion in the analysis.

Third Level of Analysis – Comparing Pedophiles to Teleiophiles (No Overlap Allowed)

In the third level of analysis, like in the second, participants were selected solely based on the age group(s) to which they said they felt the "strongest" sexual attraction. For the experimental groups, participants were required to have selected at least one age group between *0–1* and *10–11* inclusive, but to not have selected any age-group outside of this range. In a similar fashion, participants in the control group were required to have selected at least one age group between *18–20* and *81 and older* inclusive, but to not have selected any age-group outside of this range. Still, an exception was made for the youngest participants of the control group as young teleiophiles in their late teens or early twenties are expected to feel a strong sexual attraction to people slightly younger than 18 as they are close in age. Therefore, participants aged between 18 and 22 years old inclusive (this range was selected arbitrarily) were still required to have selected at least one age-group between *18–20* and *81 and older* inclusive, but were exceptionally not excluded if they also selected the *16–17* age group, as long as no younger age-groups were selected. In the end, 81 participants in the experimental group and 134 participants in the control group met the criteria for inclusion in the analysis.

Data Analysis

Unadjusted differences between the two groups for continuous variables were assessed using independent samples *t*-tests, while adjusted differences for these same variables were

assessed using analysis of covariance. Both unadjusted and adjusted differences between groups for handedness (a dichotomous variable) were assessed using binary logistic regression. All analyses were performed using *IBM SPSS Statistics 24*.

RESULTS

First Level of Analysis

Table 2 displays the results of the unadjusted analyses, while Table 3 displays the results of the adjusted analyses. The *Primary psychopathy* scale of the LSRP was the only measure for which a statistically significant difference was found between the two groups, with pedophiles obtaining a lower score ($M = 27.64$, $SD = 7.75$) than controls ($M = 30.15$, $SD = 8.01$); $t(339) = 2.92$, $p = 0.004$, $d = 0.32$. This difference remained significant even after controlling for participants' age, race, country of residence, and sexual gender-orientation; $F(1, 286) = 6.95$, $p = 0.009$, $d = 0.31$.

A nearly statistically significant difference was found between the two groups for the total scale of the LSRP with pedophiles obtaining a lower score ($M = 48.61$, $SD = 10.35$) compared to controls ($M = 50.60$, $SD = 10.95$); $t(339) = 1.72$, $p = 0.087$, $d = 0.19$. This difference remained nearly statistically significant even after controlling for confounding variables; $F(1, 286) = 3.20$, $p = 0.075$, $d = 0.21$.

Additionally, pedophiles obtained a higher score ($M = 13.93$, $SD = 12.30$) than controls ($M = 11.97$, $SD = 10.71$) on the BDI-II, but this difference failed to reach statistical significance; $t(339) = 1.55$, $p = 0.123$, $d = 0.17$. This difference nearly reached statistical significance after controlling for the confounding variables; $F(1, 286) = 3.18$, $p = 0.076$, $d = 0.21$.

Table 2 First level of analysis – Unadjusted values

	Pedophiles	Controls	<i>t</i> (df)	<i>p</i>
BDI-II				
<i>n</i>	190	151	1.55 (339)	0.123
Mean (SD)	13.93 (12.30)	11.97 (10.71)		
RSES				
<i>n</i>	189	151	0.45 (338)	0.654
Mean (SD)	28.08 (7.24)	28.42 (6.23)		
LSRP				
<i>n</i>	190	151		
Mean (SD)				
Total	48.61 (10.35)	50.60 (10.95)	1.72 (339)	0.087
Primary	27.64 (7.75)	30.15 (8.01)	2.92 (339)	0.004
Secondary	20.96 (5.15)	20.45 (4.74)	0.93 (339)	0.353
Height (cm)				
<i>n</i>	178	145	0.85 (321)	0.397
Mean (SD)	178.66 (7.18)	179.34 (7.34)		
	Pedophiles	Controls	OR (95% CI)	<i>p</i>
Handedness^a				
<i>n</i> (%)	189 (100.0)	151 (100.0)		
Right-handed	170 (89.9)	136 (90.1)	1.01 (0.50 – 2.07)	0.971
Non-right-handed	19 (10.1)	15 (9.9)		

^a Controls were used as reference to predict non-right-handedness.

Differences between the two groups for the other measures (RSES, *Secondary psychopathy* scale of the LSRP, height, and handedness) were all statistically non-significant, with *p*-values ranging from 0.353 to 0.971 for both unadjusted and adjusted analyses.

Table 3 First level of analysis – Adjusted values

	Pedophiles	Controls	<i>F</i> (df)	<i>p</i>
BDI-II				
<i>n</i>	153	141		
Mean (SE)	13.98 (1.52)	11.67 (1.61)	3.18 (1, 286)	0.076
RSES				
<i>n</i>	153	141		
Mean (SE)	28.42 (0.88)	28.93 (0.93)	0.46 (1, 286)	0.499
LSRP				
<i>n</i>	153	141		
Mean (SE)				
Total	48.86 (1.51)	51.16 (1.60)	3.20 (1, 286)	0.075
Primary	28.16 (1.13)	30.70 (1.19)	6.95 (1, 286)	0.009
Secondary	20.69 (0.69)	20.48 (0.72)	0.14 (1, 286)	0.713
Height (cm)				
<i>n</i>	147	135		
Mean (SE)	177.33 (1.06)	177.10 (1.12)	0.06 (1, 274)	0.804
	Pedophiles	Controls	OR (95% CI)	<i>p</i>
Handedness^a				
<i>n</i> (%)	152 (100.0)	141 (100.0)		
Right-handed	135 (88.8)	127 (90.1)	1.23 (0.57 – 2.65)	0.600
Non-right-handed	17 (11.2)	14 (9.9)		

Data are adjusted for age, race, country of residence, and sexual gender-orientation.

^a Controls were used as reference to predict non-right-handedness.

Second Level of Analysis

Displayed in Table 4 are the results of the unadjusted analyses while Table 5 displays the results of the adjusted analyses. The *Primary psychopathy* scale of the LSRP was the only measure for which a statistically significant difference was found between the two groups, with pedophiles obtaining a lower score ($M = 28.24$, $SD = 8.14$) than controls ($M = 30.29$, $SD = 8.18$); $t(279) = 2.11$, $p = 0.036$, $d = 0.25$. This difference was no longer statistically significant after controlling for participants' age, race, country of residence, and sexual gender-orientation; $F(1, 239) = 2.58$, $p = 0.110$, $d = 0.21$.

Table 4 Second level of analysis – Unadjusted values

	Pedophiles	Controls	<i>t</i> (df)	<i>p</i>
BDI-II				
<i>n</i>	140	141	1.61 (279)	0.109
Mean (SD)	13.66 (12.59)	11.47 (10.08)		
RSES				
<i>n</i>	139	141	0.56 (278)	0.575
Mean (SD)	28.24 (7.34)	28.69 (6.05)		
LSRP				
<i>n</i>	140	141		
Mean (SD)				
Total	49.53 (10.80)	50.81 (11.18)	0.98 (279)	0.328
Primary	28.24 (8.14)	30.29 (8.18)	2.11 (279)	0.036
Secondary	21.27 (5.21)	20.52 (4.84)	1.246 (279)	0.214
Height (cm)				
<i>n</i>	129	135	0.58 (262)	0.566
Mean (SD)	178.69 (7.28)	179.21 (7.22)		
	Pedophiles	Controls	OR (95% CI)	<i>p</i>
Handedness^a				
<i>n</i> (%)	139 (100.0)	141 (100.0)	1.18 (0.55 – 2.52)	0.669
Right-handed	123 (88.5)	127 (90.1)		
Non-right-handed	16 (11.5)	14 (9.9)		

^a Controls were used as reference to predict non-right-handedness.

Additionally, pedophiles obtained a higher score ($M = 13.66$, $SD = 12.59$) than controls ($M = 11.47$, $SD = 10.08$) on the BDI-II, but this difference failed to reach statistical significance; $t(279) = 1.61$, $p = 0.109$, $d = 0.19$. This difference remained statistically non-significant even after controlling for the confounding variables; $F(1, 239) = 1.73$, $p = 0.189$, $d = 0.17$.

Differences between the two groups for the other measures (RSES, total scale of the LSRP, *Secondary psychopathy* scale of the LSRP, height, and handedness) were all statistically non-significant, with p -values ranging from 0.214 to 0.789 for both unadjusted and adjusted analyses.

Table 5 Second level of analysis – Adjusted values

	Pedophiles	Controls	<i>F</i> (df)	<i>p</i>
BDI-II				
<i>n</i>	111	136		
Mean (SE)	14.71 (1.78)	12.87 (1.76)	1.73 (1, 239)	0.189
RSES				
<i>n</i>	111	136		
Mean (SE)	27.78 (1.03)	28.30 (1.02)	0.42 (1, 239)	0.520
LSRP				
<i>n</i>	111	136		
Mean (SE)				
Total	50.14 (1.85)	51.41 (1.83)	0.77 (1, 239)	0.381
Primary	28.54 (1.39)	30.30 (1.38)	2.58 (1, 239)	0.110
Secondary	21.58 (0.81)	21.12 (0.81)	0.51 (1, 239)	0.476
Height (cm)				
<i>n</i>	106	130		
Mean (SE)	176.84 (1.26)	176.57 (1.24)	0.07 (1, 228)	0.789
	Pedophiles	Controls	OR (95% CI)	<i>p</i>
Handedness^a				
<i>n</i> (%)	110 (100.0)	136 (100.0)		
Right-handed	95 (86.4)	123 (90.4)	1.54 (0.68 – 3.53)	0.302
Non-right-handed	15 (13.6)	13 (9.6)		

Data are adjusted for age, race, country of residence, and sexual gender-orientation.

^a Controls were used as reference to predict non-right-handedness.

Third Level of Analysis

Displayed in Table 6 are the results of the unadjusted analyses while Table 7 displays the results of the adjusted analyses. The *Primary psychopathy* scale of the LSRP was the only measure for which a statistically significant difference was found between the two groups, with pedophiles obtaining a lower score ($M = 27.85$, $SD = 8.47$) than controls ($M = 30.46$, $SD = 7.82$); $t(213) = 2.30$, $p = 0.022$, $d = 0.32$. This difference was no longer statistically significant after controlling for participants' age, race, country of residence, and sexual gender-orientation; $F(1, 188) = 2.47$, $p = 0.118$, $d = 0.23$.

Table 6 Third level of analysis – Unadjusted values

	Pedophiles	Controls	<i>t</i> (df)	<i>p</i>
BDI-II				
<i>n</i>	81	134	1.40 (213)	0.163
Mean (SD)	13.42 (12.85)	11.24 (9.85)		
RSES				
<i>n</i>	81	134	0.71 (213)	0.481
Mean (SD)	28.09 (7.51)	28.75 (5.95)		
LSRP				
<i>n</i>	81	134		
Mean (SD)				
Total	49.08 (10.83)	50.92 (10.63)	1.22 (213)	0.222
Primary	27.85 (8.47)	30.46 (7.82)	2.30 (213)	0.022
Secondary	21.19 (5.22)	20.46 (4.70)	1.07 (213)	0.288
Height (cm)				
<i>n</i>	73	128	0.04 (199)	0.971
Mean (SD)	179.17 (7.34)	179.21 (7.20)		
	Pedophiles	Controls	OR (95% CI)	<i>p</i>
Handedness^a				
<i>n</i> (%)	81 (100.0)	134 (100.0)	1.21 (0.51 – 2.86)	0.669
Right-handed	71 (87.7)	120 (89.6)		
Non-right-handed	10 (12.3)	14 (10.4)		

^a Controls were used as reference to predict non-right-handedness.

Additionally, pedophiles obtained a higher score ($M = 13.42$, $SD = 12.85$) than controls ($M = 11.24$, $SD = 9.85$) on the BDI-II, but this difference failed to reach statistical significance; $t(213) = 1.40$, $p = 0.163$, $d = 0.19$. This difference remained statistically non-significant after controlling for the confounding variables; $F(1, 188) = 1.15$, $p = 0.284$, $d = 0.16$.

Differences between the two groups for the other measures (RSES, total scale of the LSRP, *Secondary psychopathy* scale of the LSRP, height, and handedness) were all statistically non-significant, with p -values ranging from 0.222 to 0.971 for both unadjusted and adjusted analyses.

Table 7 Third level of analysis – Adjusted values

	Pedophiles	Controls	<i>F</i> (df)	<i>p</i>
BDI-II				
<i>n</i>	67	129	1.15 (1, 188)	0.284
Mean (SE)	15.73 (2.05)	14.09 (1.91)		
RSES				
<i>n</i>	67	129	0.10 (1, 188)	0.754
Mean (SE)	26.92 (1.20)	27.20 (1.12)		
LSRP				
<i>n</i>	67	129		
Mean (SE)				
Total	51.44 (2.21)	52.77 (2.06)	0.65 (1, 188)	0.421
Primary	29.14 (1.71)	31.14 (1.59)	2.47 (1, 188)	0.118
Secondary	22.26 (0.98)	21.64 (0.91)	0.72 (1, 188)	0.398
Height (cm)				
<i>n</i>	63	123	0.53 (1, 178)	0.470
Mean (SE)	176.12 (1.51)	175.29 (1.39)		
	Pedophiles	Controls	OR (95% CI)	<i>p</i>
Handedness^a				
<i>n</i> (%)	67 (100.0)	129 (100.0)	1.59 (0.61 – 4.15)	0.343
Right-handed	58 (86.6)	116 (89.9)		
Non-right-handed	9 (13.4)	13 (10.1)		

Data are adjusted for age, race, country of residence, and sexual gender-orientation.

^a Controls were used as reference to predict non-right-handedness.

Additional Findings

Upon further inspection of the participants' data, we noticed that homosexual pedophiles tended to be considerably shorter than heterosexual pedophiles. Thus, we decided to conduct further analyses comparing the height of homosexual pedophiles to that of heterosexual pedophiles. The 11 participants that had been classified as bisexual were excluded as there were too few for the analyses.

When we examined the pedophile participants included in the first level of analysis and who provided their height, we found that the 49 homosexual participants were significantly shorter ($M = 176.50$, $SD = 6.95$) when compared to the 118 heterosexual ones ($M = 179.54$, $SD = 7.14$); $t(165) = 2.53$, $p = 0.013$, $d = 0.39$. This difference remained statistically significant even after controlling for age, race, and country of residence; $F(1, 134) = 5.65$, $p = 0.019$, $d = 0.41$. When we examined the pedophile participants included in the second level of analysis and who provided their height, we found that the 35 homosexual participants were significantly shorter ($M = 175.61$, $SD = 7.31$) when compared to the 90 heterosexual ones ($M = 179.98$, $SD = 7.03$); $t(123) = 3.09$, $p = 0.002$, $d = 0.56$. This difference remained statistically significant even after controlling for age, race, and country of residence; $F(1, 97) = 7.92$, $p = 0.006$, $d = 0.57$. When we examined the pedophile participants included in the third level of analysis and who provided their height, we found that the 14 homosexual participants were significantly shorter ($M = 173.65$, $SD = 5.11$) when compared to the 58 heterosexual ones ($M = 180.44$, $SD = 7.26$); $t(70) = 3.30$, $p = 0.002$, $d = 0.79$. This difference remained statistically significant even after controlling for age, race, and country of residence; $F(1, 56) = 9.50$, $p = 0.003$, $d = 0.82$.

We also examined the height difference between homosexuals and heterosexuals in the control group to see if this difference would also be observed among these participants, and although homosexual controls tended to be shorter than heterosexual controls for all three levels of analysis (unadjusted and adjusted), the difference did not reach statistical significance.

DISCUSSION

Empirical research using pedophiles from forensic and clinical samples has demonstrated that this population exhibits numerous differences when compared with teleiophiles from various

settings, or controls from the general population. The aim of the present study was to examine if these differences would be again observed when comparing a community sample of pedophiles with a control group composed of people from the general population. With this objective in mind, we selected and tested five characteristics of empirical interest within the literature. Three were of psychological nature, namely, depressive symptoms, self-esteem, and psychopathic traits, while the two others were of physiological nature, namely, height and handedness.

Depressive Symptoms

Pedophiles obtained a higher score than controls on the BDI-II at all three levels of analysis, but these differences failed to reach statistical significance, even after controlling for confounding variables. Still, the difference came close to reaching significance at the first level of analysis after controlling for the confounding variables, with $p = 0.076$. Such results differ from those reported in studies that used a forensic sample of pedophiles, which found that pedophiles obtained scores that were significantly higher when compared to controls (Cohen et al., 2002; Schiffer et al., 2007) or to normative samples (Bridges et al., 1998) on psychometric scales evaluating depressive symptomatology, or which found a high prevalence rate of major depressive disorder and dysthymia among pedophiles (Adiele et al., 2011; Bradford et al., 1996, as cited in Bradford & Greenberg, 1996; Schiffer et al., 2007; Raymond et al., 1999).

At first glance, our results also seem to differ from those of other studies that have used community samples of pedophiles. Indeed, such studies suggest that pedophiles from the community tend to face important feelings of depression (Freimond, 2013; Houtepen et al., 2016; Riegel, 2004a) and that they report higher rates of suicidal tendencies (B4U-ACT, 2011a; Riegel, 2004a; Wilson & Cox, 1983a, 1983b). However, as the BDI-II assesses a wide variety of

depressive symptoms, one can hypothesize that, although our pedophile participants did not differ significantly from controls on their total scores for the BDI-II, they may differ on the items related specifically to feelings of depression (the closest equivalent being item 1, which is about feelings of sadness) and suicidality (item 9). We conducted a series of independent samples *t*-tests, one for each item of the BDI-II, for all participants at the first level of analysis and found that participants in the experimental group differed significantly from those in the control group on 8 items. Pedophiles scored significantly higher on items 1, 2, 6, 7, 9, 10, while scoring significantly lower on items 16 and 18. With our pedophile participants scoring significantly higher than controls on items 1 and 9 of the BDI-II, our study's results can be considered consistent with those of previous studies that used a community sample of pedophiles.

Self-esteem

Differences between the two groups on the RSES were all statistically non-significant, with *p*-values ranging from 0.481 to 0.754 at all three levels of analysis (unadjusted and adjusted). Such results differ from those found in Bridges et al. (1998) and Cohen et al. (2002) who found that pedophiles tended to exhibit disturbances in their self-esteem when compared to normative samples and controls as measured by psychometric instruments. Finally, our results differ from those of most studies that examined the prevalence of Narcissistic personality disorder among forensic samples of pedophiles, as two studies (Raymond et al., 1999; Schiffer et al., 2007) found such prevalence rates to be much higher than those found among the adult male population of the United States, while only one study did not (Adiele et al., 2011).

Our results also appear to further complicate the already existing global inconsistency of the results found in studies examining self-esteem among community samples of pedophiles.

Indeed, while we found no statistically significant difference between pedophiles and controls on the RSES, Jahnke, Schmidt, Geradt, and Hoyer (2015) found that pedophiles obtained significantly higher scores than controls on the RSES, while Cash (2016) found that pedophiles obtained significantly lower scores than controls using this same instrument. Thus, we are unable to provide any conclusive hypothesis as to why these three studies (ours included) have obtained three different results while using the same psychometric instrument. Future studies that investigate pedophiles' self-esteem with a community sample might consider using a different measure of self-esteem. Meanwhile, the only other study that can provide some insight into the self-esteem of pedophiles from the community is B4U-ACT's survey (2011b), which suggests that pedophiles tend to show great concerns regarding their own self-concept.

Psychopathic Traits

The difference between the two groups for the total score on the LSRP failed to reach statistical significance at all three levels of analysis (unadjusted and adjusted), although this difference came close to reaching statistical significance at the first level of analysis (unadjusted and adjusted), with pedophiles obtaining a lower average score compared to controls. However, pedophile participants did obtain a significantly lower score than controls on the *Primary psychopathy* scale of the LSRP at all three levels of analysis when unadjusted, and on the first level when adjusted. Differences between the two groups on the *Secondary psychopathy* scale of the LSRP failed to reach statistical significance for all three levels of analysis (unadjusted and adjusted). Therefore, our results differ from those of Cohen et al. (2002) and Schiffer et al. (2007) who found that pedophiles in a forensic sample obtained higher psychopathic scores than controls on their psychometric instruments. However, our results are more consistent with those of Strassberg et al. (2002) who found that pedophiles in a forensic sample obtained a

significantly lower score than controls on the *Psychopathic Personality Inventory*. Finally, our results differ from the majority of studies which examined the prevalence of antisocial personality disorder among forensic samples of pedophiles, as two studies (Raymond et al., 1999; Schiffer et al., 2007) found this prevalence to be higher for pedophiles than for the adult male population of the United States, while only one study did not (Adiele et al., 2011).

Our results therefore support our hypothesis that the greater presence of psychopathic traits found among forensic samples of pedophiles could simply be explained by the forensic nature of these samples. We are, however, unable to explain why participants in the experimental group obtained lower scores than controls on the *Primary psychopathy* scale of the LSRP.

Height

Differences in height between the two groups were all statistically non-significant, with *p*-values ranging from 0.397 to 0.971 for all three levels of analysis (unadjusted and adjusted). Therefore, our results differ from those reported in McPhail and Cantor's meta-analysis (2015) who found a small but significant aggregate effect size ($d = 0.210$) for the relationship between pedophilia and physical height. Our results also differ from those in Fazio et al. (2017) who found that pedophiles were significantly shorter than teleiophiles.

Thus, our results support our hypothesis that the association between height and criminality acted as a confounding variable in McPhail and Cantor's meta-analysis (2015) and Fazio et al.'s study (2017). Additionally, the considerable height difference that we found between homosexual and heterosexual pedophiles supports our hypothesis that the average height difference between homosexual and heterosexual men acted as a confounding variable in McPhail and Cantor's meta-analysis (2015) and Fazio et al.'s study (2017).

The height difference between homosexual and heterosexual pedophiles is a subject that should be further explored in future studies. In our study, this height difference was found to be considerably high, reaching 3.04 cm ($p = 0.013$, $d = 0.39$) for the first level of analysis, 4.37 cm ($p = 0.002$, $d = 0.56$) for the second, and 6.79 cm ($p = 0.002$, $d = 0.79$) for the third (all unadjusted). Adjusting for age, race, and country of residence had little effect on the statistical significance and effect sizes for all three levels of analysis. At this time, we are unable to provide any solid hypothesis on why the height difference between homosexuals and heterosexuals seems to be magnified for pedophiles compared to teleiophiles.

Handedness

Differences in handedness between the two groups were all statistically non-significant, with p -values ranging from 0.302 to 0.971 for all three levels of analysis (unadjusted and adjusted). Therefore, our results differ from those in Cantor et al. (2004), Cantor et al. (2005), Blanchard et al. (2007), and Fazio et al. (2014), who all found an association between pedophilia and non-right-handedness. The proportion of non-right-handed pedophile participants that we found was considerably less than that found in Blanchard et al. (2007) and Fazio et al. (2014), which was 25.47% and 25.6% respectively. Indeed, in our study, this proportion reached 10.1% at the first level of analysis, 11.5% at the second, and 12.3% at the third (all unadjusted). The proportion of non-right-handed pedophiles that we found is very similar to that found among males in the general population, which is about 12–14%, as reported by two large scale studies (Gilbert & Wysocki, 1992; Manning & Peters, 2009).

Thus, the results of the present study support the hypothesis that the association between non-right-handedness and criminality acted as a confounding variable in previous studies

conducted by Cantor et al. (2004), Cantor et al. (2005), Blanchard et al. (2007), and Fazio et al. (2014), although it appears unlikely that this factor alone would explain the large discrepancy between their results and ours. As these four studies all recruited their participants at the *Kurt Freund Laboratory* at the *Centre for Addiction and Mental Health*, one could theorize that the unusually large proportion of non-right-handed pedophiles that they found was somehow specific to this one particular setting. Indeed, additional empirical data from other settings also suggests proportions of non-right-handedness among pedophiles that are very similar to those found among males from the general population. Riegel (2016) found that 9.1% of participants in a community sample composed of pedophiles and hebephiles described themselves as left-handed while our aforementioned analysis of 12 neuroimaging, neurocognitive functioning, and electroencephalography studies on pedophiles revealed that 9.65% of the pedophile participants in the combined sample were non-right-handed.

What could therefore explain such an unusually large proportion of non-right-handed pedophiles among participants recruited specifically at the *Kurt Freund Laboratory*? The method that was used to assess handedness does not seem to be at the origin of this unusual phenomenon. If it were the case, teleiophile participants would also exhibit a very large proportion of non-right-handedness, yet this proportion was found to be 11.92% in Blanchard et al.'s study (2007) and 16.2% in Fazio et al.'s study (2014). Sample size does not appear to be problematic either as the number of pedophile participants amounted to 82 in Cantor et al. (2005), 106 in Blanchard et al. (2007), and 219 in Fazio et al. (2014). No satisfying explanation seems to be available at the moment. Nevertheless, future studies on the handedness of pedophiles should recruit their participants in other settings in order to broaden their perspective on the subject. Additionally, these settings should be community settings in order to gain representative data.

General Discussion

Overall, when comparing pedophile participants with controls, our results were rather consistent across the three levels of analysis, even after controlling for potentially confounding variables. The only notable exception was when we compared the height of homosexual pedophiles to heterosexual pedophiles. This lack of variability across the levels of analysis seems to suggest that there is not much difference between individuals with a dominant sexual attraction to children and those with a non-dominant one, as long as the attraction is marked.

For all of our five selected characteristics, we could not replicate the results of studies that found that pedophiles from forensic and clinical samples differed from teleiophiles or controls from the general population. Indeed, when compared to controls, our pedophile participants did not report significantly more depressive symptoms, they did not demonstrate a weaker self-esteem, they did not display more psychopathic traits, they were not shorter, and they did not tend to be more non-right-handed. Thus, our results suggest that pedophiles from forensic and clinical samples are different from those in community samples and that generalizing the conclusions drawn from forensic and clinical samples to all pedophiles is an important methodological and conceptual bias. In order to properly understand the general pedophile population, researchers need to stop generalizing conclusions drawn from forensic and clinical samples and need to conduct more studies on pedophiles recruited from the community.

The current lack of understanding that exists regarding the general pedophile population leaves a blind spot on a small but non-negligible proportion of the entire population. Indeed, such a proportion could be up to 5% of the total male population, according to Seto (2008, 2009). Among the 151 participants in our control group, six participants (4.0%) indicated having a

strong sexual attraction to at least one age group between 0–1 and 10–11 inclusive, which indicates that they are pedophiles according to our definition. More studies using a community sample of pedophiles need to be conducted if we wish to better understand these individuals.

Additionally, generalizing the conclusions of studies using forensic and clinical samples to all pedophiles has probably contributed (and continues to contribute) to the stigmatization of this population. Indeed, the "average" pedophile is unlikely to make a good social impression if the scientific community keeps using criminals to represent him. Moreover, the public is unlikely to understand the distinction between a *pedophile* and a *child molester* if many scientific authors continue to use these two terms synonymously (Feelgood & Hoyer, 2008; Marshall, 2008; Okami & Goldberg, 1992). As previously mentioned, recent studies have shown that strong stigmatizing and prejudicial attitudes towards pedophiles are widely spread among people in society (Imhoff, 2015; Jahnke, Imhoff, & Hoyer, 2015) and that pedophiles living in the community can be emotionally affected by such perceived stigma (Jahnke, Schmidt, Geradt, & Hoyer, 2015). Therefore, it is likely no coincidence that, in our study, the BDI-II item that reached the strongest statistical significance ($p = 5,39 \times 10^{-7}$), when comparing pedophile participants to controls, was item 6, which is about punishment feelings, while the item that reached the strongest statistical significance ($p = 0,0002$) on the LSRP was item 16, which states "Most of my problems are due to the fact that other people just don't understand me." (first level of analysis, uncontrolled, with pedophiles scoring higher than controls on both items).

As it is our belief that research ethics should not only be concerned with the well-being of research participants, but also with the well-being of people outside the research setting who might be indirectly affected by the study, we consider that researchers studying pedophilia should avoid adopting behaviors, attitudes, and vocabulary that unjustifiably contribute to the

stigmatization of the whole pedophile population. Therefore, generalizing the conclusions of studies using forensic and clinical samples to all pedophiles should be avoided. Additionally, the interchangeable use of the terms *pedophile* and *child molester* should also be avoided.

The whole body of scientific knowledge on pedophiles, which has been developing for several decades, has to be reconsidered. It is, of course, not to say that conclusions from studies using forensic and clinical samples of pedophiles should be considered invalid, or that such studies should not be conducted anymore, but simply that conclusions of such studies should be understood as concerning only pedophiles from forensic and clinical settings. Future research projects could further examine the empirically observed differences between pedophiles from forensic and clinical samples and teleiophiles or controls from the general population and, like we did, see if such differences would be replicated when using a community sample of pedophiles instead. Examples include differences in IQ (e.g. Blanchard et al., 2007; Cantor et al., 2004), brain structures (e.g. Cantor et al., 2008; Schiltz et al., 2007) and number of head injuries in childhood (e.g. Blanchard et al., 2002, 2003). Future research projects could also directly compare pedophiles from the community to pedophiles from forensic and clinical settings. These studies could, among other things, examine if these groups differ regarding factors empirically associated with sexual recidivism (e.g. Hanson & Morton-Bourgon, 2004). Examples of such factors include, having never lived with a romantic partner for at least two years (as assessed by the *Static-99R*; Helmus, Thornton, Hanson, & Babchishin, 2012), having had any prior involvement with the criminal justice system (as assessed by the *Static-2002R*; Helmus et al., 2012), and using sex as a coping strategy (as assessed by the *Stable-2007*; Hanson, Harris, Scott, & Helmus, 2007).

Strengths and Limitations

One of the strengths of our study was that we controlled for important confounding variables, which, for example, allowed our study to be the first to assess the height of pedophiles while controlling for participants' sexual gender-orientation. Another strength was the use of three different levels of analysis, each based on a particular division of participants regarding their sexual orientation, which allowed us to more thoroughly test our research question.

One limitation of our study lies in its international nature. Indeed, even if we statistically controlled for participants' country of residence, we still had to use a limited number of categorical groups for the purpose of analysis, therefore adding an element of uncertainty to our results. Another limitation of our study concerns the assessment of height. Indeed, the nature of the study did not allow for direct measurement of participants' height, which therefore leaves the possibility for some error in participants' self-reported data.

Generalization of Results

By using a community sample of pedophile participants, our sample is by definition more representative of the general pedophile population than forensic and clinical samples. It remains, however, a convenience sample, as most of the recruitment took place on internet forums dedicated to people attracted to minors. One can consequently wonder to what extent pedophiles on such forums differ from other pedophiles from the community. For instance, one could theorize that such individuals probably face less psychological distress than pedophiles who do not visit such forums, as members of such forums can provide each other with moral support. On the other hand, one could theorize that pedophiles who face the highest psychological distress are more likely to visit such websites as they are in greater need of moral support. Unfortunately, the

current state of research on pedophiles from the community is too limited to offer answers about such interrogations. However, we see no apparent reason why pedophiles visiting these forums would be any different from those who do not regarding their physiological characteristics.

Finally, given that most of our participants came from the United States, Canada, or a European country, our results are primarily representative of pedophiles living in industrialized western societies. Indeed, living as a pedophile in the United States, Canada, or Europe, is probably a different experience than living as a pedophile in the Middle East or South Asia. Studying pedophiles from communities living outside of industrialized western societies would also be pertinent.

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Annexe 1

Texte de l'annonce utilisée pour le recrutement des participants du groupe cible

MAPs are invited to take part in an online research study which consists of answering an anonymous survey. This study, which is part of a doctoral dissertation, is being conducted by Marc-André Goudreault, postgraduate student in the Department of Psychology at the Université de Montréal. We are interested in examining the psychological and physiological traits of adult males (18 years old and older) depending on their sexual orientation.

As researchers, we acknowledge the necessity of studying MAPs from the community in order to gain accurate results. By gaining accurate results, we then hope to develop a better and more accurate understanding of MAPs.

If you are an adult male and you agree to participate in this study, we will request that you complete a questionnaire evaluating sexual orientation as well as psychological and physiological traits. You will not be asked questions regarding your sexual fantasies or sexual behaviors specifically. This survey should take approximately 15 minutes to complete.

Once our study is completed, we will send a summary of our results and conclusions to B4U-ACT so they can make them available. This should occur by the end of September 2017.

Link is below to participate

<https://www.surveymonkey.com/r/RTCJVWS>

Annexe 2

Formulaire de consentement

You are invited to take part in an online research study. This study, which is part of a doctoral dissertation, is being conducted by Marc-André Goudreault, postgraduate student in the Department of Psychology at the Université de Montréal. The study is being supervised by Dr. Christopher Earls, associate professor in the Department of Psychology at the Université de Montréal.

1. Study's objectives.

The aim of this study is to gain a better understanding of the psychological and physiological traits of *adult males* (18 years old and older) depending on their sexual orientation.

2. Participating in the study.

If you agree to participate in this study, you will be asked to answer the questionnaire on the following pages online. It should take about 15 minutes to complete. Please answer all the items as honestly as possible. You may choose not to answer any questions. The questionnaire will not require an answer to every question in order to proceed. Still, we would appreciate if you could fill out as much of the questionnaire as you can. Please, submit only one questionnaire per participant.

You will be asked questions regarding your sexual orientation as well as psychological and physiological traits. You will *not* be asked questions regarding your sexual fantasies or sexual behaviors.

3. Risks and disadvantages

There are no substantial risks or disadvantages involved in the participation in this study. Still, some questions will address sensitive subjects which might possibly cause unpleasant feelings.

If you ever experience significant psychological distress, either during or after the completion of this study, you will have the opportunity to contact Marc-André Goudreault (author of this study) by email (see section 7 "Questions regarding the study"). Assistance will then be provided to you in order to redirect you to appropriate help services available in your region.

4. Advantages and benefits

There are no personal direct advantages or benefits to you for participating in this study and you will not be paid for your participation. Still, your participation will help us to develop a better understanding of the psychological and physiological traits of adult males depending on their sexual orientation.

5. Confidentiality

You will *not* be asked to provide any personal information such as your name or residential address. You will only be asked to provide general demographic information such as your age and your country of residence. We will *not* collect your IP address or any other identifying information. The survey will be hosted by SurveyMonkey. The SurveyMonkey privacy policy can be found at the following website:

<https://www.surveymonkey.com/mp/policy/privacy-policy/>

All your answers will remain strictly confidential and password protected. Only the researchers involved in this project will have access to your answers.

Results of this study may be used for publications or presentations at scientific meetings.

6. Right to withdraw

Your participation at this study is entirely voluntary and you will be able to withdraw from it at any time by simply closing the webpage. If you withdraw, no information will be collected from you as all of your answers will be permanently deleted. There is neither penalty nor negative effect for you if you decide to withdraw from this study.

7. Questions regarding the study

If you have any questions or concerns during your participation in this study, or after its completion, please contact:

Marc-André Goudreault
Université de Montréal, Department of Psychology
marc-andre.goudreault@umontreal.ca

Any complaint related to your participation to this study can be addressed to the Université de Montréal's ombudsman at this number:

+1 514 343-2100 (the ombudsman accepts collect calls)

or by email at:

ombudsman@umontreal.ca

If you are an adult male (18 years old or older) and wish to participate in this study, please select the "I accept" button and click the "Next" button at the bottom of the page to begin the survey. If you do not wish to participate in this study, please select the "I decline" button, and your session will end.

***By clicking the "I accept" button, you attest that:**

- **You are an adult male (biologically born male) aged 18 years old or older.**
- **You have carefully read the entire text above on this page and you understand and agree with all the conditions.**
- **You understand that by participating in this study, you do not renounce any of your rights nor absolve the researchers from their responsibilities and commitments.**
- **You understand that you can withdraw from this study at any time by simply closing the webpage.**
- **You voluntarily agree to participate in this study.**

*I accept

*I decline

Annexe 3

Partie 1: Questions démographiques

What is your age? (in years)

*(le participant sélectionne son âge dans une liste déroulante)

Which of the following general categories best represents your racial or ethnic origins?

*Arab

*Asian

*Black

*Hispanic or Latino

*Native American, Alaskan Native, or member of the First Nations

*Pacific Islander

*White

*Mixed or other (please specify)

Do you live in the United States?

*Yes

*No

If you answered "no" to the previous question, select the country in which you live.

*(le participant sélectionne son pays dans une liste déroulante)

Partie 2: Questions relatives à l'orientation sexuelle

We would like to know your sexual attraction to *females* depending of their ages. Below are displayed different age-groups, ranging from "0 to 1 year old" to "81 years old and older". Select the age-group(s) to which you feel a strong sexual attraction. You must select the option "I do not feel a strong sexual attraction for females" if it applies to you.

- *0 to 1 *2 to 3 *4 to 5 *6 to 7 *8 to 9 *10 to 11
- *12 to 13 *14 to 15 *16 to 17 *18 to 20 *21 to 25 *26 to 30
- *31 to 40 *41 to 50 *51 to 60 *61 to 70 *71 to 80 *81 and older
- *I do not feel a strong sexual attraction for females

We would now like to know your sexual attraction to *males* depending of their ages. Below are displayed different age-groups, ranging from "0 to 1 year old" to "81 years old and older". Select the age-group(s) to which you feel a strong sexual attraction. You must select the option "I do not feel a strong sexual attraction for males" if it applies to you.

- *0 to 1 *2 to 3 *4 to 5 *6 to 7 *8 to 9 *10 to 11
- *12 to 13 *14 to 15 *16 to 17 *18 to 20 *21 to 25 *26 to 30
- *31 to 40 *41 to 50 *51 to 60 *61 to 70 *71 to 80 *81 and older
- *I do not feel a strong sexual attraction for males

We would now like to know to which age-group(s) you feel the *strongest* sexual attraction, *regardless* of the gender of the concerned individuals. You may select more than one age-group if you consider yourself to be equally sexually attracted to several of them, but try to *specifically* select the age-group(s) for which your sexual attraction is *maximal*.

- *0 to 1 *2 to 3 *4 to 5 *6 to 7 *8 to 9 *10 to 11
- *12 to 13 *14 to 15 *16 to 17 *18 to 20 *21 to 25 *26 to 30
- *31 to 40 *41 to 50 *51 to 60 *61 to 70 *71 to 80 *81 and older

We would now like to know to which gender you feel the *strongest* sexual attraction, *regardless* of the age of the concerned individuals.

- *Females *Males *Attraction is similarly strong for both males and females

Partie 3 : Questions relatives aux traits physiologiques (taille et préférence manuelle)

Which hand do you write with?

*Right hand *Left hand *No preference

What is your height?

You may give your height with either metric units (meters and centimetres) or Imperial units (feet and inches). *It is very important to indicate the units that you are using.*

If you need to measure yourself, be sure to remove any kind of shoes you might be wearing.

Please give your exact height and not just an approximation.

*(Le participant indique sa taille.)

Partie 4 : Rosenberg Self-Esteem Scale (Rosenberg, 1965)

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

1 = Strongly Agree

2 = Agree

3 = Disagree

4 = Strongly Disagree

1. I feel that I'm a person of worth, at least on an equal plane with others.	1	2	3	4
2. I feel that I have a number of good qualities.	1	2	3	4
3. All in all, I am inclined to feel that I am a failure.	1	2	3	4
4. I am able to do things as well as most other people.	1	2	3	4
5. I feel I do not have much to be proud of.	1	2	3	4
6. I take a positive attitude toward myself.	1	2	3	4
7. On the whole, I am satisfied with myself.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4
9. I certainly feel useless at times.	1	2	3	4
10. At times I think I am no good at all.	1	2	3	4

Partie 5 : Beck Depression Inventory-II (Beck, Steer, & Brown, 1996)

The present part of this questionnaire consists of 21 groups of statements (see below). Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. If several statements in the group seem to apply equally well, select the one that has the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness

- *0 I do not feel sad.
- *1 I feel sad much of the time.
- *2 I am sad all the time.
- *3 I am so sad or unhappy that I can't stand it.

2. Pessimism

- *0 I am not discouraged about my future.
- *1 I feel more discouraged about my future than I used to be.
- *2 I do not expect things to work out for me.
- *3 I feel my future is hopeless and will only get worse.

3. Past Failure

- *0 I do not feel like a failure.
- *1 I have failed more than I should have.
- *2 As I look back, I see a lot of failures.
- *3 I feel I am a total failure as a person.

4. Loss of Pleasure

- *0 I get as much pleasure as I ever did from the things I enjoy.
- *1 I don't enjoy things as much as I used to.
- *2 I get very little pleasure from the things I used to enjoy.
- *3 I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings

- *0 I don't feel particularly guilty.
- *1 I feel guilty over many things I have done or should have done.
- *2 I feel quite guilty most of the time.
- *3 I feel guilty all of the time.

6. Punishment Feelings

- *0 I don't feel I am being punished.
- *1 I feel I may be punished.
- *2 I expect to be punished.

*3 I feel I am being punished.

7. Self-Dislike

*0 I feel the same about myself as ever.

*1 I have lost confidence in myself.

*2 I am disappointed in myself.

*3 I dislike myself.

8. Self-Criticalness

*0 I don't criticize or blame myself more than usual.

*1 I am more critical of myself than I used to be.

*2 I criticize myself for all of my faults.

*3 I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes

*0 I don't have any thoughts of killing myself.

*1 I have thoughts of killing myself, but I would not carry them out.

*2 I would like to kill myself.

*3 I would kill myself if I had the chance.

10. Crying

*0 I don't cry anymore than I used to.

*1 I cry more than I used to.

*2 I cry over every little thing.

*3 I feel like crying, but I can't.

11. Agitation

*0 I am no more restless or wound up than usual.

*1 I feel more restless or wound up than usual.

*2 I am so restless or agitated that it's hard to stay still.

*3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

*0 I have not lost interest in other people or activities.

*1 I am less interested in other people or things than before.

*2 I have lost most of my interest in other people or things.

*3 It's hard to get interested in anything.

13. Indecisiveness

*0 I make decisions about as well as ever.

*1 I find it more difficult to make decisions than usual.

*2 I have much greater difficulty in making decisions than I used to.

*3 I have trouble making any decisions.

14. Worthlessness

*0 I do not feel I am worthless.

- *1 I don't consider myself as worthwhile and useful as I used to.
- *2 I feel more worthless as compared to other people.
- *3 I feel utterly worthless.

15. Loss of Energy

- *0 I have as much energy as ever.
- *1 I have less energy than I used to have.
- *2 I don't have enough energy to do very much.
- *3 I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

- *0 I have not experienced any change in my sleeping pattern.
- *1a I sleep somewhat more than usual.
- *1b I sleep somewhat less than usual.
- *2a I sleep a lot more than usual.
- *2b I sleep a lot less than usual.
- *3a I sleep most of the day.
- *3b I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

- *0 I am no more irritable than usual.
- *1 I am more irritable than usual.
- *2 I am much more irritable than usual.
- *3 I am irritable all the time.

18. Change in Appetite

- *0 I have not experienced any change in my appetite.
- *1a My appetite is somewhat less than usual.
- *1b My appetite is somewhat greater than usual.
- *2a My appetite is much less than before.
- *2b My appetite is much greater than usual.
- *3a I have no appetite at all.
- *3b I crave food all the time.

19. Concentration Difficulty

- *0 I can concentrate as well as ever.
- *1 I can't concentrate as well as usual.
- *2 It's hard to keep my mind on anything for very long.
- *3 I find I can't concentrate on anything.

20. Tiredness or Fatigue

- *0 I am no more tired or fatigued than usual.
- *1 I get more tired or fatigued more easily than usual.
- *2 I am too tired or fatigued to do a lot of things I used to do.
- *3 I am too tired or fatigued to do most of things I used to do.

21. Loss of Interest in Sex

- *0 I have not noticed any recent change in my interest in sex.
- *1 I am less interested in sex than I used to be.
- *2 I am much less interested in sex now.
- *3 I have lost interest in sex completely.

Partie 6 : Levenson Self-Report Psychopathy Scale (Levenson, Kiehl, & Fitzpatrick, 1995)

Listed below are a number of statements. Read each statement and select the answer which best describes the extent to which you agree or disagree with that statement.

1 = Disagree strongly 2 = Disagree somewhat 3 = Agree somewhat 4 = Agree strongly

1. Success is based on survival of the fittest; I am not concerned about the losers.	1	2	3	4
2. I quickly lose interest in the tasks I start.	1	2	3	4
3. When I get frustrated, I often “let off steam” by blowing my top.	1	2	3	4
4. My main purpose in life is getting as many goodies as I can.	1	2	3	4
5. Before I do anything, I carefully consider the possible consequences.	1	2	3	4
6. Making a lot of money is my most important goal.	1	2	3	4
7. For me, what’s right is whatever I can get away with.	1	2	3	4
8. I am often bored.	1	2	3	4
9. I enjoy manipulating other people’s feelings.	1	2	3	4
10. I often admire a really clever scam.	1	2	3	4
11. I would be upset if my success came at someone else’s expense.	1	2	3	4
12. People who are stupid enough to get ripped off usually deserve it.	1	2	3	4
13. I tell other people what they want to hear so that they will do what I want them to do.	1	2	3	4
14. I feel bad if my words or actions cause someone else to feel emotional pain.	1	2	3	4
15. Looking out for myself is my top priority.	1	2	3	4
16. Most of my problems are due to the fact that other people just don’t understand me.	1	2	3	4
17. Cheating is not justified because it is unfair to others.	1	2	3	4
18. I find myself in the same kinds of trouble, time after time.	1	2	3	4
19. Even if I were trying very hard to sell something, I wouldn’t lie about it.	1	2	3	4
20. In today’s world, I feel justified in doing anything I can get away with to succeed.	1	2	3	4
21. I don’t plan anything very far in advance.	1	2	3	4
22. I let others worry about higher values; my main concern is with the bottom line.	1	2	3	4
23. I find that I am able to pursue one goal for a long time.	1	2	3	4
24. I make a point of trying not to hurt others in pursuit of my goals.	1	2	3	4
25. I have been in a lot of shouting matches with other people.	1	2	3	4
26. Love is overrated.	1	2	3	4