Associations of Parental Variables and Youth's Career Decision-Making Self-Efficacy: A Meta-Analysis

Siu-ming To[1], Lei Yang [1], Cheryl Danielle Lau[1], Cheong-wing Victor Wong[2], Xuebing Su[3]

1Department of Social Work, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

2Department of Social Work, Hong Kong Baptist University, Kowloon Tong, Hong Kong

3Department of Applied Social Sciences, The Hong Kong Polytechnic University, Hung Hom, Kowloon., Hong Kong SAR

Author Contributions

S.M.T. designed the study, analyzed the data, and wrote part of the manuscript.

L.Y. executed the study, performed the literature search, analyzed the data, and wrote part of the manuscript.

C.D.L. assisted with the literature search and data analysis, and wrote part of the manuscript. C.W.V.W. helped design and executed the study.

X.S. assisted with data analysis and revised the manuscript.

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Conflict of Interest

The authors declare no competing interests.

Ethical Approval

All procedures performed in this study were approved by the research ethics committee of the Hong Kong Baptist University and the Chinese University of Hong Kong. This article does not contain any studies with human participants and animals performed by the author. Informed Consent Informed consent was not needed, as no individual participants were included in this study

Abstract

Despite extensive research on career decision-making self-efficacy (CDMSE) in relation to youth's career development and outcomes, the relative influence of different parental variables on youth's CDMSE remains relatively unclear. Thus, this meta-analysis sought to compare correlational findings concerning the influence of three types of parental variables—parental cognitions, parenting behaviors, and parent–child relationships—on youth's CDMSE. This meta-analysis also aimed to examine differences in how maternal influences only, paternal influences only, and the influence of both parents are associated with youth's CDMSE. A systematic search for relevant literature was conducted in six scientific databases (i.e., ERIC, PsycINFO, Social Sciences Citation Index, Social Services Abstracts, Sociological Abstracts, and Social Work Abstracts) and other sources (i.e., Google Scholar and reference searching), which yielded 27 quantitative studies from 3529 records on parental factors of youth's CDMSE published between 1983 and 2020. The results showed that all three types of parental variables demonstrated a low to medium association with youth's CDMSE, although parental cognitions had the largest effect size (r = .312; 95% CI [0.217, 0.407]), followed by parenting behaviors (r = .303; 95% CI [0.248, 0.359]) and parent–child relationships (r = .255; 95% CI [0.226, 0.284]). The effect size for the influences of both parents (r = .312; 95% CI [0.264, 0.359]) was found to be larger than that of maternal (r = .256; 95% CI [0.216, 0.296]) or paternal influences (r = .230; 95% CI [0.186, 0.275]) alone. Those results pose important implications and indicate promising directions for research and practice to improve parenting about young people's career development.

Keywords

Parental cognitions, parenting behaviors, parent–child relationships, meta-analysis, career decision-making self-efficacy

Highlights

- Youth's career decision-making self-efficacy was the outcome variable in this study.
- Different parental influences impact youth's career decision-making self-efficacy.
- Parental cognition was most strongly correlated with the outcome variable.
- Parenting behaviors and parent-child relationships also affect the outcome variable.
- Both parents together impact the outcome variable more than a single parent alone.

Introduction

Career development is a lifelong process that generally begins when youth start to form beliefs about their abilities to explore different career options and successfully pursue career paths (Choi et al., 2012; Author a). For many, this period of transition towards early adulthood is marked with new challenges related to one's life and career (Bakshi & Joshi, 2014; International Labour Organization, 2020). Furthermore, recent uncertainties surrounding the labor market have contributed to new difficulties for youth's career development (Organisation for Economic Co-operation and Development, 2020). From heightened competition to the increasing replacement of jobs with new technologies, many changes in the economic, political, and social landscape have brought about unprecedented challenges for today's youth. When such difficulties coincide with early career decision-making processes, individuals can experience stress, exhibit avoidance, and delay important decisions (Gati & Saka, 2001). It is thus increasingly relevant to understand how contextual variables can facilitate today's youth in their career development goals and their confidence in their abilities to achieve such goals, particularly in the face of nonlinear school-to-work transitions, precarious career pathways, and unstable labor markets.

Self-efficacy (Bandura, 1977) has been identified as an important contributor to youth's career development processes, where youth with greater self-efficacy are more likely to set goals and create adaptive environments for themselves to achieve such goals (Lent & Brown, 2006; Lent et al., 1994). Career self-efficacy in particular was first investigated by Betz and Hackett (1981), who found that students' efficacy beliefs about their own educational and occupational abilities were significantly related to the career options that they explored or pursued. For example, youth with higher career self-efficacy are more likely to make career-focused preparations and to persist in the pursuit of their career goals (Bandura et al., 2001). Likewise, career self-efficacy was found to negatively correlate with career indecision (Choi et al., 2012). In addition, the social cognitive career theory (Lent et al., 1994) suggests that career choices and related decision-making behaviors may interact with demographic variables and contextual factors, and other surrounding experiences to influence expected outcomes, personal interests, and career self-efficacy, suggesting the relation between parental variables and a youth's career self-efficacy.

Career decision-making self-efficacy (CDMSE) refers to the degree of belief that individuals have about their ability to perform career-related decision-making tasks (Taylor & Betz, 1983, 1996), and

comprises of five dimensions: self-appraisal, occupational information, goal selection, planning, and problem-solving. Studies have shown that higher levels of CDMSE are associated with clearer vocational identity, higher self-esteem, greater expectations for career outcomes, greater persistence in pursuing career goals, and higher engagement in career exploration or planning activities (Choi et al., 2012; Rogers & Creed, 2011). Moreover, ample research has demonstrated the role of parents as an important contextual factor that contributes to youth's career decision-making processes (Garcia et al., 2012; Restubog et al., 2010). For instance, parents' beliefs and attitudes are found to influence youth's career decisions (Otto, 2000). Likewise, parenting behaviors such as the provision of support are found to positively correlate with CDMSE (Alliman-Brissett et al., 2004). Past studies also suggest that parent–child relationships may contribute to youth's career decisions (Germeijs & Verschueren, 2009).

In a comprehensive review, Whiston and Keller (2004) found that two types of family-based contextual factors may influence youth's career development: family structure variables (e.g., socioeconomic status and parents' education or occupation) and family process variables (e.g., parental aspirations, parental support, and parent–child relationships). There is some evidence suggesting that family process variables play a more profound role in shaping youth's CDMSE (Hargrove et al., 2002). Given that youth is a critical developmental period during which individuals formulate their own career-related beliefs and attitudes (Metheny & McWhirter, 2013) and family process variables may influence youth's decisions related to career development, this meta-analysis aimed to explore the impact of family process variables on youth's CDMSE and is guided by three theories described as follows.

First, the social information processing theory describes the implicit and explicit parental cognitions that inform parents' processing of information about children, their behaviors, and parenting decisions (Dodge, 1986). Although the constructs that comprise parental cognitions are not clearly defined, Holden and Smith (2019) have developed a typology for categorizing parental cognitions, where present-oriented parental cognitions include attitudes, values, perceptions, and beliefs, and where future-oriented parental cognitions include expectations, concerns, and goals. Because many youth consider their parents' opinions and advice when navigating various life events and challenges (Phillips et al., 2001), parental cognitions may thus play a key role in shaping youth's CDMSE. Parents' own goals and expectations for their children may influence youth's career choices as youth may feel pressured to balance their personal

career interests and goals with what their parents consider to be acceptable (Leong & Serafica, 1995). For example, parental concerns about a prospective career's prestige or salary can affect youth's career choices (Wong & Liu, 2010). Also, youth with higher CDMSE are more likely to have parents who express interest in or hold expectations over their children's career development (Keller & Whiston, 2008). Thus, the way in which young people view their parents as a reference or source of information may in turn affect their confidence in their efforts to realize their career aspirations and execute career-related behaviors.

Second, the social learning theory posits that youth can learn or acquire certain behaviors from their parents through modeling and social reinforcement (Kerr & Capaldi, 2019). Specifically, the social learning influences of parents have been found to contribute to youth development and shape youth's learning and cognitions (Mazzucchelli, 2018). Past studies also support the positive association between different parenting behaviors and youth's career self-efficacy beliefs (Turner & Lapan, 2002). For example, parental support and parental engagement were found to correlate with the development of career aspirations, career exploration, and career self-efficacy (Metheny & McWhirter, 2013; Rogers & Creed, 2011) and with the reduction of career-related uncertainty, indecision, and decision-making difficulties among youth (Dietrich & Kracke, 2009; Keller & Whiston, 2008). Moreover, certain parenting behaviors may directly enhance youth's sense of autonomy and thus positively influence their beliefs in their ability to make career decisions (Restubog et al., 2010), while other forms of parental support may contribute to youth's CDMSE by providing resources for navigating challenges as they explore career opportunities (Alliman-Brissett et al., 2004). Parents may also enhance youth's CDMSE by engaging in career-related parenting behaviors that help their children's career exploration activities or encouraging their children to pursue specific career goals (Garcia et al., 2015; Author c; Author d). In brief, youth may generalize from their parents' behaviors or recall specific memories of their parents' behaviors when making decisions, which may effectively shape how youth make career-related decisions and youth's confidence to make such decisions.

Third, parent-child relationships, which may include the quality of the attachment relationship, are said to impact important youth developmental outcomes (van Bakel & Hall, 2018). Specifically, parent-child relationships can be viewed from the perspective of either the child or the parent. The perspective of the child generally focuses on the child's sense of attachment to his or her parents, whereas the perspective

of the latter usually describes the emotional tie or bonding between the parent and the child. The quality of parent–child relationships has been shown to impact youth's career outcomes (Soresi et al., 2014). For example, such relationship quality is associated with parents' emotional support of their children, which may buffer against the negative effects of difficult transitional periods (Vignoli et al., 2005). Past studies also reveal a positive association between the quality of family relationships and youth's career planning attitudes or behaviors (Hargrove et al., 2005). Furthermore, attachment with parents is shown to be a contributor to a child's career development (Wright & Perrone, 2008). Specifically, youth develop and internalize emotional attachment with parents, and then use such attachment experiences as a reference for future relationships and behaviors (Bowlby, 1973). Studies have shown that the more youth feel attached to their parents, the easier it was for them to make career decisions (e.g., Emmanuelle, 2009). Attachment to parents is also correlated with career exploration and career information-seeking behaviors among youth (Ma & Yeh, 2005). A possible explanation is that a secure attachment relationship with parents may provide youth with the emotional support necessary to explore one's surroundings (Blustein et al., 1995; Bowlby, 1973), which may thus facilitate their confidence in and commitment to making career decisions. Overall, youth's relationships with parents may influence youth's learning experiences and hence also impact youth's CDMSE.

Taken together, these three theories may explain how different forms of parental variables contribute to youth's CDMSE (Grusec & Davidov, 2019; Kerr & Capaldi, 2019). Although there is no clear consensus about what constitutes the main variables in parenting, previous literature tended to categorize such variables under parental cognitions, behaviors, and parent-child relationships (e.g., Jones et al., 2014) and analyze their interrelationships (e.g., Dekovic et al., 1991). Furthermore, although some theoretical models place parental cognitions in a causal role in relation to parenting behaviors and parent-child relationships (e.g., Johnston et al., 2018; Rudy & Grusec, 2006), previous research suggest that each of these three separate parental variables may independently contribute to youth's CDMSE. Thus, the present meta-analysis categorizes parental variables into the following categories: parental cognitions, parenting behaviors, and parent–child relationships.

Although many studies have investigated the associations between different parental variables and youth's CDMSE, most were conducted in the context of only one form of parental variable. The existing

literature has seldom explored whether certain forms of parental variables may yield stronger associations with youth's CDMSE. However, factors such as parental cognitions, parenting behaviors, and parent-child relationships may work both separately or interact together to affect an adolescent's response to the environment in terms of career exploration and decision-making ability. Naturally, it is first necessary to understand how the cognitive, behavioral, and relationship aspects in parenting can individually influence an adolescent's self-efficacy level in his/her career decision-making before attempting to examine their combined effects. Therefore, the primary objective of this meta-analysis was to examine whether different parental variables are associated with youth's CDMSE in different ways and to highlight the importance of CDMSE as an important component of youth career development that is affected by a young person's social environment.

Furthermore, some research suggests that mothers and fathers contribute to their children's career development in different ways. For instance, Otto (2000) found that youth reported differences in the career-related attitudes and expectations of their mothers and fathers. Another study found that mothers tend to exert greater influence than fathers on youth's career development (Nauta & Kokaly, 2001). Mothers are also often shown to be more involved than fathers in career-related parenting activities (Paloş & Drobot, 2010). In addition, same-sex dyads involving either mothers and daughters or fathers and sons have also been found to contribute to youth's career development and decision-making more so than opposite-sex dyads (Pizzorno et al., 2014). Therefore, the current meta-analysis also explored potential differences in the impact of the influence of mothers only, fathers only, and both parents on the association between different types of parental variables and youth's CDMSE.

Overall, despite extensive research on the influence of parents on their children's career development, few quantitative reviews have been conducted on how parents impact youth's CDMSE. This exploratory meta-analysis therefore aimed to examine and compare three types of parental variables in relation to youth's CDMSE. At the same time, given the lack of consensus regarding whether the mother or father plays a more significant role in shaping youth's CDMSE, this meta-analysis also explored potential differences between the influence of mothers only, fathers only, and both parents together on their children's CDMSE.

Method

Search Strategy and Study Identification

In our meta-analysis, the study identification, screening, and selection were conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) procedure (Moher et al., 2009). We searched for studies published from January 1983 to December 2020 in six electronic databases: ERIC, PsycINFO, Social Sciences Citation Index, Social Services Abstracts, Sociological Abstracts, and Social Work Abstracts, with the earlier cutoff point chosen because the first scale developed to measure CDMSE was published in 1983. To find relevant studies addressing youth, CDMSE, and parental variables, we conducted searches for the following keywords: youth, adolescen*, child*, young people, career decision self-efficacy, career decision-making self-efficacy, career self-efficacy, parent* attitude*, parent* belief*, parent* expectation*, parent* style*, parent* practice*, parent* behavior*, parent–child relationship*, parent–child interaction*, and parent–child communication*. Table 1 offers details about the search terms.

We also examined the reference lists of the selected studies for additional sources to include in the meta-analysis. As a final step, we searched Google Scholar as well. Given the large volume of search results typically generated by Google Scholar, we reviewed the results for eligible studies until 600 consecutively irrelevant studies had been identified, which reflected a procedure employed in previous meta-analyses (e.g., Cheung & Theule, 2019). The final search was performed on July 23, 2021.

Inclusion Criteria

Studies that met the following seven criteria were included in the sample (Figure 1):

1. The study examined the association between parental variables and youth's CDMSE;
2. The study included a measure of parental variables, including parental cognitions, parenting behaviors, and parent-child relationships;
3. The participants' mean age was between 14 and 24 years. Although there is no clear consensus on the age range that constitutes youth, we used this age range to broadly encompass different definitions of youth. For example, the United Nations (2013) has defined youth to be persons between the ages of 15 and 24. However, as youth between the ages 14 to 15 are often be enrolled in same grade level, we extended this definition to include age 14 as well;
4. The study provided sufficient quantitative data to compute an effect size;

5. The study was published in English in a peer-reviewed journal;
6. The study was published between January 1983 and December 2020; and
7. The participants did not have any reported physiological or psychological illnesses or disabilities. This is because youth with special education needs and disabilities (SEND) may have unique developmental needs in their career development and also encounter different challenges in career decision-making processes compared to their typically developing peers (Boychuk et al., 2018). Thus, studies examining youth with SEND or illness were excluded.

Two researchers (i.e., the second and third authors) reviewed the titles and abstracts of the results of the systematic search of the databases and of other sources. After removing duplicates and studies that did not meet the inclusion criteria, the same researchers separately screened the titles, abstracts, and full texts of the 61 eligible studies. When disagreement occurred regarding whether a study should be included in the meta-analysis, the two researchers discussed the possibility of its inclusion until they reached a consensus. If they could not reach a consensus, then the first author would assess the study and made a binding decision regarding its inclusion in the sample. Otherwise, all authors collectively made all decisions to exclude articles. We excluded several studies because they did not report the sufficient quantitative data or measurement of CDMSE (Figure 1). Ultimately, we included 27 studies in the meta-analysis, which together had 11,499 participants and 54 effect sizes. We considered each independent sample to be a single unit, and coded each sample once.

Data Extraction and Reliability

Two researchers (i.e., the second and third authors) coded all available outcome variables examined in the selected studies, which includes the author, year of publication, study design (i.e., cross-sectional study or longitudinal study), sample size, country under study, mean age or age range of participants, percentage of young women among participants, participants' level of education (i.e., university/college or high school), parental variables (i.e., parental cognitions, parenting behaviors, and parent–child relationships), source of parental variables (i.e., father, mother, or both), and the correlation coefficient of the parental variables on youth's CDMSE and its *p* value. The two researchers coded all studies independently, and the initial coding consistency exceeded 95%. When disagreement arose regarding whether a study met the inclusion criteria, the two researchers discussed their differences until

they reached a consensus. To verify the accuracy of data extraction, the first author separately performed more than 10% of the data extraction. When discrepancies arose, the three authors resolved the disagreements via discussion.

The meta-analysis included the correlation coefficients (*r*) for each sample. When a study included multiple independent samples (e.g., Sovet & Metz, 2014), we classified each sample as a single unit and coded the correlation coefficients within the sample separately. In addition, if a sample reported multiple correlation coefficients to represent the same construct, we coded all outcomes, and then average them into a single mean value to limit an independent sample contributing to an outcome for an empirical relationship (Lipsey & Wilson, 2001).

Data Analysis

To investigate the overall association of parental variables with youth's CDMSE, we first examined the three parental variables: parental cognitions, parenting behaviors, and parent–child relationships. Then, we explored the differential effects of mothers and fathers related to those variables. We performed all calculations for the meta-analysis by following Lipsey and Wilson's (2001) procedures. All data analysis was conducted using Stata/SE 14 and relevant statistical formulas.

We employed correlation coefficients (Pearson's *r*) to calculate effect sizes in this meta-analysis. Followed the computational method proposed by Lipsey and Wilson (2001) for synthesizing the *r* family effect sizes, we applied Fisher's *r*-to-*z* transformation to compute their unweighted effect sizes. Because the sample sizes of the studies differed substantially, we also computed standard error and inverse variance weight to assess the impact of sample sizes on effect size:

$$\textit{Effect Size Statistic: } ES_r = r,\ ES_{Z_r} = .5\ log\ e\ \left[\frac{1 + ES_r}{1 - ES_r}\right]$$

$$\textit{Standard Error: } SE_{Z_r} = \frac{1}{\sqrt{n-3}}$$

$$\textit{Inverse Variance Weight: } W_{Z_r} = n - 3$$

Then, after weighting the studies using their sampling variances, we performed both *Q* and I^2 tests to assess the heterogeneity of effect sizes (Huedo-Medina et al., 2006). *Q* statistic reports the statistical significance of true heterogeneity, and I^2 measures its extent. For example, I^2 = 50% indicates that fifty percent of the total variability among effect sizes is caused by true heterogeneity between studies. In

general, when both $p > 0.1$ (Q statistic) and $I^2 \leq 50\%$ are satisfied, the fixed-effects model is adopted in a meta-analysis; otherwise, a random-effects model is adopted. Any I^2 value exceeding 75% indicated substantial heterogeneity, hence the suitability of using a random-effects model for the meta-analysis.

Finally, a known risk to the validity of a meta-analysis is publication bias, which may appear because studies with statistically significant results are more likely to be published than those with non-significant results. Thus, to assess the risk of publication bias, we conducted visual inspection of the data using a funnel plot. In addition, Egger's test was also implemented to detect asymmetry in the Funnel plot (Peters et al., 2006).

Results

Sample Characteristics

The 27 studies included in the meta-analysis had a total of 29 independent samples and 11,499 participants, in samples ranging in size from 94 to 1,175 (Table 2). Most of studies were conducted in North America (n = 11) with the majority of the studies conducted in the United States (n = 9) and two studies conducted in Canada. Other studies were conducted in Indonesia (n = 4), China (n = 3), Philippines (n = 3), Italy (n = 2), Belgium (n = 1), France (n = 1), South Korea (n = 1), and other regions. The mean age in each sample ranged from 15.3 to 23. The percentage of female children in each sample ranged from 32.2% to 100%, and the percentage of female children in total 11,499 participants was approximately 53.21%.

Measurement and Outcome Characteristics

The majority of the studies measuring CDMSE used the 25 short-form of the Career Decision-Making Self-Efficacy Scale (CDMSE-SF; n = 16), Middle School Self-Efficacy Scale (MSSES; n = 5), and Career Decision Self-Efficacy – short-form (CDSE-SF; n = 4). Other studies used Career Confidence Scale (CCS; n = 2), Career Search Efficacy Scale (CSES-1993; n = 1), and Career Search Self-efficacy Scale (CSES-1994; n = 1).

Regarding the parental influences, most of studies (n = 16) examined the relationship of parenting behaviors and youth's CDMSE; four studies and eight studies investigated the association of youth's CDMSE with parental cognitions and parent-child relationships, respectively. Furthermore, almost all

independent samples (n = 27) used child rating on parental influences; while the rest two did not report the specific indicator.

Heterogeneity in Effect Sizes

The heterogeneity test (Q = 135.74, p <.001; I^2 = 77.4) revealed that the data in 29 independent samples were heterogeneous, thereby confirming the appropriateness of using a random-effects model in the meta-analysis (Lipsey & Wilson, 2001). Based on Cohen's guidelines on the correlation effect sizes (small: $r \leq .10$, medium: $r = .25$, large: $r \geq .40$), the random-effects model demonstrated a medium correlation (r = .299) between parental variables and youth's CDMSE, 95% CI [0.256, 0.341], z = 13.812, $p < .001$ (Table 3).

Effect Sizes

Table 5 describes the associations between various parental variables and youth's CDMSE, and overall summarizes the aggregate mean effect size (ES) by three types of parental variables from total 54 separate ESs (r = .287; z = 16.523, $p < .001$).

Of the 54 total effect sizes, parental cognitions accounted for 6 effect sizes, parenting behaviors for 28, and parent–child relationships for 20, while paternal influence accounted for 9 effect sizes, maternal influence for 12, and both parents' influence for 32, leaving a single effect size without a specific indicator. The results indicate among the three parental variables, parental cognitions demonstrated the largest ES (r = .312; z = 6.442, $p < .001$), followed by parenting behaviors (r = .303; z = 10.771, $p < .001$), and parent–child relationships (r = .255; z = 17.285, $p < .001$), although all three parental variables demonstrated a low to medium association with youth's CDMSE. In addition, this meta-analysis also investigated the parental variables (e.g. maternal influences, paternal influences, and both parents' influences) on youth's CDMSE. The ES related to the influences of both parents on youth's CDMSE is .312 (z = 12.785, $p < .001$), which is larger than only paternal influences (r = .230; z = 10.116, $p < .001$) and only maternal influences (r = .256; z = 12.601, $p < .001$). No significant variance surfaced between maternal influences and paternal influences on youth's CDMSE.

Publication Bias

We found no evidence of publication bias, as indicated by a symmetric distribution of studies in

the funnel plot (Figure 2). Egger's test also indicated that estimates of these included studies may not be impacted by publication bias, with a *P* value greater than .05, $t = .02$, $P = .982$, 95% CI [-1.92, 1.96], as shown in Table 4. With no publication bias detected, conducting Duval and Tweedie's trim–fill analysis to further evaluate such bias in the meta-analysis was unnecessary.

Discussion

This meta-analysis examined previous findings about relationships between different parental variables and youth's CDMSE. The results indicated a significant association between each of the three types of parental variables (i.e., parental cognitions, parenting behaviors, and parent–child relationships) with youth's CDMSE. Such finding is in line with past research suggesting that youth's career self-efficacy and career decision-making processes are associated with parental cognitions (e.g., Sawitri et al., 2014; Sawitri & Creed, 2017), parenting behaviors (e.g., Cheung et al., 2013; Garcia et al., 2015), and parent–child relationships (e.g., O'Brien et al., 2000; Wolfe & Betz, 2004).

Even though all three types of parental variables demonstrated a low to medium association with youth's CDMSE, parental cognitions had the largest effect size compared to parental behaviors and parent-child relationships. This finding suggests that parental cognitions should be understood as a significant contributor of parental variables to youth's CDMSE. Social information processing theory suggests that the associations between parental cognitions and youth's CDMSE can be attributed to parental socialization and intergenerational transmission of values (Johnston et al., 2018). Given the research demonstrating the ways in which socialization support youth in acquiring certain values from their parents (Grusec & Davidov, 2019), the current results also suggest this by showing that parental cognitions may have imparted specific career-related values onto children through socialization. For instance, during the early stages of career exploration, youth may form assumptions about what careers are desirable based on cues from their parents (Leung et al., 2011; Otto, 2000) or may have felt pressured to meet their parents' expectations (Wang & Heppner, 2002). Furthermore, the transmission of values from parents to their children is a dynamic process that can yield both intergenerational similarities and changes. Past research suggesting that youth are generally willing to accept their parents' values when such values are considered progressive but are more likely to reject parental values that are perceived as conservative (Barni et al., 2011). In other

words, youth are increasingly involved in developing their own autonomous or independent cognitions and may be more likely to internalize the career-related parental cognitions that they consider to be progressive. In brief, the modest acceptance of parental cognitions as indicated by the present meta-analysis suggest that although parental cognitions may play a role in youth's CDMSE, such influences may be subjected to youth's personal values and developing sense of autonomy as well.

While the findings highlight the importance of parental cognitions, it should also be noted that this meta-analysis only found four studies that investigated the association of parental cognitions and youth's CDMSE. One possible explanation is that parental cognitions are culturally-embedded, which may result in diverse interpretations on how to measure different attributes of parental cognition, depending on the cultural context (Lam et al., 2018). This may also create further difficulty in the conceptualization and operationalization of the construct (Attanasio et al., 2019). Another possible explanation is that parental expectations – along with other attributes of parental cognitions such as parental values, beliefs, and attitudes – are considered as significant source of youth's self-efficacy and career exploration in the collectivist environment (e.g., Jasmon et al., 2020; Sawitri & Creed, 2017). This may also explain why the four studies examining the influence of parental cognitions included in the meta-analysis were all conducted in a collectivist cultural context (i.e., Indonesia) and contributed the largest effect size within this meta-analysis.

Parent–child relationships has been recognized as an important contributor to youth's development and can influence parent–child interactions and communication (Laursen & Collins, 2009). For instance, because parent–child relationships influences youth's transitional periods into adulthood, it may also influence youth's career decision-making especially when such processes invoke anxiety or emotional stress for youth (Blustein et al., 1995). Research has shown that good relationships between parents and children have been correlated with career exploration and career information-seeking behaviors among youth (Ma & Yeh, 2005; Vignoli et al., 2005). Likewise, a secure relationship with parents has also been said to provide youth with the emotional support necessary to explore their external surroundings (Blustein et al., 1995), which may facilitate their confidence in and commitment to making career decisions. Other evidence supports the idea that parent–child relationships is linked to youth's confidence about careers, realistic career choices, achievement orientation, and perceived value of their career orientation (O'Brien,

1996).

In addition, parent-child relationships is a broad concept that can be considered from either the child's perspective or from the parent's perspective. In particular, the parent's perspective generally refers to the quality of the emotional bonding from the parent to child and other parental representations of the child (van Bakel & Hall, 2019). Thus, future studies may pay more attention to the parent's perspective when examining the association between parent-child relationships and youth's CDMSE.

The current meta-analysis also revealed that the combined effects of both parents had a stronger influence on youth's CDMSE than either maternal influences or paternal influences alone. The findings suggest that little difference exists between the effects of maternal influences and paternal influences on youth's CDMSE, which conflicts with earlier studies showing that mothers exert a stronger influence than fathers on youth's career development. For instance, Otto (2000) found that mothers were more involved than fathers in their children's career exploration activities. However, it is plausible that contemporary changes in labor markets and family structures may have shifted parenting behaviors or the perceived meaning of parenting roles for both mothers and fathers (Banchefsky & Park, 2015; Miller, 2011), hence reducing potential differences in the influence of mothers and fathers on their children's CDMSE. Likewise, women's growing participation in the workforce in the recent decades may reflect a need to reassess not only how parents divide parenting responsibilities but also how current policies and services are accounting for these shifts in parenting roles (Lewis, 2009).

This meta-analysis poses several implications for researchers and practitioners specializing in parenting interventions or youth's career development. At present, this meta-analysis is the first to both explore and compare different types of parental variables on youth's CDMSE. Also, following a prior meta-analysis which found that CDMSE has the largest effect size among career choice interventions (Whiston et al., 2017), the current findings call for more research on the role of different parenting variables in career interventions targeting youth's CDMSE. Furthermore, few systematic reviews or meta-analyses currently exist which examine the environmental influences on adolescents' career choices or decision-making. For example, one previous meta-analysis specifically looked at the role of culture (e.g. Akosah-Twumasi et al., 2018). Given that the studies included within this meta-analysis were conducted from a range of countries, these meta-analysis findings can support future research that aim to tease apart

the nuanced differences in how certain parental variables operate in different cultural contexts to influence youth's CDSME. Ultimately, as parental cognitions are often guided by surrounding discourses, cultural factors, and societal views, the current findings suggest a need for parenting interventions that account for how external factors shape parental cognitions (Azar et al., 2008).

This meta-analysis also has practical implications for counselors, social workers, parent educators, and policymakers. For instance, the findings imply a need for parent education programs that focus on acknowledging or helping parents to understand how their cognitions can influence their children's career decision-making. Likewise, such programs can support parents in exploring how their thoughts, attitudes, expectations, and beliefs can shape their behaviors and relationships with their children, particularly in the context of their children's career development. Given that career indecision can occur at any career transition or pivot point throughout a person's career journey, such as choosing university programs or applying to jobs, it is increasingly relevant to understand how parental variables can enhance certain career competencies through youth's CDMSE during adolescence as well as transitions into adulthood. Career indecision has also been shown to be a concern for children (Hartung et al., 2005), high school students (Nota & Soresi, 2003; Patton & Creed, 2001), as well as post-secondary students (Lee, 2005). For example, a longitudinal study found that dysfunctional career thoughts may weaken college students' CDMSE after college graduation, suggesting that CDMSE should be an important consideration for career services targeting young people going through school-to-work transitions, even beyond adolescence (Kim et al., 2015).

Furthermore, the results demonstrate the importance of involving both mothers and fathers in parent education programs. Future programs may also consider raising parents' awareness of the changing roles of parents today so that individual ones can actively develop unique values and practices instead of passively succumbing to gender roles and societal norms. Moreover, organizing cross-generational career-related activities may cultivate mutual understanding and appreciation between parents and their children. When a partnership is fostered, parents and their children may feel more respected, valued, and confident in the young person's career journey. Practitioners should also help parents to critically reflect on how their parenting behaviors affect their children's career development, which may allow parents to better understand how their children's career development is contingent upon their own sensitivity and positive

responses towards their children's unique circumstances, characteristics, preferences, and surrounding contexts (Author e).

Limitations and Future Directions

One limitation of this meta-analysis is the small number of effect sizes for the parental cognitions variable. More studies are thus needed to better examine the impact of parental cognitions on youths' CDMSE. Second, causal relations cannot be drawn from this meta-analysis. Moreover, there are likely more complex interactions between different parental variables and youth's CDMSE and career development. For example, interaction effects could emerge between different parental variables. Because each of those constructs does not operate in isolation, such potential interactions merit further research. For instance, the potential moderating effect of culture can be considered in future studies to better understand how parenting in different cultural contexts shape youth's CDMSE (e.g. Akosah-Twumasi et al., 2018). Likewise, the relationships between the three parental variables can be further explored to better understand the mechanisms that facilitate the development of youth's CDMSE. For example, a previous study suggests that the relationship between parental cognition and parent-child relationship may be mediated by parenting behavior (Dekovic et al., 1991).

Conclusion

In summary, this meta-analysis is a pioneering attempt to systematically review and quantitatively synthesize the literature on the associations between various parental variables and youth's CDMSE. The results revealed that parental cognitions demonstrated the largest effect size, even though all three parental variables demonstrated a low to medium association with youth's CDMSE. In addition, the effect size regarding the influence from both parents together is larger than that from either maternal or paternal influences on their own. Ultimately, this meta-analysis aims to encourage further exploration of the different parental variables that may influence youth's CDMSE and other youth career development outcomes.

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** Paper was included in meta-analysis*

Author a

Author c

Author d

Author e

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Figure 1. PRISMA flow chart of the search procedure

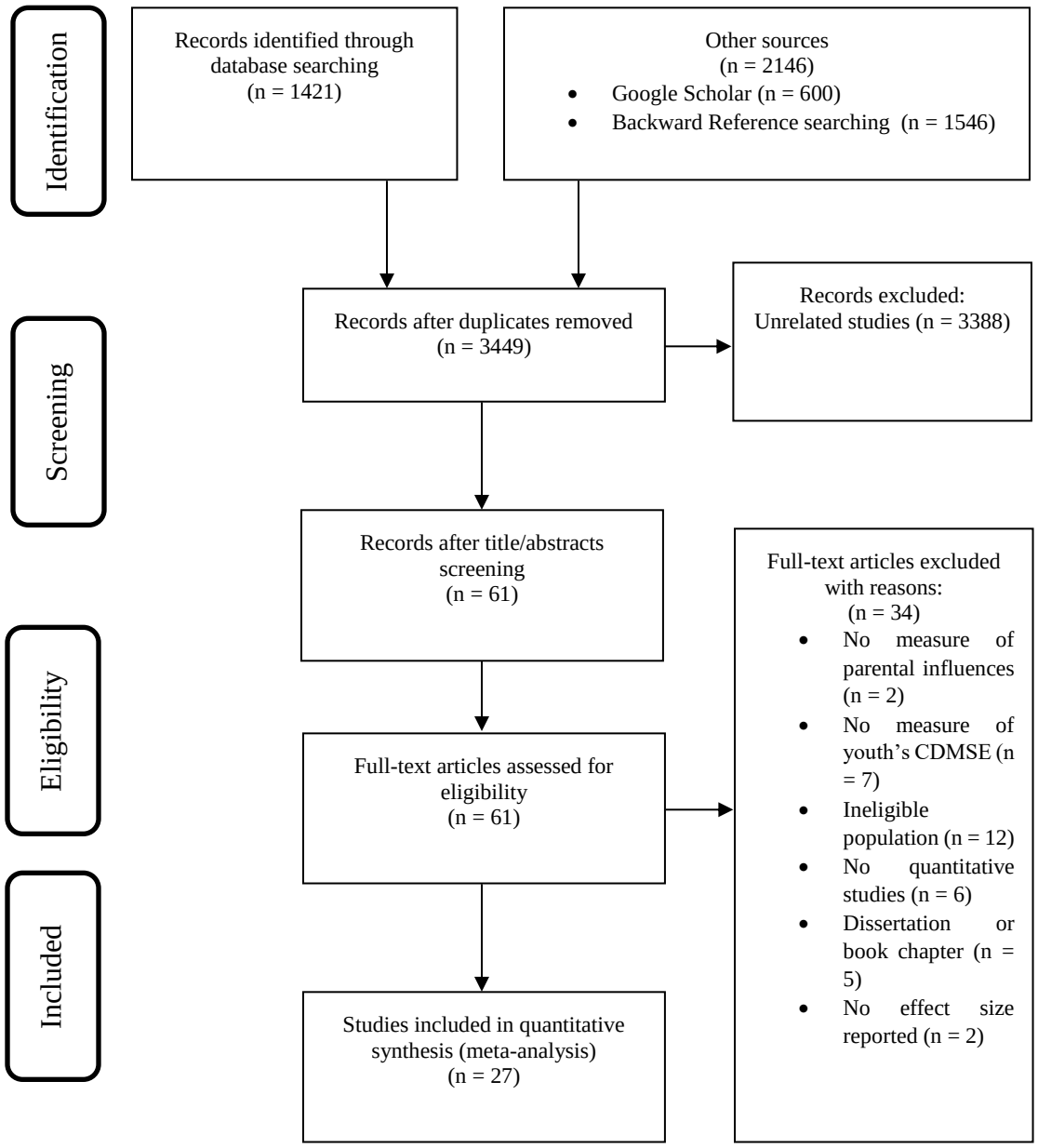

Figure 2. Funnel plot of effect sizes of correlations between parental influences and youth's CDMSE