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Analyzing Parent Characteristics and Invalid Responses on the Brief Child Abuse Potential Inventory

Samantha N. Franzese

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Brief Child Abuse Potential Inventory

Samantha N. Franzese

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Cheryl B. McNeil, Ph.D., Chair

Daniel W. McNeil, Ph.D.

Lindsay R. Druskin, B.A.

Department of Psychology

West Virginia University

Morgantown, WV

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Abstract

Child abuse is a concerning issue, as 3.5 million children in the United States were referred for suspected maltreatment to Child Protective Services (CPS) in 2016, and millions more impacted worldwide (Zeanah & Humphreys, 2018). Additionally, it is estimated that roughly 2.5 million Australian adults have experienced child maltreatment (Australian Bureau of Statistics, 2017). Hence, it is crucial to assess for child abuse potential using measures that are effective in clinical utility. The Brief Child Abuse Potential Inventory (BCAP; Ondersma et al., 2005) is a self-report questionnaire that assesses for child abuse potential and utilizes a Lie Scale that detects patterns of socially desirable responding. Profiles with an elevated Lie Scale score are invalidated and removed from research, resulting in a lack of studies examining validity indices and their relation to child abuse potential. Participants in the study were 84 parent-toddler dyads referred for child behavioral difficulties to a research-focused mental health clinic nearby Sydney, Australia to complete assessments measuring child abuse potential, parenting stress, and parent emotion regulation difficulties before beginning treatment. Independent samples t-tests were conducted to examine differences between mothers with valid and invalid BCAP profiles on child abuse potential, parenting stress, emotion dysregulation and demographics. Child abuse potential, parenting stress, and emotion dysregulation were all significantly higher for mothers with invalid profiles on the BCAP when compared to mothers with valid profiles. These findings are valuable, as including invalid responses in future research utilizing the BCAP may serve to identify a subset of parents with an increased child abuse risk.

Keywords: child abuse potential, parent stress, parent emotion regulation

Analyzing Parent Characteristics and Invalid Responses on the Brief Child Abuse Potential

Inventory

Child maltreatment impacts an alarming number of children worldwide. More

specifically, within the United States alone, around 676,000 children were confirmed to have

experienced abuse and/or neglect and over 3.5 million children were referred for suspected

maltreatment in 2016 (Zeanah & Humphreys, 2018). It is also estimated that one in ten

Australian adults, and one in six Australian women have experienced child abuse (Australian

Bureau of Statistics, 2017). Child maltreatment can include physical abuse, neglect, emotional

abuse, sexual abuse, and other forms of abuse dependent upon individual state laws (U.S.

Department of Health & Human Services, 2019). Research has found that individuals who have

experienced child abuse are at greater risk for maladaptive psychological and behavioral

difficulties such as issues with mental health, physical well-being, and substance use

(Buckingham & Daniolos, 2013; Herrenkohl et al., 2012; Johnsona et al., 2002).

As a way to develop appropriate interventions and prevention strategies, a large body of

research has assessed various demographic factors and parent characteristics that identify which

populations have high levels of child abuse potential. This research has found that children

ranging from 0-3 years are at the greatest risk for child abuse and neglect (Jones & McCurdy,

1992). As it is critical to understand factors that are predictive of child abuse potential, it is

especially important to understand the measures that are used to capture the potential for child

abuse. In particular, the Child Abuse Potential Inventory (CAPI; Milner, 1986) has been used in

over a thousand studies to examine caregivers at risk for perpetrating physical child abuse. More

recently, a brief version of the CAPI has been created, the Brief Child Abuse Potential Inventory

(BCAP; Ondersma et al., 2005). Since the creation of the BCAP, a growing body of research has

shown the utility of this brief measure in identifying parents at risk for child abuse. However, there remains a dearth of research examining the BCAP validity indices and how they relate to parental risk for child abuse. It is of prime importance to understand how these indices impact interpretation of parental BCAP profiles to adequately assess parental risk for child abuse.

Child Abuse Potential Inventory

The CAPI is a 160-item self-report questionnaire that assesses parental risk for perpetrating physical child abuse through an agree/disagree format (Milner, 1986). This questionnaire measures abuse potential with six subscales: distress, rigidity, unhappiness, problems with the child and self, problems with family, and problems from others (Milner, 1986). Further, there are three validity scales: the Lie scale, Random Responding scale, and Inconsistency scale, that reflect the degree to which the results accurately capture a caregiver's potential for child abuse. The validity indices are designed to assess caregivers that may be attempting to present themselves in a positive light (i.e., fake-good), a negative light (i.e., fake-bad), or are answering questions at random. The CAPI has shown strong internal consistency, with research identifying alphas ranging from .87 to .95. Research has also shown strong validity, through the measure's usage across a wide variety of populations (Milner, 1994; Walker & Davies, 2009).

Relations between Parent Demographics and Child Abuse Potential

Several research studies focused on the relation between parent demographic factors (e.g., family income, marital status, parental education level, age, and race/ethnicity) and child abuse potential, as measured by the CAPI. There appears to be mixed findings regarding family income, such that some researchers have shown that lower family income significantly predicts higher risk for child abuse potential (Diareme et al., 1997; Rodriguez, 2008), while other

researchers have found no relationship (Bryson, 2004; Hiraoka et al., 2014). There appears to be

greater support for the relation between parental education and child abuse potential, with

findings demonstrating that parents with less years of education were more likely to be at risk for

child abuse potential (Budd et al., 2000; Crouch et al., 2009; Farc et al., 2008; Grietens et al.,

2007). However, Hiraoka (2014) did not find a significant relation between education and CAPI

scores in a sample of general population parents recruited from the communities surrounding a

Midwestern University. Furthermore, parental age has not been shown to have a clear relation to

child abuse potential, as several researchers (Carlton & Sprang, 2007; Hiraoka et al., 2014) have

found that younger parents were at greater risk for child abuse, yet others find no relationship

(Grietens et al., 2007). Lastly, parent marital status also yielded mixed results, as several studies

identified that single parents are more likely to be at risk for child abuse than respondents who

are married (Crouch et al., 2009; Farc et al., 2008; Grietens et al., 2007) while Hiraoka and

colleagues (2014) have not.

Validity Scales

While the initial development of the CAPI did not include validity scales such as the Lie

scale, it was later determined by Milner (1982) that including this measure would be useful for

increasing the reliability and validity of the instrument as initial uses of the CAPI resulted in

many false negatives (e.g., not all abusers were identified as at risk for child abuse). The Lie

scale assesses for socially desirable responders, or caregivers who fake-good, and has been

validated across several populations (e.g., Carr et al., 2005; Milner, 1994; Walker & Davies,

2009). This validity index also assesses for caregivers who present themselves in a negative

light, or fake-bad (Herron & Holtzworth-Munroe, 2002; Rodriguez & Price, 2004). A second

validity scale is the Random Responding Index, which identifies response patterns that indicate

confusion, lack of understanding, or disinterest (Milner, 1986). Furthermore, the Consistency

Index determines whether the respondent answers in a logical and consistent manner. A

respondent's profile is deemed invalid if the Lie Scale is above the determined clinical cutoff of

7 or 8, dependent upon the caregiver's education level, or if the Random Responding scale is

above a 6.

The majority of researchers using the CAPI disregard profiles that exceed the validity

scale cutoffs, in line with the recommendation of Milner (1986). There is a wide range of

reported rates of invalid CAPI profiles, from 4% to 74.4% invalid (Todd & Gesten, 1999;

Anderson, 2012). It appears that studies involving parents that are recruited based on at risk

characteristics generally report higher rates of invalid responses. In particular, research on

parents that were referred by child welfare services for treatment (Bradshaw et al., 2011) or for a

parenting capacity evaluation (Anderson, 2012), reported very high levels of invalid responses,

ranging from 58.5% to 74.4% (Anderson, 2012; Bradshaw et al., 2011).

A retrospective study of 125 rural, American mothers and fathers who completed

parenting capacity evaluations through a local child and youth services government agency as a

result of ongoing family investigations was conducted (Anderson, 2012). Roughly half of the

sample was female, ranging from 18 to 55 years of age ($M = 29.5$, $SD = 30.7$). The majority of

participants were White (86%), had a high school diploma or GED (63.3%), and were in a

relationship (70%). In addition to demographics, participants were grouped by type of

maltreatment experience: physical abuse only, sexual abuse only, emotional abuse only,

truancy/legal only, and multiple types of abuse. This study reported a high percentage (74.4%) of

invalidated profiles due to elevated Lie scale scores. Several parent-level factors were examined

that were not significantly related to socially desirable responses (i.e., invalid) on the CAPI

including, caregiver maltreatment histories, education, employment, depression, social support, and caregiver relationship to the child (e.g., biological vs. non-biological). However, it was found that rates of socially desirable responses were more prevalent when caregivers were evaluated for the purposes of a child welfare forensic investigation, compared to the rates of invalid responses during clinically-oriented treatment evaluations, indicating that the social context that the parent is in and the possible outcomes (i.e., loss of child custody) can impact a parent's responses on the CAPI. Notably, Anderson (2012) found a negative association between parent self-reported stress and aggressive tendencies and invalid profiles, such that parents who reported higher levels of stress and aggressive behaviors were less likely to fake-good on the CAPI. Thus, parents under distress or with lower self-regulatory capacities may find it more difficult to present themselves in a socially desirable way, despite the repercussions of a problematic parenting evaluation.

Bradshaw and colleagues (2011) assessed parental satisfaction and child maltreatment potential in a randomized controlled trial developed to test an intervention aimed towards child neglect and substance use disorders. The sample consisted of 82 mothers ($M = 29.0$, $SD = 7.9$) referred for treatment of substance use disorders and child neglect by Department of Family Caseworkers. The sample consisted of diverse mothers, with a sample of White (45%), African American (26%), Asian American (3%), Hispanic (14%), and other backgrounds (13%). Upon analysis of valid and invalid profiles, 58.5% were determined as faking-good. Socially desirable responders were significantly less likely to be at risk for child abuse ($M = 106$, $SD = 80$) compared to valid responders ($M = 199$, $SD = 103$). Additionally, mothers with faking-good responses were also significantly more likely to report higher levels of overall parental happiness

than those with valid responses. Taken together, these findings indicate that those who fake-good are attempting to present themselves more favorably, biasing their results.

Another research study explored the relation between marital satisfaction, parent-child interactions, and history of childhood physical abuse (Bryson, 2004). In a sample of 98 parents, most were Caucasian (76.5%), with parent ages ranging from 24 to 52 years. All parents had a high school education or higher, and 44.9% reported an income of $80,000 or more. Based on the validity scales, 23.5% of profiles on the CAPI were invalid due to faking-good. There were no significant differences in positive and negative rates of parent behavior, intimate partner satisfaction, or history of abuse between parents with valid and invalid profiles. In addition, there were no significant differences found between income level and child abuse potential, between child abuse potential and quality of parent-child interactions, or between child abuse potential and marital satisfaction. However, there was a significant difference found for mothers regarding a history of childhood physical abuse and their risk for child abuse potential, such that mothers who experienced abuse were more likely to be at risk.

To examine the validity of the CAPI, Budd and colleagues (2000) investigated findings from a sample of 75 adolescent mothers ($M = 17.0$, $SD = 1.2$) and their infants involved with Illinois child protective services. This sample consisted of three groups: non-elevated child abuse risk scores (25%), elevated child abuse risk scores (56%), and those with invalid results (19%). In all instances of invalid profiles, responses were invalidated due to faking-good. The majority of the sample was African American (89%), actively working towards a high school diploma or equivalent, and lived in residential facilities, foster homes (non-relative and relative), independent living (supervised apartments), or emergency shelters provided by the Illinois Department of Children and Family Services. Academic achievement levels, specifically related

to reading, differed significantly between those with normal child abuse risk scores and those

with invalidated CAPI profiles. Mothers with invalidated profiles had substantially lower

academic achievement levels compared to the non-elevated child abuse risk group, but had

similar levels of academic achievement compared to those in the high child abuse risk group.

Furthermore, mothers in the invalid group reported significantly lower levels of emotional

distress than those in the elevated abuse risk group, indicating that they may be responding in a

socially desirable way on other measures of functioning. However, authors suggest that further

investigation into adolescent mothers' comprehension of the CAPI is critical to better understand

those with invalid responses. Overall, mothers with invalidated profiles did not differ

significantly from the mothers with non-elevated CAPI scores with the exception of academic

achievement.

Carpenter (2005) explored caregiver satisfaction in child maltreatment, and a variety of

other factors such as how perpetrator status is related to valid versus invalid profiles on the

CAPI. In a sample of 95 caregivers, 82 participants were female (86.3%), and 57 were biological

parents (60%). Age ranged from 17 to 69 years ($M = 37.3$), and 48% of caregivers were married

or cohabiting. The majority reported an income less than \$5,000 (35.8%), 54.7% were

perpetrators of child maltreatment, and 45.3% were the non-offending caregiver of a child who

had experienced maltreatment. A high percentage of profiles were invalid (43.2%), and there was

no significant difference regarding valid versus invalid profiles and perpetrator status. This

indicates that both perpetrators and non-offending caregivers of victimized children are just as

likely to respond in a socially desirable manner when involved with Child Protective Services

(CPS), which is contrary to predicted findings, given the current research supporting the validity

and reliability in the CAPI distinguishing between abusers and non-abusers. There was also no

significant difference found between child abuse potential scores and perpetrator status, indicating that perpetrators were not more likely than non-offending caregivers to be at high risk for child abuse potential according to the CAPI. In fact, 48.5% of perpetrators had child abuse risk scores in the low risk range and 29% of non-perpetrators scored in the high risk range for child abuse. However, this finding could be explained by the fact that the CAPI predicts for physical abuse risk only, and this study included multiple types of abuse.

Another study explored the validity of the CAPI, in addition to assessments of adult personality or psychopathology ratings in a sample of parents referred by judges, lawyers, or social workers undergoing a parenting capacity assessment (PCA; Carr et al., 2005). Mothers ranged in age from 18 to 53 years ($M = 33.1$, $SD = 7.4$), and fathers ranged from 21 to 60 years ($M = 37.4$, $SD = 8.7$), with the majority of parents with European descent, but a notable number of participants with Aboriginal heritage (9% of mothers, and 13% of fathers). The final sample consisted of 113 respondents (66 mothers and 47 fathers). Out of this subsample, 49% were invalidated due to the faking-good index. Statistics determined that a faking-good profile significantly distorts results on the CAPI scales. In addition, the average abuse scale score was significantly lower for those with invalid profiles when compared to valid profiles. Invalid profiles on the CAPI were related to lower scores on all subscales on the CAPI, with the exception of the Rigidity subscale, which assesses unreasonable and inflexible parental expectations of children. This pattern of relations between invalid profiles is typically associated with physical abuse risk, indicating that parents who fake-good may still be at elevated risk for abusing their children despite attempts to present in a socially desirable manner. In addition, upon analysis of the adult psychopathology and personality ratings with the CAPI, it was discovered that each of the self-presentation measures on the assessments were positively related

to each other, such that parents who fake-good on the CAPI are also likely to have an elevation on other measures of assessment. This indicates that those who present in a socially desirable manner on one assessment are also likely to demonstrate a positive response bias on others.

In a sample of 64 parents from the United States mid-Atlantic region, Costello and colleagues (2018) found that parents who responded in a faking-good manner (i.e., invalid CAPI profiles; 35.5% of total sample), had lower intellectual functioning and reading comprehension ability compared to those with valid profiles. In addition, caregivers with invalid CAPI profiles were more likely to demonstrate a positive bias on a standardized computer assessment. However, parents with valid and invalid protocols in this sample did not differ in terms of general psychopathology. Taken together, findings suggest that parents with invalidated profiles may have had greater difficulty understanding questions on the CAPI and may have been more likely to answer in a positive manner when faced with uncertainty.

Costello and McNeil (2014) examined differences in parent demographics between valid and invalid profiles on the CAPI in a sample of 110 parents ($M_{age} = 32.4$, $SD = 2.8$) from the midwestern United States. Parent age significantly differed between those with valid and invalid profiles, such that parents with an invalid CAPI protocol were, on average, 4 years younger than parents with valid protocols. Additionally, there were significant differences in depressive symptoms and IQ between groups, such that parents with invalid profiles reported lower levels of depression and had lower IQ scores than those with valid profiles. Parent education, abuse recidivism, and child age were examined, but were not found to significantly differ between the two groups. Parent and child dyads were also observed while engaging in several play situations, including a child-led play, a parent-led play, and a clean-up situation. Those with invalid and valid responses did not have significantly different interactions with their children regarding

positive and negative speech, praise, or positive and negative touch, suggesting that parents may be more impacted by social desirability when completing a written assessment compared to interacting with their child.

In contrast to other research studies that have focused on mothers and their child abuse potential, Herron and Holtzworth-Munroe (2002) examined child abuse potential between six groups of men with differing self-report histories related to violence. Two groups were characterized as having the highest levels of violence: Borderline/Dysphoric men (BD) and Generally Violent/Antisocial men (GVA). Upon analysis of CAPI profiles, 28% of the sample was invalidated due to faking-bad responses on the CAPI, which is the opposite result of all other studies to date that report on specifics regarding the validity scales. Two other scores were also invalid, but not due to faking-bad. When various demographic factors were analyzed, the only significant difference found was marital violence level, such that men with invalid results were more maritally violent than those with a valid result. Therefore, the more severe violence groups (BD and GVA) were determined to have the most invalid profiles. Results also revealed that men in the BD group were at greatest risk for child abuse, with the GVA group indicating a greater potential for child abuse than the non-violent men subgroups.

Brief Child Abuse Potential Inventory

The Brief Child Abuse Potential Inventory (BCAP; Ondersma et al., 2005) was developed to address several limitations of the CAPI (Milner, 1986). One key limitation of the CAPI is the length. At 160 items, respondents may become fatigued and have difficulty with focus and comprehension. Given the research examining parent academic achievement (Budd et al., 2000), intelligence (Costello et al., 2018), and reading comprehension (Costello & McNeil, 2014) as key factors related to child abuse potential, a shorter measure was much needed.

Further, the CAPI can be time-consuming to use throughout the data entry and analytic process,

an issue ameliorated with the creation of the BCAP, thus improving both clinical and research

utility (Ondersma et al., 2005). Research shows that the BCAP exhibits an internal consistency

similar to that of the CAPI (α = .89; Ondersma et al., 2005) and results in scores that also

correspond closely with the full version of the assessment (α = .96).

Relations between Parent Demographics and Child Abuse Potential

While there have been various studies that have assessed demographic variables and their

relation to child abuse potential utilizing the CAPI, very few studies have explored this relation

using the BCAP. Using the BCAP, some researchers have shown that marital status predicts

child abuse potential, such that single parents are at greater risk (Ono & Honda, 2017; Walker &

Davies, 2012), though research by Walsh (2014) did not yield the same findings. Notably, while

lower parental education levels have been linked to higher scores on the CAPI, this pattern has

not yet been replicated with the BCAP (Ono & Honda, 2017; Walker & Davies, 2012; Walsh

2014). Family income has been shown to predict greater risk for child abuse, such that those with

a lower reported economic status were at greater risk for child abuse (Ono & Honda, 2017;

Walker & Davies, 2012). Using the BCAP, researchers have not found relations between parent

age in relation to potential for child abuse (Ono & Honda, 2017; Walker & Davies 2012). Thus,

further research on the relation between demographic factors and BCAP scores is warranted.

Validity Scales

Similarly to the CAPI, the BCAP contains validity scales: the Lie scale and Random

Responding scale. These validity scales function like those on the CAPI, such that the Lie Scale

detects for those who are presenting in a socially desirable manner or faking good. In addition,

the Lie Scale can identify caregivers that fake bad on the measure, or endorse all abuse risk

items, although this response pattern is not as emphasized in the literature (Ondersma, et al. 2005). The Random Responding scale pinpoints inconsistent patterns of response. According to Ondersma and colleagues (2005), a respondent's profile is classified as invalid if there are four or more items on the Lie scale and/or one item on the Random Responding scale endorsed.

There is a wide range of reported rates of invalid BCAP profiles in the literature, from 5.9% invalid to 53.7% invalid, with one study reporting a very high rate of 94.4% invalid. It appears that studies involving more general, convenience samples report lower rates of invalid responses from 5.9% invalid (Ellonen et al., 2019) to 25% invalid (Liel et al., 2019), while samples utilizing at risk parent populations generally report higher rates of invalid responses, ranging from 13.1% (Nwamuo, 2015) to 53.7% invalid (Klinman, 2014).

In a sample of 171 mothers ($M = 37$ years) undergoing opioid substitution therapy, Dawe and colleagues (2016) examined differences between invalid and valid protocols on the BCAP. The majority of the sample received a substantial portion of their income from government benefits. A total of 171 inventories were administered, resulting in 135 valid protocols and 36 invalid protocols. Dawe and colleagues (2016) examined differences in parental age, childhood abuse, social support, and recent domestic violence, finding no significant differences between groups. Mothers with invalid responses had significantly lower scores on the Brief Child Abuse Potential Inventory (BCAP; Ondersma et al., 2005), and also reported lower levels of distress on the Kessler Psychological Distress Scale (K10; Kessler et al., 2002). This indicates that those who fake-good are likely to also distort their responses on other measures such as the K10 as a way to appear in a socially desirable way. It is also possible that these respondent's lack an appropriate understanding of their own emotional state, which would impact their self-report of distress.

Another research study conducted by Liel and colleagues (2019) examined parent-level characteristics, such as parent gender and psychological symptoms, between valid and invalid BCAP profiles in a sample of German parents. For fathers, scores on the BCAP abuse risk scale were associated with the likelihood of having an invalid profile. While the average score on the BCAP abuse risk scale was higher for mothers ($M = 4.46$, $SD = 4.41$) than fathers ($M = 2.40$, $SD = 2.94$), there were more fathers ($n = 59$) with invalidated protocols than mothers ($n = 50$) overall. Mothers with a history of migration (i.e., those born outside of Germany or with parents who immigrated to Germany) were significantly more likely to have an invalid protocol due to the Lie scale of the BCAP, when compared to mothers with valid protocols. For fathers, differences were present in regards to several key relationship factors, including dissatisfaction with parental role distribution and relationship unhappiness, such that fathers with invalid profiles reported higher levels of these experiences than fathers with valid profiles. Furthermore, fathers with invalid protocols had significantly higher levels of self-reported parental stress, lack of self-efficacy, and depression. When comparing self-reported anxiety, adverse childhood experiences, or reported family violence, there were no differences for parents with valid and invalid profiles.

Walker and Davies (2012) conducted a study in England to examine the validity of the BCAP. The sample was primarily female (88%) and White (92.3%), with a large proportion of respondents married (63.9%) or cohabitating (11.7%). Compared to the valid responses, there were no significant differences regarding demographic factors. Initially, a high number of invalid responses resulted, after one question from the Random Responding scale, "Not always knowing the right or wrong way to act" led to a mere 5.6% of the measures being valid out of 324 responses. Once this item was removed from analyses, the invalid response rate dropped from

94.4% to 30.3%. This change led to a more comparable rate of invalid responses found in

previous studies, such as Ondersma et. al 2005 and allowed for a greater sample size to study.

This knowledge provides support for a lack of applicability to all populations and is something

that should be further explored.

Current Study

The primary goal of this study was to examine valid and invalid responses on the BCAP

(Ondersma et al., 2005) and their relation to child abuse potential in a sample of mothers and

their toddler-aged children referred for clinical treatment due to behavioral difficulties. In

addition, we assessed BCAP responses and their association with parent demographics, parent

emotion regulation and parent stress. Invalid profiles are often excluded from research studies;

thus, further examination was warranted. This study provides crucial insight into a group of

responders that remain understudied yet potentially at a great risk for child abuse through

analysis of a widely used child abuse measure.

Hypotheses

Child Abuse Potential

Previous research assessing invalid responses have found that parents who engage in

socially desirable responding are at lower risk for child abuse (Bradshaw et al. 2011; Carr et al.

2005; Dawe et al. 2016). However, in line with previous research examining differences in

violence, social desirability bias, and child abuse potential (Carpenter, 2005; Herron &

Holtzworth-Munroe, 2002; Liel et al. 2019), we hypothesized differences on the BCAP abuse

risk scale between mothers with valid and invalid profiles, such that mothers with invalid

profiles would be at greater risk for child abuse than those with valid profiles.

Parent Stress

While some studies have found that parents with invalid BCAP profiles report lower

levels of parental stress (e.g., Anderson, 2012; Dawe et al., 2016), some show that fathers with

invalid BCAP profiles reported significantly greater parental stress than those with valid BCAP

profiles (Liel et al., 2019). Given these contradictory findings, we aimed to further investigate

differences in parenting stress in parents with valid and invalid profiles on the BCAP. We

hypothesized that mothers with invalid profiles would report significantly higher levels of parent

stress than those with valid profiles.

Parent Emotion Regulation

Previous research has found that mothers with invalid profiles indicated significantly

lower levels of psychological distress (i.e., anxiety, depression) on the BCAP when compared to

mothers with valid profiles (Dawe et al., 2016). Research has not yet examined differences in

parent emotion regulation between parents with valid and invalid BCAP profiles. This study

aimed to explore differences between these groups in emotion regulation. As this had not been

examined in previous literature, this question was exploratory in nature.

Parent Demographics

Despite previous research on the BCAP indicating no relation between child abuse

potential and parent education level (Ono & Honda, 2017; Walker & Davies, 2012; Walsh 2014),

research using the CAPI has found support for this hypothesis (Budd et al., 2000; Crouch et al.,

2009; Farc et al., 2008; Grietens et al., 2007). Prior research has shown a relation between

household income and child abuse potential in studies using the BCAP (Ono & Honda, 2017;

Walker & Davies, 2012). Thus, we hypothesized that mothers with invalid BCAP profiles would

have fewer years of education and a lower household income than those with valid profiles. In

addition, we hypothesized there would be a significant difference in marital status between mothers with valid and invalid profiles, such that mothers with invalid profiles were less likely to be in a committed relationship than those with valid profiles, as mothers who are not in a committed relationship may be more likely to have less social support (Ono & Honda, 2017; Walker & Davies, 2012). Social support is a crucial variable influencing risk for child abuse, as less social support is associated with an increased risk for child abuse, while more social support can serve as a protective factor (Milner, 1994; Rodriguez & Tucker, 2015; Tucker & Rodriguez, 2014).

Method

Parent Study

The data for the study were retrieved from a larger study comparing the efficacy of Parent-Child Interaction Therapy-Toddler to Circle of Security-Parenting™ and a waitlist control (see Kohlhoff et al., 2020 for the full protocol). In this randomized controlled trial, mothers were randomly assigned to each of these three possible conditions through a restricted block randomization design. Participants received treatment through the Karitane Toddler Clinic (KTC), located in New South Wales, Australia. KTC is a mental health clinic that offers parenting programs to families with toddlers and infants. Written, informed consent was collected from all participants before beginning assessments.

Participants

Participants were 84 biological mothers and their toddler-aged children referred to the KTC for behavioral difficulties from a pediatrician or other health professional. To be eligible, children needed to be between ages 14 to 24 months and their parents had to have positively endorsed two screening questions, "Do you have concerns about your child's behavior?" and

"Do you have difficulties managing your child's behavior?" Mothers were excluded from the study if they lacked the ability to complete all required components of the measures and protocols in English, or if they presented with mental health conditions causing impairment (e.g., depression with suicidality, psychosis) due to prior KTC criteria.

Procedures

Pre-Treatment Assessment Procedure

Once mothers were deemed eligible to participate, a pre-treatment assessment was conducted, which included three visits (e.g., two clinic-based, one home-based) over the course of one week. Data were collected through an observational parent-child interaction that lasted 20-minutes. After this session, mothers filled out questionnaires and returned them upon their second visit at the clinic. This method of data collection was beneficial as it allows for a quicker, more convenient way for clients to complete the assessments. It also allowed for more time at the clinic to be focused on the observational parent-child interaction component. However, there are also some drawbacks to this method of data collection as mothers could forget to complete the assessments at home or be distracted by external stimuli in the environment that alters the self-report.

Measures

Demographic Information

Demographic information was collected at pre-treatment through a child demographic form with child's date of birth and sex, in addition to a form for parental information. The parental form consisted of date of birth, current occupation, race/ethnicity, education level, marital status, and family income. Additional information, such as previous treatment and languages spoken, was also collected.

Brief Child Abuse Potential Inventory

Mothers were assessed for child abuse potential with the Brief Child Abuse Potential Inventory (BCAP; Ondersma et al., 2005), an inventory developed from the longer Child Abuse Potential Inventory (CAPI; Milner, 1986). The BCAP provides clinicians and researchers an easier way to obtain valuable data on parental risk for child abuse. Parents indicated the degree to which they agree or disagree on 34 items, scored as a 1 (agree) or 0 (disagree). This inventory consists of three scales: the Abuse Risk Scale (25 items), and two validity scales: the Lie scale (6 items), and Random Responding scale (3 items). To determine their risk for child abuse, each statement on the Abuse Risk scale was summed to calculate a total score. If a respondent scored a 4 or more on the Lie scale, or a 1 or more on the Random Responding scale, the profile was deemed invalid. Following these guidelines, 41 responses resulted in a valid profile, and 43 had invalid responses, such that 35 were elevated on the Lie scale, 5 elevated on the Random Responding Scale, and 3 with elevations on both scales. Despite the commonplace practice of removing invalidated responses from the dataset, both invalid and valid protocols were included in the study to better understand the characteristics of participants with elevated validity scales.

Parenting Stress Index-Short Form

Mothers reported their levels of stress and dysfunction within the parent-child dyad through the completion of the Parenting Stress Index-Short Form (PSI-SF; Abidin, 2012). This measure consists of 36 items, with each item rated on a scale from 1 (*strongly agree*) to 5 (*strongly disagree*). There are three subscales: Parental Distress (12 items), Parent-Child Dysfunctional Interaction (12 items), and Difficult Child (12 items), with higher scores on these scales, in addition to the total score, suggesting greater parental stress. The Parent-Child Dysfunctional Interaction scale assesses the level of parental satisfaction regarding the parent-

child relationship and level of engagement with their child, while the Parental Distress scale

captures various feelings of a parent's stress in regard to restriction, conflict, and stress within

their parenting. The Difficult Child scale focuses on the child's behaviors, and whether the

parent perceives their behaviors to be problematic. A study conducted by Barroso and colleagues

(2016) assessing psychometric properties of the PSI-SF yielded an internal consistency that was

adequate for the Parent Distress subscale ($\alpha = .75$), Parent-Child Dysfunctional Interaction

subscale ($\alpha = .85$), and Difficult Child subscale ($\alpha = .82$), while internal consistency was excellent

for the Total Stress Domain ($\alpha = .91$).

Difficulties in Emotion Regulation Scale

To measure parental emotion regulation abilities, the Difficulties in Emotion Regulation

Scale (DERS; Gratz & Roemer, 2004) was administered. Consisting of 36-items, the DERS

forms six subscales: Lack of Emotional Clarity (5 items), Difficulty Engaging in Goal-directed

Behavior (5 items), Non-acceptance of Emotional Responses (6 items), Impulse Control

Difficulties (6 items), Lack of Emotional Awareness (6 items), and Limited Access to Emotion

Regulation Strategies (8 items). Participants rated each item from 1 (*almost never, 0-10%*) to 5

(*almost always, 91-100%*). Higher scores suggest greater difficulties with emotion regulation.

Prior studies have demonstrated strong internal consistency in the overall scale ($\alpha = .93$) as well

as an alpha of at least .80 on subscales (Gratz & Roemer, 2004).

Results

All statistical analyses were conducted using the Statistical Package for the Social Sciences

version 26 (SPSS 26) and version 28 (SPSS 28).

Descriptive Analyses

Descriptive statistics, including frequencies and means (standard deviations) were calculated and are displayed in Table 1 for demographic variables (i.e., family income, marital/de-facto status, parental education level, age), child abuse potential (i.e., BCAP scores), parent emotion regulation (i.e., DERS), and parenting stress (i.e., PSI-SF). Additionally, associations among parental age, marital/de-facto status, BCAP Abuse Risk Scores, PSI-SF Total Stress Scores, and DERS Total Emotion Dysregulation Scores were analyzed and reported in a correlation matrix (Table 3).

Preliminary Analyses

Power Analysis

A G*Power 3.1.3. sensitivity power analyses (Faul et al., 2007) was conducted to determine the smallest detectable effect size with a power of .80, alpha of .05, and sample sizes of 41 (valid BCAP profiles) and 43 (invalid BCAP profiles) using an independent samples t-test. Based on the sensitivity analysis for a t-test analysis testing for a significant difference between two independent means, sample sizes of 41 and 43, an alpha of .05, and 80% power, an effect size of 0.55 is required (Cohen, 1988).

Missing Data

Preliminary analyses were conducted to identify missing data. Little's Missing Completely at Random (MCAR) test revealed that data were missing completely at random, $\chi^2 =$ .000, df = 6,080, $p = 1.00$. As data were MCAR, one individual with greater than 15% of data missing was removed using listwise deletion.

Analytic Plan

To test our hypotheses an Independent Samples t-test was conducted to compare mean BCAP Abuse Risk scores, Total Stress scores on the PSI-SF, and Total scores on the DERS

between mothers with valid and invalid profiles. Additionally, an Independent Samples *t* Test

was conducted to compare differences in years of education, annual household income, de-

facto/marital status, and parent age between mothers with valid and invalid profiles. When

considering the demographic variable of marital status/de-facto relationships, point-biserial was

utilized in the correlation analyses, with unmarried/separated coded as 0 and married/de-facto

coded as 1.

Sample Characteristics

Data on mother and child demographic information were collected during the pre-

treatment assessment with a demographic form. A total of 41 profiles were valid and 43 profiles

were invalid out of a total sample of 84 mothers. There was some missing data, which was coded

using either 888 or 999 within the dataset and not included in subsequent analyses. This

demographic information is presented in Table 1.

Mothers participating in the study ($N = 84$) were an average of 32.6 years old ($SD = 5.5$)

and ranged in age from 19 to 45 years. Participants were White (36.3%), Asian (13.2%), Middle

Eastern (8.8%), European (6.6%), Aboriginal/Torres Strait Islander (3.3%), and Hispanic (3.3%).

In addition, 4 mothers endorsed "Other" (4.4%), and 22 mothers were missing racial/ethnic

information. Furthermore, 6.6% of mothers completed Year 10, 7.7% completed Year 12, 28.6%

completed Technical and Further Education/Other, 33.0% completed Undergraduate education,

16.5% completed graduate education, and 16.5% were missing educational information. More

than half of families (53.85%) had a yearly family income of at least 101,000 Australian dollars.

A total of 22.0% of mothers endorsed a family income in Australian dollars of less than $50,000,

11.0% between $50,000 and $75,000, 6.6% between $76,000 and $100,000, 29.7% between

$101,000 and $150,000, and 16.5% more than $150,000. A total of 13 responses were missing

for family income. The majority of mothers were married or in a de-facto relationship at the time

of intake (73.08%), such that 56% of mothers were married, 6.6% in a de-facto relationship,

8.8% separated, and 14.3% single. A total of 13 responses were missing data on marital status.

Descriptive Statistics and Correlations

Descriptive statistics for BCAP Abuse Risk, DERS Total difficulties in emotion

regulation, and PSI-SF Total Stress are located in Table 1. Furthermore, a correlation matrix for

parent age, parent marital/de-facto status, parental stress (PSI-SF), BCAP Abuse risk, and overall

parent emotion dysregulation (DERS) is presented in Table 2. This matrix is interpreted utilizing

Cohen's (1988) effect size categorizations. Mother's age was not correlated with marital/de-facto

status ($r = .08$, $p = .481$), abuse risk ($r = -.07$, $p = .55$), parenting stress ($r = .02$, $p = .876$), or

emotion dysregulation ($r = -.11$, $p = .34$). Marital/de-facto status was not correlated with parent

stress ($r = -.14$, $p = .29$), or parent emotion dysregulation ($r = -.16$, $p = .17$). Marital/de-facto

status was moderately, negatively correlated with abuse risk scores ($r = -.30$, $p = .007$), such that

mothers with higher abuse risk scores were more likely to be single or separated. In addition,

abuse risk scores were strongly, positively correlated with PSI-SF total stress ($r = .68$, $p < .001$)

and DERS total emotion dysregulation ($r = .72$, $p < .001$), such that mothers with higher abuse

risk scores were more likely to also endorse significantly higher stress levels and greater emotion

dysregulation than mothers with lower abuse risk scores. The DERS and PSI-SF total scores also

strongly, positively correlated with one another ($r = .73$, $p < .001$), such that mother's endorsing

higher stress levels report greater difficulties with emotion regulation.

BCAP Abuse Risk Scores

It was hypothesized that mothers with an invalid profile on the BCAP would be at

significantly greater risk for child abuse than mothers with a valid BCAP profile. To assess

differences in abuse risk between mothers with valid and invalid profiles on the BCAP, an

independent samples *t*-test was conducted. When mothers with an invalid BCAP profile (*M* =

8.53, *SD* = 6.25) were compared to mothers with a valid BCAP profile (*M* = 3.10, *SD* = 3.37),

mothers with an invalid profile had significantly higher BCAP Abuse Risk scores, *t*(82) = -4.92,

p < .001. The effect size was very large (*d* = -1.08), indicating that the difference between the

means was larger than one standard deviation, and is a notable finding. These findings are

reported in Table 3.

PSI-SF Total Stress and Subscale Scores

Mothers with an invalid profile on the BCAP were hypothesized to report significantly

higher levels of stress than mothers with valid profiles. A series of independent samples *t*-tests

were conducted to examine differences in parenting stress using the PSI-SF total stress score, in

addition to each of the three subscales: Parental Distress, Parent-Child Dysfunctional Interaction,

and Difficult Child (presented in Table 4). Mothers with invalid profiles on the BCAP reported

significantly higher Total Stress scores on the PSI-SF (*M* = 93.58, *SD* = 18.88) when compared

to mothers with valid profiles (*M* = 74.73, *SD* = 20.77), *t*(64) = -3.86, *p* < .001. Mothers with

invalid profiles on the BCAP also endorsed significantly greater stress on all three subscale

scores: Parental Distress, *t*(81) = -4.05, *p* < .001, *d* = -.89, Parent-Child Dysfunctional

Interaction, *t*(73) = -2.36, *p* = .02, *d* = -.54, and Difficult Child, *t*(82) = -2.64, *p* = .01, *d* = -.58.

DERS Total Emotion Dysregulation and Subscale Scores

Emotion regulation has not been adequately explored in the literature exploring valid and

invalid profiles on the BCAP to date. Therefore, analyses for emotion regulation were

exploratory in nature. A series of independent samples *t*-tests were conducted to compare the

effect of valid and invalid BCAP profiles on parent emotion regulation (reported in Table 5).

Mothers with an invalid profile ($M = 84.74$, $SD = 22.40$) had significantly higher DERS Total scores than mothers with a valid BCAP profile ($M = 65.95$, $SD = 19.75$), $t(82) = -4.07$, $p < .001$ with a large effect size ($d = -.89$). Findings were also significant on all of the subscales: Non-Accept, $t(82) = -2.59$, $p = .01$, $d = -.57$, Goals, $t(82) = -3.29$, $p = .001$, $d = -.72$, Impulse, $t(81) = -3.48$, $p < .001$, $d = -.77$, Awareness, $t(82) = -2.22$, $p = .03$, $d = -.48$, Strategies, $t(82) = -4.14$, $p < .001$, $d = -.90$, and Clarity, $t(82) = -2.65$, $p = .01$, $d = -.58$.

Demographic Variables

It was hypothesized that mothers with an invalid profile would be more likely to report a single/separated marital status, report a lower family income, and less education when compared to mothers with valid profiles on the BCAP. No differences were expected between mothers with valid and invalid profiles regarding age. A series of independent samples t-tests were conducted to evaluate these differences in years of education, family income, marital/de-facto status, and maternal age between mothers with valid and invalid profiles. No significant differences were found regarding age of mothers, $t(76) = -.06$, $p = .96$, years of education, $t(74) = .03$, $p = .97$, family income, $t(76) = .69$, $p = .50$, or marital/de-facto status, $t(76) = .76$, $p = .45$. There were no significant differences between parents with valid or invalid profiles for any of the demographic variables explored. These findings are reported in Table 6.

<div align="center">

Discussion

</div>

This study assessed differences between parents with valid and invalid profiles on the BCAP. Child abuse risk, parenting stress, and parent emotion regulation were explored utilizing independent samples t-tests. There were significant differences between mothers with valid and invalid BCAP profiles for BCAP Abuse Risk scores, PSI-SF Total Stress and all subscale scores,

and DERS Total and all subscale scores, such that parents with invalid profiles were more likely

to report higher abuse risk, parenting stress, and emotion dysregulation.

Child abuse potential was examined between parents with valid and invalid profiles on

the BCAP with an independent samples *t*-test. Findings were significant, and supported our

hypothesis, such that parents with invalid profiles on the BCAP were significantly more likely to

report higher abuse risk scores. Previous studies have found that parents with socially desirable

responses on the CAPI are at lower risk for child abuse (Bradshaw et al., 2011; Carr et al., 2005).

However, findings are mixed on the BCAP, such that Dawe et al. (2016) determined mothers

with invalid responses had significantly lower abuse risk scores on the BCAP compared to

mothers with valid responses, while Liel et al. (2019) determined fathers with invalid responses

had significantly higher abuse risk scores on the BCAP. While these previous findings are not in

support of our hypothesis and subsequent findings, other research has shown there is no

difference between perpetrator status and valid and invalid profiles on the CAPI, such that

perpetrators of child abuse are just as likely as non-offending caregivers to fake-good (Carpenter,

2005). In addition, research examining violence histories and child abuse potential demonstrated

that those with severe violence histories were most likely to have an invalid profile on the CAPI

(Herron & Holtzworth-Munroe, 2002). Therefore, caregivers at risk for child abuse may go

undetected as a result of faking-good on the BCAP. This is especially concerning for parents

undergoing a PCA, or for parents involved with CPS, as rates of invalid protocols on the CAPI

are typically higher in studies that involve these at-risk populations (Anderson, 2012; Bradshaw

et al., 2011; Budd et al., 2000). Parents at risk for losing custody of their children may distort

their responses and inaccurately complete questionnaires to avoid losing custody. This finding is

critical, as it highlights the need to retain invalid profiles in both research and clinical settings,

diverging from recommendations put forth by the developers of the BCAP (Ondersma, 2005). Therefore, it is important to further research the differences between valid and invalid profiles on the BCAP, as parents with invalid profiles may actually be at great risk and at an increased need for treatment to increase parenting skills and improve the parent-child relationship.

Although mothers may be attempting to present themselves in a positive light on the BCAP, they may be unable to completely change their parenting beliefs in order to respond appropriately to all items on the BCAP. This indicates that these mothers may be experiencing the "Pollyanna effect," or the inclination to see the positive instead of the negative when faced with a difficult situation, as was also exhibited in a previous study examining differences between parents with valid and invalid CAPI profiles (Costello & McNeil, 2014). These mothers may agree with unrealistic statements, as they may see uncontrollable outside forces as the cause of their problems and protect their self-esteem by focusing on their positive qualities. The faking-good index includes statements that demonstrate unrealistic and unattainable goals such as "never swearing," and "always keeping promises" (Ondersma et al., 2005). When presented with only a dichotomous agree or disagree format, mothers may interpret these statements as whichever fits the closest and may select the "better" response that demonstrates their ultimate goals and aspirations as a parent, even if it is not and could never be accurate.

Parent Stress was examined between parents with valid and invalid profiles on the BCAP with independent samples *t*-tests. Findings were significant for the Total Stress scale in addition to all three subscales: Parental Distress, Parent-Child Dysfunctional Interaction, and Difficult Child. These results supported our hypothesis that mothers with invalid profiles would report significantly greater Stress levels than mothers with valid profiles on the BCAP. Previous research has shown limited support for our findings, as Liel et al. (2019) found that fathers with

invalid profiles reported significantly higher levels of parental stress than those with valid

profiles on the BCAP. However, a few other studies have found the opposite, with parents who

have an invalid profile on the BCAP or CAPI reporting lower levels of parental stress (e.g.,

Anderson, 2012; Dawe et al., 2016). One potential reason for these differences results from the

population in the studies, as both Anderson (2012) and Dawe et al. (2016) had samples

consisting of parents undergoing PCAs or opioid substitution therapy, while our study and Liel et

al. (2019) drew a sample from more generalized and lower risk populations.

      Parents in high-risk groups (i.e., involvement with CPS and PCAs, opioid users) likely

are experiencing elevated levels of stress as a result of these situations, but may knowingly

engage in socially desirable responses and choose options that make them look like the best

parent to protect their families and prevent separation. In our sample, parents were not facing

these stressors and may have been subconsciously responding in a faking-good manner on the

BCAP due to the Pollyanna effect (Costello & McNeil, 2014). When presented with a scaled

format instead of a dichotomous format, positivity bias may fade. In addition, these mothers

were referred to the KTC for children with behavioral problems, whose behaviors were

contributing substantially to their stress levels, as shown by the significance in the Difficult

Child and Parent-Child Dysfunctional Interaction domains. Parents that present themselves in a

positive light or experience a positivity bias may still be at risk for child abuse and should not be

completely disregarded in clinical and research settings. This is supported by a systematic

literature review conducted in 2016 that determined social desirability measured through a Lie

scale may not be the best measure of social desirability bias and its effects (Perinelli &

Gremigni, 2016). Other assessment methods such as observational behavioral observations

should be included instead of relying on self-report methodology to determine risk.

A third variable, Emotion Regulation, was assessed with independent samples *t*-tests to examine differences between parents with valid and invalid profiles on the BCAP. Findings were significant for the DERS Total score and all six subscale scores. Since this analysis was exploratory in nature, there was no hypothesized outcome. One study found mothers with invalid profiles on the CAPI were more likely to report lower levels of emotional distress (Budd et al., 2000), while another study on the BCAP examining psychological distress reported these same findings when comparing mothers with valid and invalid profiles on the BCAP (Dawe et al., 2016). However, another study conducted by Costello et al. (2018) administered a general psychopathology measure and did not find any significant differences between parents with valid and invalid profiles on the CAPI.

These contradictory findings could be explained by the fact that different self-report assessments were administered, each measuring different symptomology and aspects of functioning. Future research should continue to explore emotion regulation, as it has been linked to the development of parental psychopathology such as depression, a risk factor for child abuse, and has also been linked directly to a history of childhood maltreatment, such that parents who experienced child maltreatment are more likely to exhibit emotional difficulties throughout life (Aldao et al., 2010; Smith et al., 2014; Weissman et al., 2019). Given that parents with a history of child maltreatment are more likely to abuse their own children, this finding is crucial for furthering identification of parents at risk for child abuse (Smith et al., 2014). Parents may present in a socially desirable way on other measures, but fail to recognize the implications of emotion dysregulation and answer a self-report questionnaire on the construct more honestly, thus revealing critical insight into their risk level for child abuse other measures may fail to pick

up. Additional research needs to be conducted to confirm this finding and establish literature on

the relation between invalid profiles and emotion regulation.

Demographic differences between mothers with valid and invalid profiles on the BCAP

were also assessed through a series of independent samples *t*-tests. There were no significant

differences between mothers with valid and invalid profiles on the BCAP for maternal age, years

of education, annual household income, and marital status when assessed with independent

samples *t*-tests. In addition, a correlation matrix revealed that marital status was the only

demographic characteristic significantly correlated with child abuse risk. Marital status was not

significantly correlated with the total scores on the PSI-SF or the DERS. There were also no

significant correlations between age and de-facto/marital status, child abuse potential, parent

stress, and parent emotion regulation.

Years of education were assessed with an independent samples *t*-test between parents

with valid and invalid profiles on the BCAP. The finding was not significant and did not support

our hypothesis. Previous research has demonstrated the role that education level plays in risk for

child abuse (e.g., Crouch et al., 2009; Farc et al., 2008; Grietens et al., 2007), though these

relations have not been found in studies using the BCAP (Ono & Honda, 2017; Walker &

Davies, 2012; Walsh, 2014). In addition, significant differences between mother's achievement

levels, reading comprehension, and IQ levels were found between parents with valid and invalid

profiles on the BCAP (Budd et al., 2000; Costello et al., 2018; Costello & McNeil, 2014).

However, while education level is typically associated with achievement levels, reading

comprehension, and intellectual ability (IQ), years of education is its own distinct construct and

may not be a significant predictor of invalid profiles on the BCAP (Casillas et al., 2012; Rabiner

et al., 2016; Ritchie & Tucker-Drob, 2018). Education may not be a strong predictor in

comparison to academic achievement, reading ability, IQ, and other related variables. The

current study was conducted in Australia and none of the mothers had previously been involved

with the child welfare system. The country of origin and CPS involvement could impact any

relations between demographic variables and scores on the BCAP, differing the current study

from studies previously conducted.

Annual family income was also assessed with an independent sample t-test to examine

differences between parents with valid and invalid profiles on the BCAP. These findings were

not significant, and also were not in support of our hypothesis. However, previous research with

the BCAP has demonstrated that parents at risk for child abuse have significantly lower

household incomes (Ono & Honda, 2017; Walker & Davies, 2012). Findings are mixed with the

CAPI, such that some studies have demonstrated parents at risk for child abuse are more likely to

have a lower family income (Diareme et al., 1997; Rodriguez, 2008), but other studies have not

(Bryson, 2004; Hiroaka et al., 2014). Family income may be directly related to child abuse

potential, regardless of whether or not profiles are valid or invalid on the BCAP. Thus, family

income may be a direct predictor of child abuse on its own without considering the impact of

social desirability bias. Family income was also measured as a categorical variable, so there was

less of an ability to pick up differences without a continuous measure of income. Future studies

examining demographic variables between valid and invalid profiles on the BCAP should ensure

that continuous measures are used whenever possible to fully capture any differences between

groups.

A third independent samples t-test was conducted to examine Marital/de-facto status

between mothers with valid and invalid profiles on the BCAP. There was no significant

difference between mothers with valid and invalid BCAP profiles in the current study on this

demographic variable. This result was in stark contrast to previous literature documenting

mothers at risk for child abuse are more likely to be single (Crouch et al., 2009; Farc et al., 2008;

Grietens et al., 2007; Ono & Honda, 2017; Walker & Davies, 2012). This finding was consistent

in studies that used the BCAP and CAPI, aside from two studies that did not find a relationship

between marital status and child abuse potential (Hiraoka et al., 2014; Walsh, 2014). This finding

may not be significant since only romantic partners were considered in this study. It may be that

single mothers in this sample still received ample social support through family and friends.

Adequate social support can function as a protective factor for child abuse risk, and moderate the

effect of stress levels, a variable which has shown to be highly related to risk for child abuse

(Rodriguez & Tucker, 2015; Tucker & Rodriguez, 2014). Therefore, it may be more appropriate

to measure the impact of social support on child abuse potential rather than marital status in

future studies evaluating for child abuse potential. It is also important to note that when entered

into a correlation matrix, marital/de-facto status was significantly negatively correlated with

child abuse potential. The small sample size may limit the ability for the t-test to determine a

meaningful effect.

Limitations and Future Directions

While this study builds on previous literature, there are several limitations. First, one

major limitation is the small sample size, as in each group there are only a total of 41 and 43

participants. As a result, some small to moderate sized differences may go undetected due to the

large effect size estimated from the power analysis (0.55). In addition, the sample consisted of all

females (biological mothers), such that fathers, adoptive parents, foster parents, and step-parents

were not included in the study. Mothers tended to have higher levels of education, as most had at

least a technical degree, and the majority of mothers were in married or de-facto relationships,

limiting the number of single mothers in the study. One strength of our study, however, was

race/ethnicity as only 36% of the sample was White. Socioeconomic status was adequately

distributed across a range of income levels, and mothers ranged in age from 19-45 years, which

is a wide range for biological mothers of toddler-aged children.

Future research should incorporate other caregivers, such as fathers, step-parents,

grandparents, and adoptive parents. A larger sample size will allow for researchers to detect

nuanced differences between parents with valid and invalid BCAP profiles as well. In addition,

as participants took the study measures home to fill them out, it is possible that there were

distractions in the home that influenced their responses. Mothers may have been distracted and

as a result, did not pay close attention to all of the items. Researchers should ensure fidelity of

the data by distributing the measures in a controlled, standardized environment (e.g., research

laboratory). In addition, it would be critical for future research to include multiple countries, as

most studies have only examined the U.S. There could be cultural differences, especially

between individualistic and collectivistic countries. Lastly, future research should continue to

explore differences between valid and invalid profiles on the BCAP as those with invalid profiles

are an understudied group of parents that may actually be at an elevated risk for child abuse and

in critical need of early intervention services.

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Appendix

Table 1. *Sample Characteristics.*

Characteristic	*n*	%	*M (SD)*
Child Age (months)	84	92.3	19.4 (3.2)
Child Sex	87	95.6	--
Female	44	48.4	--
Male	43	47.3	--
Missing	4	4.4	--
Mother Age (years)	78	85.7	32.6 (5.5)
Mother Ethnicity	69	75.8	--
White	33	36.3	--
Aboriginal/Torres Strait Islander	3	3.3	--
European	6	6.6	--
Hispanic	3	3.3	--
Middle Eastern	8	8.8	--
Asian	12	13.2	--
Other	4	4.4	--
Missing	22	24.2	
Mother Education	76	83.5	--
Year 10	6	6.6	--
Year 12	7	7.7	--
TAFE/Other	26	28.6	--
Undergraduate	30	33.0	--
Post-Graduate	7	7.7	--
Missing	15	16.5	--
Marital Status	78	85.7	--
Married	51	56.0	--
De-facto	6	6.6	--
Separated	8	8.8	--
Single	13	14.3	--
Missing	13	14.3	--
Annual Income (AUD)	78	85.7	--
Less than $50,000	20	22.0	--
$50,000-$75,000	10	11.0	--
$76,000-$100,000	6	6.6	--
$101,000-$150,000	27	29.7	--
More than $150,000	15	16.5	--
Missing	13	14.3	--
BCAP Abuse Risk	84	92.3	5.9 (5.7)
PSI-SF Total Stress Score	66	72.5	84.2 (21.9)
DERS Total Emotion Dysregulation	84	92.3	75.6 (23.1)

Note. TAFE = Technical and further education; BCAP = Brief Child Abuse Potential Inventory; PSI-SF = Parenting Stress Index- Short Form; DERS = Difficulties in Emotion Regulation Scale.

Table 2. *Correlation Matrix.*

Variable	1	2	3	4	5
1. Mother age	--				
2. Marital Status	.08	--			
3. BCAP Abuse Risk	-.07	-.30**	--		
4. PSI-SF Total Stress	.02	-.14	.68**	--	
5. DERS Emotion Regulation	-.11	-.16	.72**	.73**	--

Note. **Correlation is significant at the 0.01 level (2-tailed). BCAP = Brief Child Abuse Potential Inventory; PSI-SF = Parenting Stress Index-Short Form; DERS = Difficulties in Emotion Regulation.

Table 3. *Independent Samples T-Test Examining BCAP Abuse Risk.*

	Valid *M* (*SD*)	Invalid *M* (*SD*)	*t*	*p*	*Cohen's d*
BCAP Abuse Risk	3.10 (3.37)	8.53 (6.25)	-4.92	< .001**	-1.08

Note. * = $p < .05$, ** = $p < .01$, BCAP = Brief Child Abuse Potential Inventory.

Table 4. *Independent Samples T-Tests Examining PSI-SF Stress Scores.*

	Valid *M* (*SD*)	Invalid *M* (*SD*)	*t*	*p*	*Cohen's d*
PSI-SF Total Stress	74.72 (20.77)	93.58 (18.88)	-3.86	<.001**	-.95
PCDI Domain	17.89 (5.93)	21.29 (6.53)	-2.36	.02*	-.54
DC Domain	31.85 (10.07)	37.28 (8.76)	-2.64	.01*	-.58
PD Domain	26.48 (9.60)	34.86 (9.25)	-4.05	<.001**	-.89

None. $* = p < .05$, $** = p < .01$, PSI-SF = Parent Stress Index-Short Form; PCDI = Parent-Child Dysfunctional Interaction; DC = Difficult Child; PD = Parental Distress.

Table 5. *Independent Samples T-Tests Examining DERS Emotion Dysregulation Scores.*

	Valid *M* (*SD*)	Invalid *M* (*SD*)	*t*	*p*	*Cohen's d*
DERS Total Scale	65.95 (19.75)	84.74 (22.40)	-4.07	$< .001$**	-.89
Non-Accept	10.63 (5.22)	13.65 (5.45)	-2.59	.01*	-.57
Goals	10.56 (4.73)	13.60 (3.70)	-3.29	.001**	-.72
Impulse	9.10 (3.03)	12.26 (4.93)	-3.48	$< .001$**	-.77
Awareness	14.78 (4.69)	16.95 (4.29)	-2.22	.03*	-.48
Strategies	12.10 (4.31)	17.09 (6.48)	-4.14	$< .001$**	-.90
Clarity	9.00 (3.87)	11.19 (3.69)	-2.65	.01*	-.58

Note. * = $p < .05$, ** = $p < .01$, DERS = Difficulties in Emotion Regulation Scale.

Table 6. *Independent Samples T-tests examining Mother Demographics.*

	Valid *M* (*SD*)	Invalid *M* (*SD*)	*t*	*p*	*Cohen's d*
Mother Age	32.61 (5.78)	32.68 (5.30)	-.056	.956	-.01
Family Income	--	**--**	.685	.496	.16
Marital/De Facto Status	--	--	.759	.450	.17
Education (in years)	14.67 (2.03)	14.65 (2.14)	.035	.972	.01

Note. * = $p < .05$, ** = $p < .01$