Observed Social Competence in At-Risk Children: Associations with Informant Reports of Children's Behaviours and Maternal Childhood Characteristics

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ABSTRACT

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Anne Diamyla Baptiste

Children's social competence has been largely assessed using informant reports, yet few studies have explored how these ratings reflect real life behaviours, and how maternal childhood characteristics influence the latter. In the present study, children between 9- and 13-years-old were observed discussing a source of conflict with their mothers. Children's engagement in behaviours classified as socially competent (e.g., smiling, cooperating) and incompetent (e.g., interrupting, confronting) during the discussion were coded. The associations between children's observed social competence and informant ratings of children's social competence were examined. Informants were children's mothers, teachers, and themselves. In addition, maternal childhood characteristics (i.e., aggression, social withdrawal, likeability) and their associations with children's social competence were explored in a sub-sample of participants. Results indicated that mothers' ratings of children's social incompetence as well as higher levels of maternal childhood aggression or social withdrawal predicted less child engagement in socially competent behaviours. Teachers' ratings of children's social incompetence predicted greater child engagement in socially incompetent behaviours. Furthermore, higher levels of maternal childhood aggression were associated with children's greater use of socially incompetent behaviours for mothers low in childhood likeability, and children's lesser use of socially incompetent behaviours for mothers high in childhood likeability. Results from this study take a first step in investigating how informant reports reflect children's engagement in specific socially competent and incompetent behaviours within a naturalistic interaction. Moreover, our results

contribute to the literature on maternal childhood histories and the intergenerational transfer of risk.

Key words: social competence; child development; observed behaviour; mother-child interaction; informant report discrepancy; low socioeconomic status; longitudinal studies; intergenerational transfer of risk.

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Social competence is defined as the ability to successfully interact with individuals through the use of a set of desirable social skills (Rose-Krasnor, 1997). Social skills are discrete behaviours used by individuals to interact within a social context (Usher, Burrows, Schwartz, & Widaman, 2015). Such skills include but are not limited to, being generous, complimenting others, engaging with peers, and helping (Henricsson & Rydell, 2006; Taylor, Conger, Robins, & Widaman, 2015). Social competence is critical to develop given that it is predictive of academic achievement (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000), peer social preference (Caprara et al., 2000), positive relationships (Gottman, Gonso, & Rasmussen, 1975), and conflict management skills (Green & Rechis, 2006). However, these behaviours do not occur in a vacuum; as such, the context in which these social behaviours take place influences their desirability (Warnes, Sheridan, Geske, & Warnes, 2005). Indeed, contextual factors such as the culture or industry in which one works might influence which social behaviours are considered socially competent (Chen & French, 2008; Baron & Markman, 2003). Accordingly, social competence can be further defined as the ability to select and engage in context-appropriate social skills (Rose-Krasnor, 1997). Therefore, in order to capture children's social competence without the constraints of specific contexts that might impact the types of social skills children engage in, researchers must include multiple informants along with multiple methods of assessment to adequately explore the different ways social competence is displayed (Merrell, 2001; Clopet, & Bulotsky-Shearer, 2016; Gresham et al., 2018).

However, despite the abundance of research on children's social competence, one major limitation that remains is the reliance on informant reports as the sole means of assessing

children's social competence (Merrell, 2001; Clopet, & Bulotsky-Shearer, 2016; Gresham et al., 2018) at the detriment of the combined use of informant reports and direct observations. As such, very little is known as to how informant ratings of children's social competence reflect children's displays of social competence within real life interactions. Another area which requires further exploration is the intergenerational transfer of risk for children's displays of social competence. That is, little is known concerning how maternal childhood characteristics represent risks for their own children's displays of social competence. Consequently, the present study was designed to examine how informant ratings of children's social competence inform children's observed social competence, and to investigate the intergenerational transfer of risk for children's observed social competence.

Child Social Competence

Research on children's social competence has for the most part relied solely on informant reports in order to assess social competence (Merrell, 2001; Clopet, & Bulotsky-Shearer, 2016; Gresham et al., 2018), which may prove to be problematic given that the choice of informant influences the information provided in questionnaires. For example, compared to teachers, parents have been demonstrated to overestimate their children's social skills (Hughes, Soares-Boucaud, Hochmann, & Frith, 1997). In addition, teachers tend to report fewer emotional and behavioural problems than parents (Stanger & Lewis, 2010). Overall, the literature has established weak to moderate associations between the reports of mothers, fathers and teachers regarding children's social behaviours (Walker & Bracken, 1996; Achenbach, 2011; Renk & Phares, 2004; Gresham, Elliott, Cook, Vance, & Kettler, 2010). While low inter-informant correlations do not necessarily indicate measurement error as they may reflect real differences in the children's behaviours observed by each informant within their specific context (e.g., home or

school; Achenbach, 2011), they do illuminate the need for additional methods to investigate children's social competence such as direct observations (Merrell, 2001; Clopet, & Bulotsky-Shearer, 2016).

Direct behavioural observations offer the unique possibility to capture social competence within a naturalistic context. This enables the ability to observe the emergence of spontaneous behaviours in the child, to capture a wide range of behaviours, and to discern some behaviours that might have not been reported by informants (Roberts, Tsai, & Coan, 2007). However, direct observations are constrained to the interaction being observed; as such, in order to obtain an accurate representation of children's social competence, it is optimal to use multiple methods (e.g., informants, direct observations, and contexts) along with multiple informants (Merrell, 2001; Roberts, Tsai, & Coan, 2007; Clopet, & Bulotsky-Shearer, 2016).

One advantage to the use of direct observations in conjunction with informant reports in order to assess children's social competence is that it would allow researchers to bridge the information provided by the two types of sources. However, few studies have used both rating scales and observations to assess children's social competence, and even within those cases that do exist, children's scores on both measures have not been directly compared to each other as these two models of assessment are usually used as different outcomes (Webster-Stratton, Reid, & Hammond, 2001; Brotman et al., 2005; Kasari, Rotheram-Fuller, Locke, & Gulsrud, 2012; Herndon, Bailey, Shewark, Denham, & Bassett, 2013). Consequently, there is a gap in the literature concerning how ratings of children's social competence on behavioural scales translate to real life behaviours. In other words, the relationship between lower and higher ratings on measures of children's social competence and the types of behaviours observed in naturalistic interactions remain to be investigated. As such, the present study was designed to partially fill

this gap through observing children's engagement in socially competent and incompetent behaviours when interacting with their mothers, and then explore the association between informant ratings of children's social competence and children's observed social competence in the mother-child interaction. This would further our understanding of how questionnaire reports of children's social competence inform children's behaviours in a naturalistic context (e.g., when interacting with their mothers).

In addition, another advantage to using direct observations of children's social competence is that it would allow for the investigation of the intergenerational transfer of risk for children's displays of social competence. In the present study, given that children's social competence was observed when interacting with their mother, the influence of maternal childhood characteristics on their children's observed social competence was examined.

Maternal Influence on Child Social Competence

Whereas the influence of maternal characteristics in adulthood on children's observed social competence has previously been investigated (Feldman & Masalha, 2010), the influence of maternal characteristics in childhood on children's displays of social competence has yet to be explored. However, previous research has shown that parents transmit risk and/or protective factors to their children (e.g., socioeconomic status, education, socialization; Schofiel et al., 2011) and that maternal childhood characteristics represent risks for their children's later behaviours (Gruzenweig, Stack, Serbin, Ledingham, & Schwartzman, 2009; Stack et al., 2012). As such, maternal transfer of risk for children's observed social incompetence should be further explored in order to obtain a more comprehensive understanding of the factors which affect children's displays of social competence given the importance of social competence in childhood (Caprara et al., 2000; Gottman et al., 1975; Green & Rechis, 2006).

Maternal characteristics that influence children's social competence are important to identify given that mothers are a predominant figure in their children's lives. For example, preschoolers are known to interact more with their mothers than their fathers (Ahnert, Rickert, & Lamb, 2000; Feldman, 2000). Although children spend less time with their parents during middle childhood than perhaps previous years, they tend to continue to spend more time with their mothers than with their fathers (Collins & Russell, 1991; Yeung, Sandberg, Davis-Kean, & Hofferth, 2001; Craig, 2006). One factor that has been shown to be related to how much time mothers spend with their children is their education; compared to their less educated peers, educated mothers spend more time with their children engaging in basic care, play, and managing activities (e.g., attending to children's performance or aiding children's participation in activities; Kalil, Ryan, & Corey, 2012). Time spent with mothers has been associated with children's later cognitive skills (Bono, Francesconi, Kelly, & Sacker, 2016) and fewer delinquent behaviours in adolescents (Milkie, Nomaguchi, & Denny, 2015).

Concerning children's social competence, maternal characteristics such as level of dominance, attachment style, amount and type of support, and maternal wellbeing all relate to children's socioemotional skills (Rubin, Hastings, Chen, Stewart, & Mcnichol, 1998; Kerns, Abraham, Schlegelmilch, & Morgan, 2007; Diener, Isabella, Behunin, & Wong, 2008; Brumariu, Kerns, & Seibert, 2012; Chang, 2013). More distal maternal factors also shape children's social competence through their influence on parenting practices. For example, maternal childhood histories of social withdrawal or aggression have been shown to predict lower home environment quality, an unresponsive style of parenting (Serbin, Peters, McAffer, & Schwartzman, 1991), aggressive behaviours on the part of the child when discussing a conflict with their mothers, and unresponsive behaviours in the child throughout that discussion (Serbin et al., 1998).

Furthermore, mothers with childhood histories of social withdrawal were more forceful in their requests for their child's compliance, which in turn predicted child noncompliance to the demands (Grunzeweigweig et al., 2009). Similarly, maternal childhood histories of aggression predicted child noncompliance through maladaptive parenting practices (Gruzenweig et al., 2009). Moreover, maternal histories of aggression predict later family poverty (Serbin et al., 2011), and this proves to be even more problematic than disadvantage and its risks and sequelae alone since children from lower income families have more behavioural problems, and lower academic performance than their peers (NICHD Early Child Care Research Network, 2005). Poverty is also associated with lower levels of happiness in childhood and adulthood (Levin, Currie, & Muldoon, 2009). However, children growing up in disadvantage or who are the children of parents who grew up in disadvantage may be better equipped to cope with this adversity if they are socially competent (Hosokawa & Katsura, 2017).

Taken together, given that maternal childhood characteristics influence later child behaviour, seemingly through parenting practices, it is important to study how psychosocial risk is associated with specific aspects of children's behaviour: their observed social competence. Thus, the current study aimed to further the literature on the intergenerational transfer of risk by investigating how maternal childhood histories of psychosocial risk influence their children's displays of social competence.

Current Study

The general goal of the current study was to investigate children's displays of social competence when interacting with their mothers. The theory guiding this study was Bronfenbrenner's bioecological theory of human development (Bronfenbrenner & Morris, 2006). As such, the present study aimed to explore how children's microsystems (i.e., their own

behaviours and their mothers' characteristics) and, in a broader sense, their macrosystems (i.e., their family's lower socioeconomic status and maternal childhood histories) influenced children's behaviours. In order to accomplish this, a behavioural coding system based on measures of children's social competence along with children's behaviours in the mother-child interaction was developed. There were two specific objectives for the current study. The first objective was to investigate how ratings of children's social competence as assessed by their mothers, their teachers, and themselves related to the child's observed social competence. We hypothesized that informant ratings of higher levels of social competence would be associated with greater use of behaviours typically attributed as socially competent (e.g. smiling, laughing, and cooperating; Bellack, Hersen, & Lamparski, 1979; Sallquist, Eisenberg, Spinrad, Eggum, & Gaertner, 2009; Shin et al., 2011; Romano & Bellack, 1980), and lesser use of behaviours typically attributed as socially incompetent (e.g. being loud, being defensive, and interrupting their mother; Bellack et al., 1979; Jackson, 1987; Stanton-Chapman, & Snell, 2011). The opposite pattern was also hypothesized: ratings of lower levels of children's social competence would be associated with lesser use of socially competent behaviours, and with greater use of socially incompetent behaviours. Furthermore, children's observed behaviours were hypothesized to have a greater relation with mothers' ratings of children's social competence than with teachers' ratings given that informant ratings of children's behaviours are influenced by their specific context of observation, and the observations that were part of the present study were taken within the home context (Winsler & Wallace, 2002; McCabe & Marshall, 2006; Achenbach, 2011). In addition, the relation between children's report of their own social competence and their observed behaviours was explored. Given that the questionnaires used to assess this relationship were only completed by the child, no comparison across informants was

possible, however the examination of how children's ratings of their social competence compared to the observational data was considered highly relevant to the research questions.

The second objective was to investigate how maternal childhood characteristics such as maternal childhood histories of aggression, withdrawal, and likability impacted children's observed social competence. While no studies have examined these specific pathways, results have shown the deleterious impact of maternal childhood histories of aggression and/or withdrawal on children's behaviour such as displays of aggression, noncompliant behaviour, poor social problem solving skills, and later substance use (Serbin et al., 1998; Grunzeweig, Stack, Serbin, Ledingham, & Schwartzman, 2009; Martin, Stack, Serbin, Schwartzman, & Ledingham, 2012; Pechtel, Woodman, & Lyons-Ruth, 2012). As such, the second objective was to determine whether maternal childhood histories of aggression and/or withdrawal would be risk factors for children's displays of social competence, i.e., they would use more socially incompetent behaviours and/or less socially competent behaviours. Finally, maternal childhood likeability and its association with other maternal childhood characteristics were explored.

Methods

Participants

The participants in the present study were a subsample of the Concordia Longitudinal Risk Project (Concordia Project), which is a longitudinal, prospective, and intergenerational study that began in Montreal in 1976 (Schwartzman, Ledingham, & Serbin, 1985; Stack et al., 2017). The original sample was comprised of 4109 French-speaking school-aged children in grades 1, 4 or 7, who were recruited from low socio-economic status neighbourhoods. These students were then screened on a peer-nominated measure (Pupil Evaluation Inventory) assessing their levels of aggression, social withdrawal, and likeability (Pekarik, Prinz, Liebert, Weintraub,

& Neale, 1976). Children at the upper extremes of aggression and social withdrawal were oversampled in order to arrive to a sample of 1774 children (909 girls, 861 boys), where approximately half of these children were considered to be at high psychosocial risk, i.e., compared to their peers they showed elevated levels of aggression and/or withdrawal, and the other half represented low levels of aggression and/or withdrawal. This original sample (Generation 1) was assessed over time in sub-samples and as they became parents they were invited to participate with their children (Generation 2). In the current study, a sub-sample of children (N = 119; 66 girls, 53 boys) between 9- and 13-years-old (*M age* = 10.75, *SD* = .87) participated along with their mothers. Mothers were between 32- and 42- years old (*M age* = 37.32, *SD* = 2.49) and had between 5 to 18 years of education (*M* = 12.38, *SD* = 2.44) with 12% who failed to complete high school (less than 11 years of schooling). Mothers' mean prestige rating (*M* = 38.37, *SD* = 11.29) corresponded to occupations such as ticket sellers, post office clerks, and dispatchers (Standard International Occupational Prestige Scale; Treiman, 1977).

Measures

Maternal histories of aggression, withdrawal, and likeability. The original sample of 1774 children completed a French translation of the Pupil Evaluation Inventory (PEI; Pekarik et al., 1976). The PEI is a 34-item peer-nomination measure evaluating children's Aggression (e.g., "Those who try to get other people into trouble"), Social Withdrawal (e.g., "Those who are too shy to make friends easily"), and Likeability (e.g., "Those who are liked by everyone"). Children were asked to nominate up to four boys and four girls for each item. Subsequently, the total number of nominations was summed to create Aggression, Withdrawal, and Likeability scores. The scores were then standardized for each gender within each classroom in order to control for the size of each classroom along with the base rates of aggression and withdrawal across gender.

This allows for each child's scores on these dimensions to be comparable across gender and age (see Schwartzman et al., 1985; Serbin et al., 1998, for further details).

Social competence.

Matson Evaluation of Social Skills with Youngsters (MESSY). The participants' mothers and teachers completed a French translation of the MESSY (Matson, Rotatori, & Helsel, 1983), a questionnaire that is designed to assess the social skills of children aged 4 to 18 years old. The MESSY is composed of 64 items scored on a Likert scale (endpoints: 0-Never, 5-Always) and two subscales: Appropriate Social Skills (e.g. "Makes other people laugh") with 20 items, and Inappropriate Assertiveness/Impulsiveness (e.g. "Speaks too loudly") with 42 items. The subscales' scores were transformed into T-scores to allow for appropriate comparisons between the child's scores and their same-aged, same-gender peers. In the current sample, the internal consistency was good for the Appropriate Social Skills subscale (mothers: .837, teachers: .915), and excellent for the Inappropriate Assertiveness/Impulsiveness subscale (mothers: .911, teachers: .948). The overall internal consistency of the MESSY, based on all items, was good (mothers: .812, teachers: .837).

Child Behaviour Checklist and Teacher Report Form (CBCL/TRF). Two subscales of a French translation of the Child Behavior Checklist/4-18 (CBCL/4-18; Achenbach, 1991a) and the Teacher's Report Form (TRF; Achenbach, 1991b) were used to assess two domains of children's social competence: Social Problems (e.g. "Doesn't get along with other kids") and Aggressive Behaviour (e.g. "Argues a lot"). The Social Problems subscale is composed of 8 items for the mother and 13 for the teacher, and the Aggressive Behaviour subscale has 20 items for the mother, and 25 for the teacher. The aforementioned subscales have previously been used as a proxy for children's social competence (Pope & Ward, 1997; Janusz, Kirkwood, Yeates, &

Taylor, 2002; Neuhaus, Bernier, & Beauchaine, 2014). The participants' mothers and teachers rated the children's behaviours on a Likert scale (endpoints: 0-Not true, 2-Very true or often true). The values were transformed into T-scores to allow for appropriate comparisons between the child's scores and their peers of the same age and gender. In the current sample, the internal consistency was adequate for the Social Problems subscale (mothers: .695, teachers: .723), and good for the Aggressive Behaviour subscale (mothers: .884, teachers: .875). The internal consistency of the CBCL/TRF, based on all items, was excellent (mothers: .932, teachers: .900).

Social Skills Rating System (SSRS). The children completed the SSRS (Gresham & Elliot, 1990), which is a 34 item self-report rating scale (endpoints: 0-Never, 2-Very often) that assesses social skills. The SSRS is comprised of 4 subscales (i.e., Cooperation, Assertion, Empathy, and Self-Control); however, for the purposes of the present study only two were used: Cooperation and Empathy. These were the subscales that more tightly corresponded to the most commonly observed children's behaviours which were part of the coding system. Both the Cooperation (e.g. "I use a nice tone of voice in classroom discussions") and the Empathy (e.g. "I smile, wave, or nod at others") subscales are composed of 10 items. The subscales' scores were transformed into T-scores in order to obtain appropriate comparisons between the child's scores and their peers of the same gender and age. In the current sample, the internal consistency was adequate for both the Cooperation subscale (.768), and the Empathy subscale (.70). The internal consistency based on all the items was excellent with a value of .901.

Procedure

This study was conducted within the context of the larger longitudinal study of the Concordia Project. This particular cohort of the project followed children and their parents who were visited at their home at six time points. These visits consisted of interviews, questionnaires,

testing, and naturalistic observations. The current study corresponds to the second home visit (third time point) in which families were seen between 2002 and 2005.

Following University ethics approval, a telephone interview with the parents was conducted in French to obtain informed consent as well as updated demographic information. Subsequently, mother-child dyads were met in their homes by a trained research assistant. After signing informed consent, the mothers and children were involved in a series of interactions and completed questionnaires assessing multiple domains of their lives (e.g., family support, personality, social skills, etc.). Parents also provided consent for teachers to be contacted to complete questionnaires concerning their children. Multiple interactions were videotaped using a Sony 8AF camera that was placed on a tripod, and subsequently digitized for coding purposes using the software system Mangold INTERACT 17. Mangold allows for frame-by-frame coding of behaviours in the form of frequencies or duration, which enables the possibility for quantitative analysis of video data.

Notably, mothers and children were each asked to rate a series of typical topics that could cause some conflict within the dyad, (e.g. cleaning up their room, doing homework, bedtime, and getting along with their siblings) on a scale of 1 (always agree) to 5 (never agree). For this conflict task, the experimenter instructed them to discuss the topic that they had both rated as the highest source of conflict in their relationship for five to six minutes (*Min.* = 3.02, *Max.* = 6.99, *M* = 5.47, *SD* = 0.82, *Median* = 5.88). The experimenter left the room during the discussion. In the event that the pair finished discussing the topic before the minimum allotted time of five minutes, they were given the next highest rated topic to discuss. Only one topic was given to 60% of the dyads, two topics to 28% of the dyads, and between three and four topics to 12% of the dyads.

Consistent with past studies in the Concordia Project, mothers, fathers and children were compensated with a small monetary amount for their time and participation.

Observational Coding

Development. Prior to developing a measure to evaluate children's level of social competence, items from four questionnaires assessing aspects of children's social competence were examined to identify items that could potentially be observed in the videotaped interactions between mothers and their children when discussing a conflict within the dyad. The questionnaires used were the Child Behavior Checklist/4-18 (CBCL/4-18), the Teacher Report Form (CBCL/4-18; TRF), the Matson Evaluation of Social Skills with Youngsters (MESSY), and the Social Skills Rating System (SSRS). Previous studies have used all four questionnaires as a measure of social skills (Pope & Ward, 1997; Janusz et al., 2002; Wierzbicki & McCabe, 1988; Poulou, 2017; Mistry, Minkovitz, Strobino, & Borzekowski, 2007). Subsequently, the videotaped discussions were surveyed in order to assess overlap between the questionnaires' items and the types of behaviours the children displayed or engaged in. At the outset, 22 behaviours were identified (e.g. child is fully engaged, child looks at mother when the latter is speaking, child is cooperative, child interrupts the mother, etc.). The next step was that all the behaviours that had been observed in the video record and had been present as an item on one of the four questionnaires were then coded in terms of frequency for approximately 15 randomly selected videos. Finally, the most frequently occurring and those behaviours that were most representative of the entire sample became part of the coding system in the present study. That is, behaviours that did not occur in approximately 30% of the videos were not included. Eleven social behaviours thus remained.

Observed Social Competence Coding System. The Observed Social Competence Coding System (OSCCS; Baptiste, Paré-Ruel, & Stack, 2018) was developed in order to identify and rate children's displays of social competence during a mother-child interaction in which they discussed a conflict within the dyad. Eleven behaviours were included in the coding system. Brief definitions of the coded behaviours are presented in Table 1 along with the associated kappa values. A trained graduate student double-coded thirty percent of the sample, and kappa values were adequate, ranging from 0.62 to 0.72. This represents moderate agreement between the coders (McHugh, 2012). The behaviours include: (1) child smiles, (2) child's actions or words lead to mother laughing, (3) mother laughs unprompted, (4) child laughs because of their mother, (5) child laughs unprompted, (6) child is cooperative, (7) child is defensive, argumentative, or confrontational, (8) child is loud, (9) child interrupts their mother, (10) child makes an off-topic statement, and (11) child pre-emptively attempts to terminate the task.

Past research has shown that social competence is indeed characterized by individuals' smiling (Tager-Flusberg, 2010; Hurley, Wehby, & Feurer, 2010), laughing and causing others to laugh (Foot, 1997; Azizinezhad & Hashemi, 2011), and being cooperative (Warneken & Tomasello, 2007; Hopkins et al., 2011). Conversely, social incompetence is characterized by individuals interrupting others (Bellini, Peters, Benner, & Hopf, 2007; White, Keonig, & Scahill, 2007), using a loud speaking volume (Feng, Lo, Tsai, & Cartledge, 2008; Bellack, Mueser, Gingerich, & Agresta, 2013), being defensive, argumentative or confrontational (Utley, Greenwood, & Douglas, 2007; Channon, Collins, Swain, Young, & Fitzpatrick, 2012), and making off-topic statements (Utley, Greenwood, & Douglas, 2007; Ronk, Hund, & Landau, 2011). Pre-emptive termination of tasks has not been previously used as a characteristic of social

competence or social incompetence; however, in the current study, this behaviour was categorized as socially incompetent as it appeared to be another form of interruption.

Using the observational software Mangold Interact, the behaviours were coded in terms of frequency, and a code was placed at the beginning of the observed behaviour. In order for the child to receive a new code for engaging in the same type of behaviour, there needed to be either a two second break between the behaviors or the mother had to speak in the case of statements (e.g. the child takes a two-second break between making two defensive statements).

To account for the frequency of behaviours that occurred without the child taking a break when engaging in them, rules concerning the time interval between the occurrences of the same behaviour were implemented. As such, when a behaviour first occurred, a code was placed at the time frame indicating the start of the behaviour. Consecutive instances of the same behavior were not coded if they lasted less than five seconds (e.g. if the child made multiple cooperative statements consecutively in less than five seconds without taking breaks, "cooperative" was coded only once). However, when a behaviour occurred for more than five seconds, the same behaviour obtained a new code (e.g. if child made multiple cooperative statements for seven seconds, there was one code for the beginning of cooperation, and another one at the five second mark). Notably, for the behaviour "smiling", if the child smiled before or after laughing, one second of smiling was mandatory before coding for a smile (e.g. if the child laughed and when the child finished laughing they appeared to be smiling for less than one second, only "laughing" was coded). Multiple behaviours could be observed at the same time (e.g., the child could be cooperative and smiling at the same time). Every statement uttered by the child was coded including statements that were not understood by the coder; however, those statements not understood were not used in the analysis.

Plan for Analysis

First, each behaviour of the Observed Social Competence Coding System that was coded was observed for its range, frequency, and variance.

Second, due to the limited sample size, an exploratory factor analysis was run in order to capture latent variables that characterized the behaviours in the Observed Social Competence Coding System. Factors with an eigenvalue above 1 were retained (Kaiser, 1960). A confirmatory factor analysis was then conducted to confirm the presence of the factors. The latter controlled for the duration of the conversation, maternal education and child gender.

Subsequently, the relation between the reports of different aspects of the child's social competence was assessed by questionnaires (i.e., CBCL/TRF, MESSY, and SSRS) and the behaviours observed in the conflict task were investigated. A path analysis using the relevant subscales of the questionnaires as predictors and the factors representing the behaviours as outcomes was then run. This path analysis controlled for the duration of the conversation, maternal education, and child gender.

Finally, the prediction of maternal childhood histories of aggression, social withdrawal and likeability on the behaviours displayed by the child during the conflict interaction was observed. A path analysis using the mothers' childhood histories of aggression, social withdrawal and likeability as predictors, and the behaviours in the form of latent variables as outcomes was run. This path analysis controlled for the length of the conversation between the child and the mother, maternal education, and the gender of the child.

Results

Prior to conducting data analyses, variables were screened for missing data, the presence of outliers, and severe departure from normality. Following the recommendation of Kline (2011),

values that corresponded to a standard score above |3| were considered outliers, and were replaced by the next closest score that was less than three standard deviations away from the mean. Skew and kurtosis scores were transformed to standard scores (i.e. skew and kurtosis index), and variables with skew indices above 1.96 and kurtosis indices above 10 were considered to significantly depart from normality (Field, 2009; Kline, 2011) and were transformed. One variable remained non-normal.

Descriptive Data

Descriptive statistics for observed and questionnaire-based behaviours. Descriptive statistics for all the observed behaviours are presented in Table 2 (N = 82, 47 girls, 35 boys, *M age* = 10.75, *SD* =.87). Of note, the behaviour consisting of the mother laughing without prompting was not integrated in the analysis as it had only been coded to differentiate the baseline of the mother laughing from when the mother was laughing due to the actions or words of the child. In addition, given that half the children in the sample did not make an off-topic statement or pre-emptively attempt to terminate the task, and due to the low variance in the frequency of these behaviours when compared to the other behaviours', these were removed from subsequent analyses.

Overall, statements were the most commonly occurring behaviours with cooperative statements being the most frequently occurring behaviour followed by the use of defensive, argumentative or confrontational statements. Child smiling was the most frequently occurring action, and mother laughing because of the child was the least occurring action.

Descriptive statistics for the scores on questionnaires assessing aspects of children's social competence are summarized in Table 3. Correlations between mothers' and teachers' ratings were computed and consistent with previous studies, correlations were all significant but

weak in magnitude. Results of the Pearson correlation indicated that there was a significant positive association between mothers' and teachers' ratings of children's appropriate social skills ($r(66) = .304$, $p = .013$). There was also a significant positive association between mothers' and teachers' ratings of children's inappropriate assertiveness/ impulsiveness ($r(64) = .296$, $p = .018$). Similarly, a significant positive association was found between mothers' and teachers' ratings of child's social problems ($r(66) = .312$, $p = .011$). Finally, there was a significant positive association between mothers' and teachers' ratings of child's aggressive behaviours ($r(66) = .289$, $p = .018$).

Factor Analyses

Exploratory Factor Analysis. An exploratory factor analysis using a maximum likelihood factor extraction with a varimax rotation was conducted to detect the possible factors emerging from the children's behaviours. Factors were identified if they had an eigenvalue above 1 (Kaiser, 1960). Loadings above .4 were considered to load well on a factor (Matsunaga, 2010). The groupings of the behaviours are delineated in Table 4 and indicate the presence of three factors representing the child's positive affect throughout the interaction, their use of disruptive communication techniques, and their use of cooperative statements. The internal consistency of the scales was measured using Raykov's composite reliability (CR) rather than Cronbach's alpha. The latter works under the Tau-equivalence model, which assumes that individual items within a latent variable are on the same scale (Raykov, 1997; Graham, 2006). However, in the current study, the range of values associated with each behaviour differs; as such, these variables are arguably not on the same scale. Moreover, Raykov (1997) stated that when factors loadings differed by more than .2 and when at least one factor loading fell below the value of .6, the assumption of Tau-equivalence did not hold, and led to a Cronbach's alpha that underestimated

the internal consistency of the factor. Given that these factor loading differences could potentially be observed in our dataset, Raykov's composite reliability (CR) was used as it was created to measure the internal consistency of factors without the assumptions made by Cronbach's alpha (Raykov, 1997; Raykov, 2009). This measure of internal consistency has been used by numerous researchers (Gallé-Tessonneau & Gana, 2018; Morean et al., 2019; Hinton, Anderson, & Koc, 2019) and a value of .6 is considered necessary to assume internal consistency (Di Martino, Di Napoli, Esposito, Prilleltensky, & Arcidiacono, 2018). In the current study, the positive affect factor had a CR of .623, and the disruptive communication factor had a CR of .814. Given that only one behaviour comprised the cooperation factor, an internal consistency score was not computed. Due to the limited sample size, subsequent analyses were run using 2 parallel models: 1) one with both the positive factor and the disruptive communication factor as an outcome, and 2) one with the cooperative behaviour as an outcome.

Confirmatory Factor Analysis. A confirmatory factor analysis was run using only the behaviours that composed the positive affect and the disruptive communication factors in order to confirm the presence of these two factors. Indices of model fit included Comparative Fit index (CFI), the Tucker-Lewis index (TLI), and the Root Mean Square Error of Approximation (RMSEA). CFI and TLI values above .9 reflected adequate fit, with values above .95 reflecting better fit (Hooper, Coughlan, & Mullen, 2008; Tucker & Lewis, 1973). RMSEA values below .08 reflected an acceptable fit, and values below .06 reflected better fit (Hooper, Coughlan, & Mullen, 2008). The confirmatory factor analysis had a good fit, CFI = .960, TLI = .935, RMSEA = .078, 90% CI [.000, .145], and is represented in Figure 1.

Objective 1. Relation between Questionnaire-driven Data and Children's Observed Social Competence

MESSY. A path analysis investigating the effect of teacher and mother ratings of children's appropriate social skills and children's inappropriate assertiveness/impulsiveness on their use of positive affect and disruptive communication in the mother-child interaction was run. This model controlled for the duration of the interaction along with the child's gender and maternal level of education. The path analysis model had a good fit, CFI = .952, TLI = .930, RMSEA = .039, 90% CI [.000, .075], and the effect of specific paths are reported in Tables 5 and 6. Mothers' ratings of their child's inappropriate assertiveness/impulsiveness negatively predicted the use of positive affect in the mother-child conflict interaction (β = -.317, *S.E.* = .123, *p* = .010). Teachers' ratings of the child's inappropriate assertiveness/impulsiveness were positively associated with use of disruptive communication by the child in the mother-child interaction (β = .369, *S.E.* = .158, *p* = .020). Child gender was directly associated with the use of disruptive communication (β = .253, *S.E.* = .125, *p* = .044); girls used more disruptive communication behaviours.

Similarly, a path analysis investigating the effect of the same predictors on child's cooperative statements in the mother-child conflict interaction was run controlling for duration of the discussion, child gender, and maternal education. Model fit of the path analysis was perfect as the model was just identified, meaning that it had zero degrees of freedom and fit the data perfectly. In other words, it summarizes the observed data. Path coefficients to this model remain interpretable (Miller-Day & Kam, 2010). Effects of specific paths are reported in Table 7. Mothers' ratings of their child's inappropriate assertiveness/impulsiveness negatively predicted the use of cooperative statements by the child throughout the interactions (β = -.317, *S.E.* = .123,

p = .010). Duration of the discussion positively predicted children's use of cooperative statements (β = .433, *S.E.* = .078, p = .000).

CBCL/TRF. A path analysis model exploring the influence of teachers' and mothers' ratings of children's aggressive behaviours along with their social problems on the use of positive affect and disruptive communication in the conflict discussion was run. Maternal education, child gender, and duration of the discussion were used as control variables. The path model had a good fit, CFI = .950, TLI = .928, RMSEA = .041, 90% CI [.000, .076], and the effect of specific paths are reported in Tables 8 and 9. Mothers' ratings of child's aggressive behaviours were negatively associated with use of positive affect within the mother-dyad (β = -0.342, *S.E.* = .123, p = .006). Child gender was positively associated with children's use of disruptive communication (β = .256, *S.E.* = .124, p = .038). Girls used more disruptive communication behaviours.

Likewise, a path analysis examining the effect of teachers' and mothers' ratings of children's aggressive behaviours and social problems on their use of cooperative statements during the mother-child discussion was run. This model controlled for duration of the discussion, maternal level of education, and child gender. This path analysis resulted in a just identified model and effects of specific paths are delineated in Table 10. No significant paths were found.

SSRS. A path analysis examining the relationship between children's ratings of their own cooperative and empathic skills on positive affect and disruptive communication was run controlling for duration of the discussion, maternal education and child gender. The model fit was not adequate, CFI = .908, TLI = .864, RMSEA = .062, 90% CI [.019, .096]; as such the path analysis could not be interpreted.

Finally, a path analysis investigating the role of children's ratings of their cooperative and empathic skills on their use of cooperative statements in the mother-child conflict discussion was run and yielded a just identified model. The model controlled for duration of discussion, maternal education, and child's gender. The path analysis is presented in Table 11, and no significant paths were found.

Objective 2. Maternal Childhood Histories of Psychosocial Risk and Children's Observed Social Competence

Two path analyses were run to explore the effect of maternal childhood aggression, social withdrawal, and likeability on children's observed social competence in the mother-child interaction. Given that in past studies, interactions between maternal childhood characteristics were found to be significant predictors of children's behaviour (Serbin et al., 1998; Taylor, Manganello, Lee, & Rice, 2010; Grunzeweig, Stack, Serbin, Ledingham, & Schwartzman, 2009; Martin, Stack, Serbin, Schwartzman, & Ledingham, 2012), the influence of statistical interactions were also investigated. Due to the limited sample size, only interactions with a significant impact on the children's observed behaviours were added to the final path analysis model. Both linear and quadratic regressions were computed to investigate the effect of maternal childhood characteristics on the factors given that quadratic regressions are useful to look at as relationships between two variables might exist in a nonlinear manner (Yao & Müller, 2010). Quadratic regressions were not reported for previous analyses using informant ratings as predictors of children's behaviours due to the elevated values of the variances of the squared predictors. Squared predictors were needed to examine quadratic relationships between predictors (i.e., informant ratings) and outcomes (i.e., children behaviours), and the high values of their variances prevented the ability of the path analysis models to compute. Nonetheless,

analyses concerning the second objective all controlled for the duration of the discussion, the level of the mothers' education and children's gender. The first path analysis had the use of positive affect and disruptive communication as the outcomes, and had an adequate model fit, CFI = .946, TLI = .922, RMSEA = .052, 90% CI [.000, .104]. The path analysis is further expanded in Tables 12 and 13. Maternal childhood social withdrawal was negatively associated with positive affect in a quadratic nature, (β = -.490, *S.E.* = .208, *p* = .018). Figure 2 depicts this relationship and illustrates that higher levels of maternal childhood social withdrawal predicted less use of positive affect in their children. The interaction between maternal childhood aggression and likeability negatively predicted the child's use of disruptive communication during the interaction, (β = -0.364, *S.E.* = .0.155, *p* = .019). Simple slope analysis was conducted to further investigate the effect of the interaction between maternal childhood aggression and likeability, and this is depicted in Figure 3. The slope associated with low maternal childhood likeability was marginally statistically significant; b = 0.326, *p* = 0.09, indicating that for mothers with low levels of childhood likeability, increased levels of aggression in childhood may be associated with greater use of disruptive communication behaviours by their children. The slope associated with high maternal childhood likeability was statistically significant; b = -0.686, p = 0.017, indicating that for mothers who were more likeable as a child, higher levels of childhood aggression were associated with less use of disruptive communication by their children.

The second path analysis examined the influence of mothers' childhood characteristics (i.e., aggression, social withdrawal, and likeability) on children's use of cooperative statements, which was just identified. Effects of specific paths are presented in Table 14. The quadratic nature of maternal childhood aggression was marginally positively associated with children's use

of cooperative statements (β = 0.319, *S.E.* = .0.196, *p* = .103). Figure 4 depicts this association and demonstrates that higher levels of maternal childhood aggression were associated with children's less frequent use of cooperative statements. Duration of the interaction significantly predicted greater use of cooperative statements by the children (β = 0.417, *S.E.* = .0.116, *p* = .000).

Discussion

The present study was designed to examine how children display social competence in real life interactions with their mothers. An ecologically valid assessment of children's engagement in socially competent and incompetent behaviours was made possible through the use of direct observations of children and mothers. More specifically, using systematic observational coding, we examined children's use of positive affect, disruptive communication techniques, and cooperative statements during a conflict task. The two primary objectives were to examine how informant ratings of children's social competence relate to real life behaviours, and investigate the intergenerational transfer of risk for children's displays of social competence through exploring the influence of mothers' childhood characteristics (i.e., social withdrawal, aggression, likeability) on their children's engagement in socially competent and incompetent behaviours. Framed within Bronfenbrenner's bioecological theory of human development (Bronfenbrenner & Morris, 2006), this study explored how children's social competence relates to their microsystems, i.e. their own behaviours along with their mothers' characteristics; and their macrosystem, i.e. the family's lower socioeconomic status and histories. Informants included mothers, teachers, and children. Consistent with the literature, associations between mothers and teachers' ratings of children's social competence were weak (Walker & Bracken, 1996; Achenbach, 2011; Renk & Phares, 2004; Gresham et al., 2010).

Pertaining to the first objective, as hypothesized, children who were rated highly on measures of social incompetence engaged in less socially competent behaviours and in more socially incompetent behaviours. More specifically, higher ratings of inappropriate assertiveness and impulsiveness by mothers were associated with less frequent use of positive affect and cooperative statements by children during the interaction. Teachers' ratings of children's inappropriate assertiveness and impulsiveness predicted greater use of disruptive communication techniques. Further, children who were rated as engaging in aggressive behaviours by their mothers displayed less positive affect throughout the conflict discussion. That is, mothers' ratings of social incompetence were associated with the absence or decreased use of socially competent behaviours in their children, whereas teachers' ratings were associated with the presence or increased use of socially incompetent behaviours. These results might stem from the fact that different child behaviours are salient to parents and teachers, which thus leads to different ratings on the same construct and to different information obtained by these ratings. For example, past research has shown that parents and teachers attend to different behaviours when rating children's antisocial and delinquent behaviours, which leads to the ratings having different predictive values (Bank, Duncan, Patterson, & Reid, 1993). Interestingly, when mothers were constrained to rate behaviours that were salient for teachers, the predictive values of both informants were more comparable (Bank et al., 1993). As such, in the current study, both informants might have emphasized different socially competent and incompetent behaviours when rating children's social competence, which would impact the type of observed behaviours associated with these ratings. Teachers might attend more to disruptive behaviours, which would explain why their ratings inform the presence of disruptive behaviours in children when interacting with their mothers; in contrast, mothers might be more attentive to socially competent

behaviours. Lane, Stanton-Chapman, Jamison, and Phillips (2007) demonstrated that within the classroom context, different social skills were identified by parents and teachers as important for children, in this case, preschoolers, to engage in. The results from the present study might reflect similarly; that is, different social skills are considered important by parents and teachers in older children. The present findings are consistent with past research which has shown that teachers place importance on children controlling their tempers in a conflict situation, attending to and following teachers' directions, complying with teachers' instructions, and listening to classmates as desirable social skills for elementary and middle school (Lane, Givner, & Pierson, 2004; Lane, Wehby, & Cooley, 2006). In the observed interaction between the mother and child, children's engagement in disruptive behaviours such as interrupting their mothers, raising their voices, and expressing confrontational, defensive or argumentative statements would represent a violation of teachers' expectations of appropriate social behaviours; as such, their ratings of children's social competence would reflect children's engagement in such behaviours.

Conversely, research has shown that parents' socialization of emotions (i.e., help children to talk about emotions and label emotions) is associated with children engaging in more cooperative behaviours when interacting with them (Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013). Notably, children's cooperation was explained by parents' promotion of child-driven talk about emotions rather than parent-driven talk (Brownell et al., 2013). That is, mothers' promotion of emotional development influences children's cooperative behaviours. The association between mothers' ratings of children's social incompetence and children's less frequent use of cooperative behaviours and positive affect found in the present study might reflect parents' socialization of these social skills. Mothers may value and promote the development of positive affect, and as such expect cooperative behaviours from their children.

Their ratings of their children's social incompetence could be taking into consideration children's display of less positive affect and fewer cooperative behaviours in their interactions with her.

However, parents' ratings of children's social incompetence did not predict children's use of disruptive communication within the mother-child interaction, and similarly, teachers' ratings of children social incompetence were not associated with children's use of cooperative statements. These findings do not align with previous research which has demonstrated that mothers do attend to children's disruptive behaviours (Leerkes, Parade, & Gudmundson, 2011), and that teachers consider children's cooperation an important social skill (Lane et al., 2004; Lane et al., 2006). These results might arise from an insufficient sample size, which would allow for detection of these two types of associations (i.e., how each informant ratings' of social incompetence relate to both children's display of social competence and social incompetence). As such, in the present study, it is possible that only the strongest associations emerged as significant (i.e., the associations between mothers' ratings and children's socially competent behaviours, and teachers' ratings and children's socially incompetent behaviours). Secondly and perhaps more importantly, each informant rated children's social competence based on the context in which they were most familiar with them, which may contrast with the context in which children's behaviours was coded. Had we asked mothers to rate their child's behaviours during the task itself or immediately following the conflict task and had we asked a series of direct and specific questions, their ratings may have conformed more to the literature. As such, the context constraint might have limited the number and degree of significant relations between informant reports and children's behaviours.

Higher ratings of social competence were not associated with engagement in any of the behaviours observed. These results might be due to the negative valence of the measures of social competence. Indeed, the CBCL/TRF are measures meant to assess the presence of problematic behaviours; as such, the presence of desirable behaviours could not be adequately measured (Achenbach, 1991a; Achenbach, 1991b). While the MESSY offered the possibility to assess for the use of appropriate social skills, it too remains a measure geared toward the negative as more items compose the inappropriate assertiveness and impulsiveness subscale (Matson et al., 1983). Thus, perhaps the relationship between higher ratings of social competence by informants and the behaviours displayed by children throughout the interaction was not revealed due to the limited means of assessing high levels of social competence.

Contrary to what was hypothesized, the strength of the relationship between mothers' ratings and children's displays of social competence when interacting with their mothers was not greater than the association between teachers' ratings and children's observed social competence. One possible explanation for this result is that children might engage in the same behaviours across both the home and school contexts, which would explain the comparable strength among the association between informant ratings and children's displays of social competence; however, these social behaviours could be interpreted or appraised differently by each informant which would explain the difference in informant ratings of these behaviours. This conclusion is supported by the aforementioned studies demonstrating that parents and teachers rate similar children's behaviours differently, and appraise social skills differently (Bank et al., 1993; Lane et al., 2007).

Pertaining to the second objective, as expected, maternal childhood histories of aggression or social withdrawal were risk factors for their children's displays of social

competence. In a quadratic relationship, mothers who had higher levels of social withdrawal in childhood had children who used less positive affect during the interaction. Similarly, a curvilinear relationship demonstrated that mothers with histories of aggression marginally predicted their children making fewer cooperative statements. Whereas maternal childhood likeability did not predict to any child behaviour on its own, its interaction with maternal childhood aggression predicted children's use of disruptive communication behaviours during the interaction. More specifically, when mothers were low in childhood likeability, greater childhood aggression marginally predicted greater use of disruptive communication behaviours by their children. This finding indicates that for mothers who were not well liked by their peers, aggression represented a risk factor for their children's use of socially competent behaviours. These results align with previous research which has demonstrated that mothers' early social withdrawal and aggression predict children's later maladaptive behaviours such as use of unresponsiveness and noncompliance through the mechanism of parenting (Serbin et al., 1998; Grunzeweig et al., 2009). Similarly, mothers' childhood history of conduct problems, which includes aggression, has been shown to predict the development of their child's disruptive behaviours (van der Molen, Hipwell, Vermeiren, & Loeber, 2011). Notably, this association was partially explained by low levels of maternal warmth (van der Molen et al., 2011; Raudino, Woodward, Fergusson, & Horwood, 2012). Higher levels of parental aggression in childhood have also been shown to predict inconsistency in discipline which in turn predicts their children's engagement in disruptive behaviours (Duncombe, Havighurst, Holland, & Frankling, 2012; Raudino et al., 2012). Concerning mothers who were high in likeability in their childhood, greater childhood aggression predicted less disruptive communication expressed by their children during the conflict task. Maternal childhood aggression thus appears to be both a risk

and a protective factor depending on whether mothers were rated low or high on childhood likeability. For mothers who were low in likeability, aggression had a debilitating effect (i.e., children's greater engagement in disruptive communication behaviours), and for mothers who were high on likeability, aggression had a positive effect (i.e., children engaged in fewer disruptive communication behaviours). These results do not align with the literature on sociometric popularity (i.e., being liked by peers) as this construct has been associated with more prosocial behaviours, less relational and overt aggression, and lower levels of externalizing problems over time when compared to perceived popularity (i.e., being considered popular by others; Sandstrom & Cillessen, 2006; Andreou, 2006). Moreover, within the present sample, this differential influence of low and high childhood likeability was also demonstrated by Hastings and colleagues (2019) who showed that likeability moderated the relation between worsening neighbourhood and adults' probability of developing schizophrenia. Higher childhood likeability was associated with greater likelihood of receiving a schizophrenia diagnosis in adulthood whereas lower childhood likeability did not have such relations (Hastings et al., 2019). One potential explanation for the present results could be that there is another factor that is interacting with the mothers' higher likeability levels to produce negative outcomes that we are not accounting for. Aligned with this conclusion, research has shown that higher likeability levels are associated with later greater behavioural and emotional engagement in school (Engels et al., 2017). However, when teacher-student relationships are negative, higher likeability is associated with later lower behavioural engagement in school (Engels et al., 2016). As such, higher maternal childhood likeability might be associated with another childhood or concurrent influence, which leads to these deleterious outcomes.

Limitations and Future Directions

Although results from the present study generated a number of contributions pertinent to the literature on children's social competence, the study is not without some limitations. The rather small sample size may have prevented the detection of existing associations. The use of one context (i.e., children discussing a conflict with their mothers and at one point in time) is also a potential limitation as it might constrain what types of socially competent and incompetent behaviours are displayed and therefore limit what can be observed. In the future, researchers should explore children's engagement in socially competent and incompetent behaviours with different informants (e.g., father, teachers, and/or peers) in different contexts (e.g., in a task in which both individuals play a game together) and with larger sample sizes. Future studies could also examine children's behaviour at earlier and at later time points to explore whether the association between informant ratings and children's behaviour would differ. As children age, peer relationships become more important (Csikszentmihalyi & Larson, 1984; Brown, 1990; Furman & Buhrmester, 1992; Parkhurst & Hopmeyer, 1998), and perhaps with age, peers' reports of children's social competence might show stronger associations with their behaviours. One final limitation to the present study is that although the interaction included two people, it only focused on children's behaviours during the conflict discussion. While childhood maternal characteristics have been shown to influence children's social competence, concurrent maternal behaviours might also partially explain the relationship between mothers' childhood psychosocial risk and children's behaviour. Similarly, these might offer unique information concerning the child's behaviours. As such, measurement and observation of maternal behaviours throughout the interaction, and the association with children's observed social competence should be furthered explored. In addition, the bi-directional influence of both the

mothers' and children's engagement in socially competent and incompetent behaviours throughout the discussion should be investigated. In other words, how does each individual's engagement in social behaviours during the interaction influence the others' engagement in similar and different social behaviours, and over moment-to-moment real time. Moreover, given that research shows the reciprocal nature between children and mothers' characteristics through time (i.e., children's characteristics predict later mothers' characteristics, which in turn predict children's later characteristics and vice-versa; Serbin, Kingdon, Ruttle, & Stack, 2015), the reciprocal nature of children's and mothers' displays of social competence across time merit investigation. Finally, the impact of concurrent maternal characteristics along with maternal parenting style on children's social competence should be investigated to deepen our understanding of how mothers influence their children's engagement in socially competent and incompetent behaviours.

Conclusion

Taken together, the results of the present study demonstrate how informant reports of children's social competence are reflected in children's displays of social competence when interacting with their mothers. Moreover, our results reveal how early maternal childhood characteristics such as aggression, social withdrawal, and likeability influence their children's engagement in socially competent and incompetent behaviours in the aforementioned interaction. One contribution of the present study to the field of development and social competence is its ability to operationalize the latter construct. Indeed, social competence is a broad concept spawning multiple definitions, which complicates obtaining a complete and comprehensive operationalization of the construct (Rabiner, Godwin, & Dodge, 2016; Joy, 2016; Huber, Plötner, & Schmitz, 2019). The current study was successful in developing a coding system which

assessed both the positive and negative components of social competence. This allowed for the direct observation of children's display of social competence within a conflict situation rather than relying on measures in which children describe hypothetical steps they would take to resolve a conflict with their mother; notably the latter task might be biased by children attempting to give desirable responses (Siegal, 2004). It would be of benefit in future studies to ascertain whether the coding system could be expanded to enable an even more comprehensive picture.

The present study sought to fill a gap within the literature of children's social competence by including information provided by both informant reports and real life observations. Given that the majority of studies have assessed children's social competence through the use of questionnaires completed by parents and teachers (Merrell, 2001; Huber et al., 2019), it is essential to understand how questionnaire responses and information are translated to real life behaviours in children. In doing so, it provides a greater understanding of how to interpret ratings on these informant reports in term of expected child behaviours. Furthermore, this information can be used to develop and assess interventions targeting children's social competence.

Finally, the longitudinal design of the present study offered the unique opportunity to assess how mothers' childhood characteristics influence their children's displays of social competence without relying on retrospective measures, which can be biased by the informant's recollection. Future studies would benefit from longitudinal designs that have multiple time points in a child's development in order to strengthen the depth of our knowledge of the importance of social competence.

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Table 1

Brief operational definitions for the Observed Social Competence Coding System (Baptiste, Paré-Ruel, & Stack, 2018)

Behaviour	Operational Definition	Example	Kappa
Child smiles	Child displays an open mouth smile, or there is a visible progression from neutral to smile.	Child makes a statement and smiles.	0.62
Child's actions or words lead to mother laughing	Child's words/actions precede the mother laughing.	Child makes a statement, which results in the mother immediately laughing.	0.71
Mother laughs unprompted	Mother laughs without an identifiable cause.	Mother laughs at her own statement.	0.62
Child laughs because of their mother	Mother's words or actions precede the child laughing.	Mother makes a statement, which results in the child laughing.	0.66
Child laughs unprompted	Child laughs without an identifiable cause.	Child laughs at their own statement.	0.67
Child is cooperative	Child works together with the mother.	Mother: "Are you going to do it?" Child: "I will." Mother: "What would make you take responsibility?" Child: "To have consequences when I do not do it."	0.68

Child is defensive, argumentative, or confrontational	Child responds to the mother's comment/criticism in a defensive/argumentative manner.	Mother asks child why they do not clean their room, and child answers saying that their friends do not have to clean their room as much as they do.	0.70
Child is loud	Child speaks louder relative to their own individual baseline.	As the child is arguing with the mother, they raise their voice.	0.68
Child interrupts their mother	Child interrupts/disrupts/disturbs their mother's train of thoughts or actions either verbally or non-verbally.	Example of verbal interruption: • Child starts speaking while their mother is still speaking.	0.68
Child makes an off-topic statement	Child makes a statement that is unrelated to the conversation, which is not related to the mother's statement.	Mother tells the child they should clean their room, and the child responds with, "Mom, this week-end, [step-father] is coming, right?"	0.64
Child pre-emptively attempts to terminate the task	Child attempts to end the conversation while the mother is still engaged or is trying to maintain engagement in the task.	Child screams, "We're done!" while the mother is still trying to discuss the conflict.	0.72

Table 2

Descriptive statistics for the observed behaviours

Behaviour	Mean	SD	Median	Variance
Child smiles	16.12	11.38	14.5	129.52
Child's actions or words lead to mother laughing	2.84	3.04	2.00	9.22
Child laughs because of their mother	3.95	4.10	3.00	16.79
Child laughs without being prompted	2.94	3.47	2.00	12.03
Child is cooperative	28.40	15.06	26.00	226.81
Child is defensive, argumentative, or confrontational	17.09	12.13	14.00	147.12
Child is loud	3.54	5.85	1.00	34.23
Child interrupts their mother	7.46	5.04	6.00	25.36
Child makes an off-topic statement	0.84	1.23	0.00	1.52
Child pre-emptively attempts to terminate the task	0.74	1.24	0.00	1.53

Table 3

Descriptive statistics for the questionnaires assessing children's social competence

Variable	N	Mean	Standard Deviation
MESSY			
Teachers' rating of child's appropriate social skills	67	66.10	14.39
Teachers' rating of child's inappropriate assertiveness/ impulsiveness	65	65.51	18.81
Mothers' rating of child's appropriate social skills	81	71.61	9.80
Mothers' rating of child's inappropriate assertiveness/ impulsiveness	81	77.93	14.94
CBCL/TRF			
Teachers' ratings of child's social problems	67	56.76	7.11
Teachers' ratings of child's aggressive behaviour	67	55.22	5.89
Mothers' ratings of child's social problems	81	55.92	7.89
Mothers' ratings of child's aggressive behaviour	81	54.07	5.53
SSRS			
Children's rating of their own cooperative skills	105	15.41	3.02
Children's rating of their own empathic skills	105	15.97	3.14

Table 4

Exploratory factor analysis of child's behaviour when discussing a conflict with their mother

	Factor Loading		
Behaviour	1	2	3
Factor 1: Positive Affect (CR= .623)			
Child smiles	**.604**	-.106	.119
Child laughs without being prompted	**.672**	.241	-.076
Child laughs because of their mother	**.808**	.141	.026
Child's actions or words lead to mother laughing	**.630**	.240	-.117
Factor 2: Disruptive Communication (CR = .814)			
Child is loud	.165	**.688**	-.147
Child interrupts their mother	.034	**.576**	.117
Child is defensive, argumentative, or confrontational	.194	**.856**	-.384
Factor 3: Cooperation			
Child is cooperative	.030	-.109	**.993**

Note. Loadings in bold represent the factors on which each item fit better.

Table 5

Decomposition of effects from the MESSY path analysis to Positive Affect

Effect	β (Standard error)	95% Confidence interval
Duration of interaction	0.129 (0.150)	-0.165;0.424
Child gender	0.068 (0.135)	-0.197;0.333
Maternal education	-0.054 (0.122)	-0.293;0.185
Teachers' ratings of child's appropriate social skills	0.114 (0.148)	-0.177;0.405
Teachers' ratings of child's inappropriate assertiveness/impulsiveness	0.019 (0.147)	-0.269;0.307
Mothers' ratings of child's appropriate social skills	-0.010 (0.122)	-0.248;0.299
Mothers' rating of child's inappropriate assertiveness/impulsiveness	-0.317 (0.123)*	-0.559;-0.076

Note. * indicates values significant at the $p < .05$

Table 6

Decomposition of effects from the MESSY path analysis to Disruptive Communication

Effect	β (Standard error)	95% Confidence interval
Duration of interaction	0.140 (0.121)	-0.097;0.377
Child's gender	0.253 (0.125)*	0.007;0.499
Maternal education	-0.225 (0.119)	-0.458;0.008
Teachers' rating of child's appropriate social skills	0.115 (0.128)	-0.136;0.367
Teachers' rating of child's inappropriate assertiveness/impulsiveness	0.369 (0.158)*	0.059;0.679
Mothers' rating of child's appropriate social skills	0.146 (0.117)	-0.084;0.376
Mothers' rating of child's inappropriate assertiveness/impulsiveness	0.068 (0.120)	-0.167;0.303

Note. * indicates values significant at the $p < .05$

Table 7

Decomposition of effects from the MESSY path analysis to Cooperative Statements

Effect	β (Standard error)	95% Confidence interval
Duration of interaction	0.433 (0.078)*	0.280;0.586
Child's gender	-0.168 (0.102)	-0.367;0.032
Maternal education	0.100 (0.097)	-0.089;0.290
Teachers' rating of child's appropriate social skills	0.150 (0.121)	-0.087;0.386
Teachers' rating of child's inappropriate assertiveness/impulsiveness	-0.040 (0.118)	-0.272;0.191
Mothers' rating of child's appropriate social skills	-0.056 (0.104)	-0.259;0.148
Mothers' rating of child's inappropriate assertiveness/impulsiveness	-0.222 (0.095)*	-0.408;-0.036

Note. * indicates values significant at the $p < .05$

Table 8

Decomposition of effects from the CBCL/TRF path analysis to Positive Affect

Effect	β (Standard error)	95% Confidence interval
Duration of interaction	0.123 (0.153)	-0.178;0.423
Child gender	0.024 (0.127)	-0.225;0.272
Maternal education	-0.091 (0.122)	-0.329;0.148
Teachers' rating of child's aggressive behaviours	-0.213 (0.164)	-0.534;0.107
Teachers' rating of child's social problems	-0.003 (0.158)	-0.313;0.307
Mothers' rating of child's aggressive behaviours	-0.342 (0.123)*	-0.584;-0.100
Mothers' rating of child's social problems	-0.017 (0.136)	-0.284;0.250

Note. * indicates values significant at the $p < .05$

Table 9

Decomposition of effects from the CBCL/TRF path analysis to Disruptive Communication

Effect	β (Standard error)	95% Confidence interval
Duration of interaction	0.195 (0.131)	-0.061;0.450
Child gender	0.256 (0.124)*	0.014;0.499
Maternal education	-0.173 (0.109)	-0.387;0.042
Teachers' rating of child's aggressive behaviours	0.263 (0.167)	-0.065;0.592
Teachers' rating of child's social problems	-0.113 (0.117)	-0.343;0.118
Mothers' rating of child's aggressive behaviours	-0.066 (0.137)	-0.333;0.202
Mothers' rating of child's social problems	0.160 (0.121)	-0.077;0.397

Note. * indicates values significant at the $p < .05$

Table 10

Decomposition of effects from the CBCL/TRF path analysis to children's Cooperative Statements

Effect	β (Standard error)	95% Confidence interval
Duration of interaction	0.535 (0.098)*	0.342;0.727
Child gender	-0.100 (0.104)	-0.304;0.104
Maternal education	0.079 (0.089)	-0.096;0.255
Teachers' rating of child's aggressive behaviours	0.164 (0.156)	-0.141;0.469
Teachers' rating of child's social problems	-0.155 (0.141)	-0.431;0.120
Mothers' rating of child's aggressive behaviours	-0.145 (0.117)	-0.374;0.085
Mothers' rating of child's social problems	-0.034 (0.111)	-0.250;0.183

Note. * indicates values significant at the $p < .05$

Table 11

Decomposition of effects from the SSRS path analysis to children's Cooperative Statements

Effect	β (Standard error)	95% Confidence interval
Duration of interaction	0.451 (0.076)*	0.302;0.600
Child's gender	-0.078 (0.100)	-0.273;0.117
Maternal education	0.115 (0.092)	-0.064;0.295
Children's ratings of their cooperation	-0.051 (0.152)	-0.350;0.247
Children's ratings of their empathic skills	0.040 (0.147)	-0.248;0.329

Note. * indicates values significant at the $p < .05$

Table 12

Decomposition of effects from maternal childhood histories of risk path analysis to Positive Affect

Effect	β (Standard error)	95% Confidence interval
Duration of interaction	0.117 (0.140)	-0.157;0.391
Child's gender	0.261 (0.129)*	0.009;0.513
Maternal education	-0.113 (0.135)	-0.377;0.152
Maternal childhood histories of aggression	-0.232 (0.140)	-0.506;0.041
Maternal childhood histories of social withdrawal	0.461 (0.221)*	0.029;0.893
Maternal childhood histories of likeability	0.144 (0.126)	-0.103;0.390
Maternal childhood histories of aggression and likeability	-0.227 (0.140)	-0.502;0.048
Maternal childhood histories of social withdrawal (quadratic effect)	-0.490 (0.208)*	-0.898;-0.083

Note. * indicates values significant at the $p < .05$

Table 13

Decomposition of effects from maternal childhood histories of risk path analysis to Disruptive Communication

Effect	β (Standard error)	95% Confidence interval
Duration of interaction	0.077 (0.146)	-0.209;0.362
Child gender	0.184 (0.147)	-0.104;0.472
Maternal education	-0.141 (0.152)	-0.439;0.156
Maternal childhood histories of aggression	-0.164 (0.146)	-0.450;0.121
Maternal childhood histories of social withdrawal	0.219 (0.223)	-0.219;0.657
Maternal childhood histories of likeability	0.045 (0.143)	-0.439;0.156
Maternal childhood histories of aggression and likeability	-0364 (0.155)*	-0.688;-0.061
Maternal childhood histories of social withdrawal (quadratic effect)	-0.307 (0.193)	-0.686;0.072

Note. * indicates values significant at the $p < .05$

Table 14

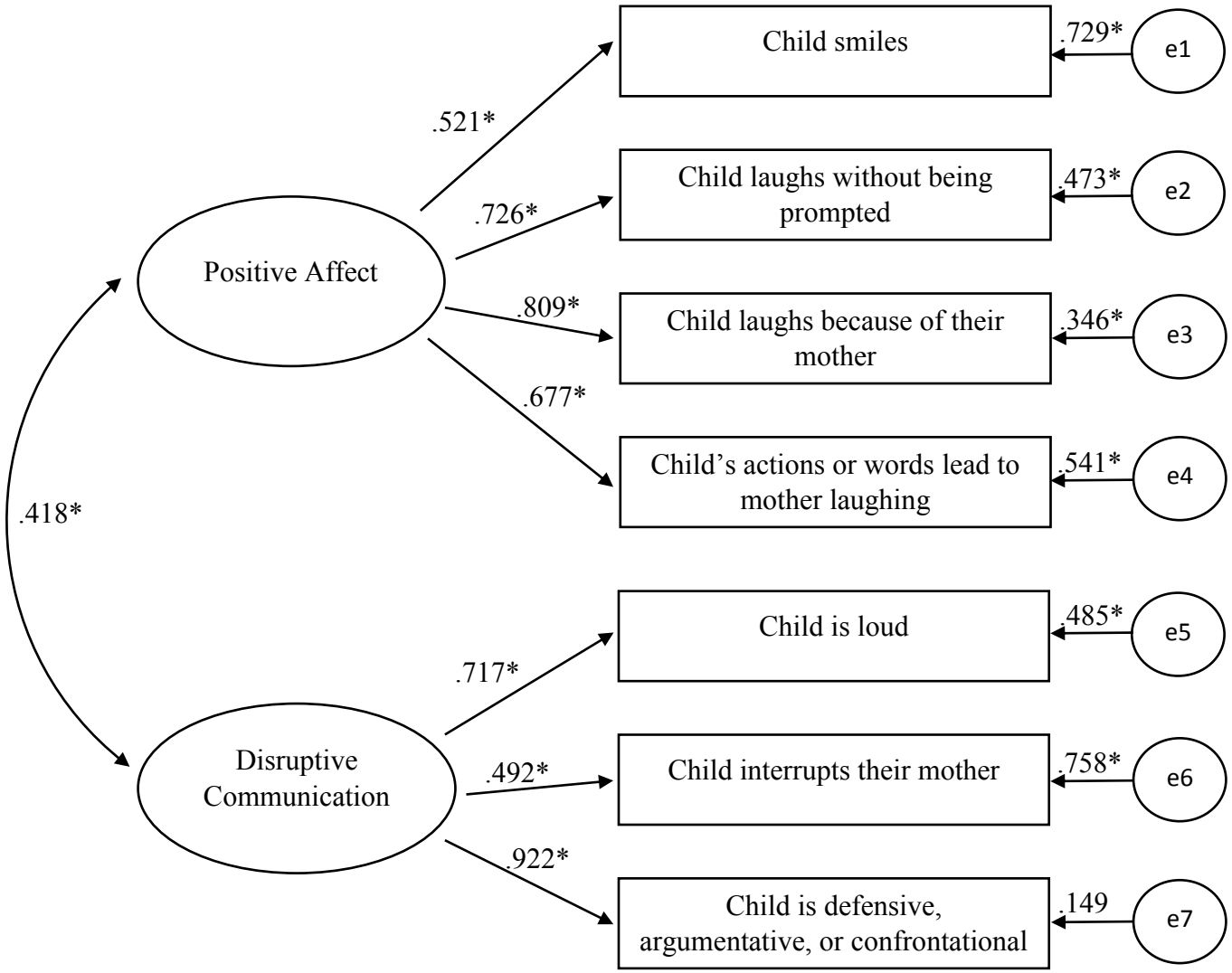
Decomposition of effects from maternal childhood histories of risk path analysis to Cooperative Statements

Effect	β (Standard error)	95% Confidence interval
Duration of interaction	0.417 (0.116)*	0.190;0.645
Child gender	0.045 (0.115)	-0.181;0.272
Maternal education	0.097 (0.116)	-0.130;0.323
Maternal childhood histories of aggression	-0.267 (0.203)	-0.665;0.131
Maternal childhood histories of social withdrawal	0.022 (0.161)	-0.294;0.338
Maternal childhood histories of likeability	-0.068 (0.152)	-0.366;0.230
Maternal childhood histories of aggression (quadratic effect)	0.319 (0.196)	-0.064;0.702

Note. * indicates values significant at the $p < .05$

Figure 1

Confirmatory factor analysis for Positive Affect and Disruptive Communication factors



Note. All values are standardized.

* indicates values significant at the $p < .05$

"e" indicates residual variance.

Figure 2

Quadratic effect of maternal childhood histories of social withdrawal on Positive Affect

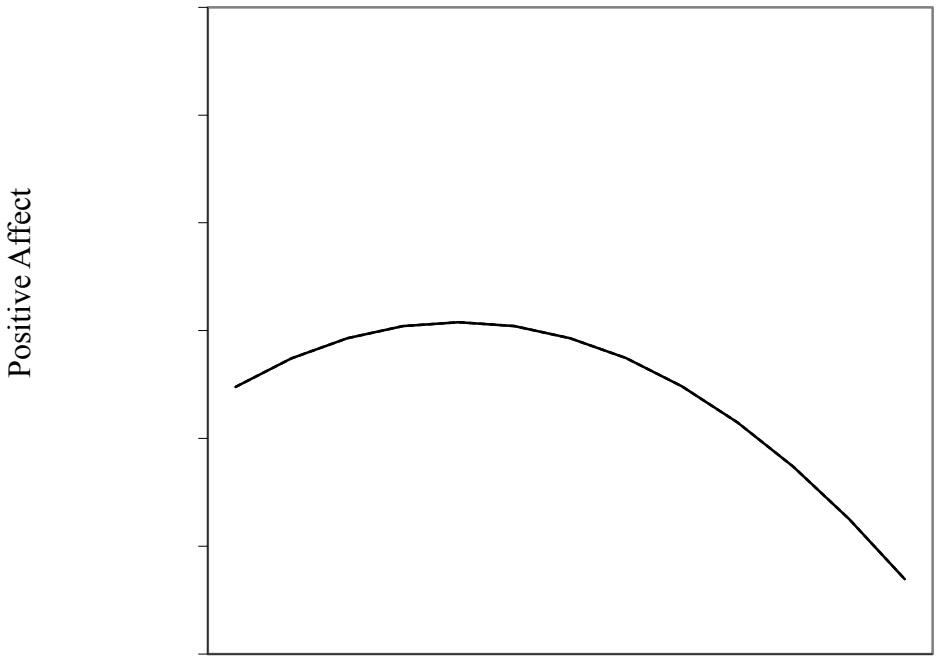


Figure 3

Effect of maternal childhood histories of aggression and likeability on Disruptive Communication

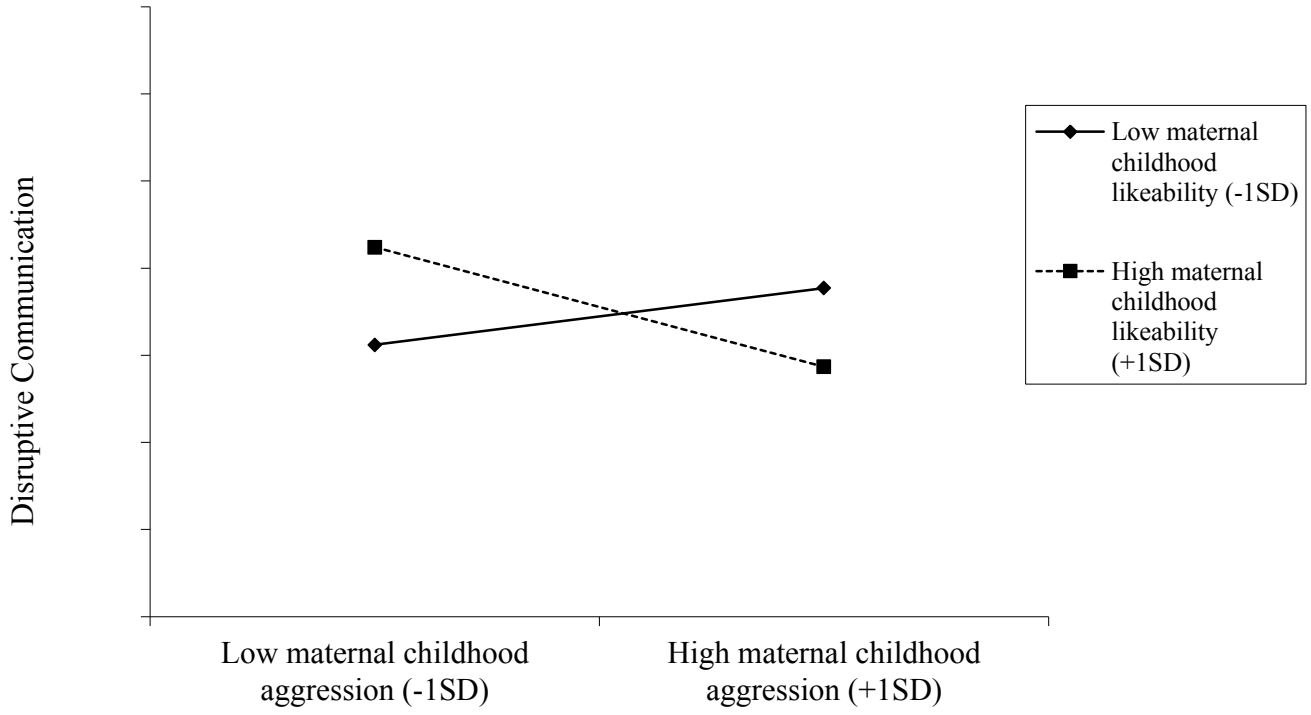


Figure 4

Quadratic effect of maternal childhood histories of aggression on Cooperative Statements