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The Relationship between Parenting Styles, Child's Gender, and Gender-Shift Use in Arabic Child-Directed Speech

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Abstract

This study investigates the interrelationship between gender-shift in child-directed speech (CDS), child gender, and parenting styles among Arabic-speaking caregivers. A survey of 180 Palestinian parents assessed their parenting styles and reported use of gender-shift in relation to their child's gender. The findings reveal no significant correlation between gender-shift and child's gender. However, a positive association exists between gender-shift and indulgence, a characteristic of permissive parenting, while a negative correlation is seen with autonomy granting, regulation, and warmth/support, central to authoritative parenting. These results highlight the need for detailed analysis of parenting dimensions towards deeper understanding of the role of gender-shift use in Arabic CDS, suggesting that broader parenting style categories might overlook crucial differences. The study emphasizes the importance of culturally and linguistically sensitive, interprofessional approaches in language development research, especially in relatively unexplored areas like CDS, while also acknowledging the complexities of exploring such relatively unexamined areas.

Keywords: Arabic language acquisition; Gender-shift; endearment; child-directed speech

Background

CDS: a historical perspective

Linguists and developmental psychologists have reported on the phenomenon of Child-Directed-Speech (CDS) since the 1960s and 1970s. It is also referred to as motherese, parentese, or caregiver speech (Catell, 2000, p. 104), and in the case of younger children it is known as Infant-Directed-Speech (IDS) (Ferguson, 1964). There is now unequivocal evidence that CDS is a different register from Adult-Directed-Speech (ADS) and that it differs at all levels of the grammar and phonology (Cruttenden, 1994; Golinkoff et al., 2015; Snow & Ferguson, 1977; Soderstrom, 2007) and across different cultures (Broesch & Bryant, 2015; Hilton et al., 2022). Features of CDS include the use of slower speech or longer sound durations; higher and more varied pitch; more extreme/peripheral articulations; shorter utterances; simpler syntax; fewer false starts, hesitations and incomplete

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utterances; and baby words with simple syllable structure and reduplication (Aslin, 1993; Bernstein Ratner, 1984; Broen, 1972; Drach, 1969; Fernald & Mazzie, 1991; Fernald et al., 1989). From a theoretical perspective, these differences can be interpreted differently in generativist and constructivist approaches to language acquisition. From a nativist approach to language (Chomsky, 1981; Chomsky & Halle, 1965) the differences are inconsequential as input is not considered to provide children with the deep underlying structure of the complex grammar that they need to acquire, but rather just contains enough material to set the parameters that are innate (e.g., Hyams, 1996). Input-based theories (e.g., Tomasello, 2000), on the other hand, emphasize the importance of input and argue that caregivers simplify the language addressed to their children in order to aid acquisition. This entails the maximization of linguistic contrasts which are important for the language in question. Proponents of this approach point to the correlation between the frequency of certain structures in the adult input and early child forms, as well as the way children use structures in the early stages (Pine & Lieven, 1997; Theakston et al., 2001). Studies have also demonstrated how CDS changes over time to adjust for the child's growing competence (Kitamura & Burnham, 2003; Niwano & Sugai, 2002; Soderstrom, 2007).

A pre-requisite question to this debate relates to whether CDS is actually used by caregivers to facilitate language development, or whether its primary function is socially-driven. Some studies suggest that the main function of CDS is to convey affection and foster social interaction (Singh et al., 2002; Tamis-LeMonda et al., 2014). In other words, it is the caregivers' way to express positive emotion to their child, encourage social interaction and foster joint attention to objects, places and events. Since this involves verbal as well as non-verbal means of communication, the fact that this in turn focuses the child's attention on language is a side-effect rather than the main aim under this view. The attention to the modified speech signal has been shown to aid the child in speech segmentation (Juszyk et al., 1994; Seidl, 2007; Thiessen et al., 2005), a pre-requisite for learning words, as well as to play a role in the development of various receptive and productive oral skills (Broen, 1972; Hart & Risley, 1995; Soderstrom et al., 2008; Song et al., 2010).

While the majority of early work on CDS was carried out with WEIRD (Western Educated Industrialized Rich and Democratic) communities (Henrich et al., 2010), Cameron-Faulkner et al. (2003) point to the fact that the register these families used cannot be necessarily generalized to other populations and cultures. For instance, caregivers from some non-Western cultures have been found to speak less frequently to their children (e.g., Lieven, 1994; Schieffelin & Ochs, 1986; Shneidman & Goldin-Meadow, 2012) and to use various speech acts in different quantities (Harkness, 1977; LeVine et al., 1996; Rabain-Jamin, 2001; Vogt & Mastin, 2013). Caregivers from different cultures stimulate their offspring through different activities to foster development in particular domains (Bornstein & Putnick, 2012; Keller, 2012; LeVine et al., 1996), e.g., book reading, story-telling, counting and object labeling to foster cognitive skills (Bornstein & Putnick, 2012); physical activity such as walking to stimulate motor skills (Keller, 2012); and singing, playing with other children and going outdoors to stimulate socioeconomic skills (Bornstein & Putnick, 2012). These different activities lead to different conversational settings, which in turn influence language development. For instance, the amount of directives or imperatives has a negative relation with children's grammar and vocabulary development (Newport et al., 1977) while book reading contains more object labeling and questions (Hoff, 2006). Within the same (non-Western) community, a change in geographic location and lifestyle can have

consequences for interactions with children and what is expected of them. For instance, Vogt and Mastin (2013) found CDS use in urban Mozambique to more often convey socio-emotional than cognitive intention, and the opposite was true for CDS by parents living in rural Mozambique. This emphasizes the importance of scrutinizing the role of parental styles within and across cultures. The following section will delve into the nuances of Arabic CDS, building upon the current understanding of this subject.

CDS in Arabic

Research on Arabic CDS is rare. Studies in this domain typically adopt a cross-linguistic framework in order to identify universal linguistic features of CDS (e.g., Ferguson, 1964), to address methodological issues in its investigation (Haggan, 2002), or to exemplify use of child directed speech forms in political discourse (e.g., Płonka, 2012). While several universal simplifications at the phonological, lexical, grammatical as well as stylistic features have been identified in CDS and reviewed in the preceding section, one less universally identified feature of CDS is Gender-shift. It was first reported in Arabic and Marathi by Ferguson (1964), as illustrated in example 1 below, which is based on real-life observation made by the first author witnessing a colleague interact with her 2-year-old boy.

- 1) ?inti ma:ida?
 You sick?
 sg. [+FEM] sg. [+FEM] (directed to a boy)
 Are you sick?

As opposed to

?inta ma:id?"
 You sick?
 sg. [- FEM] sg. [-FEM] (directed to a boy)
 Are you sick?¹

In Gender-shift “a feminine noun, pronoun, adjective, or verb form is used in reference to a boy or vice versa” (Ferguson, 1964, p. 106). It is assumed that these shifts are used for expressing endearment (Tobin, 2001), but little is known about any role they may play in language learning. A potentially unintended effect of Gender-shift in CDS is that of increasing or decreasing linguistic complexity, depending on the sex of the child: applying a Gender-shift when interacting with a female child frequently leads to a decrease in the linguistic complexity of the shifted form since the male forms are more frequently used, considered to compound the ‘default’ uninflected form, and exhibit higher levels of matching form and function ‘designations’. This assumption is made based on robust

¹The example provided is concatenative in nature. In this example, it is clear that the typical feminine marking involves additional phonological complexity with the affixation of the feminine marker. However, this might not be the case in cliticization examples. We do not have current evidence of their existence in CDS in Arabic but may be assumed in the case of producing, for example, the complex masculine form /biddakij/ (CVC-Ca-CVC) ‘don’t you want’ (one word including a clitic and a consonant geminate) versus the simpler feminine form /bidki:/ (CVC-CVC). Further studies are needed to examine the frequency of Gender shift occurrences while controlling for these variables.

empirical evidence from computational linguistics demonstrating that masculine forms are more frequent and less complex than feminine forms in Arabic (e.g., Alhafni et al., 2022; Alkuhlani & Habash, 2011). Alkuhlani and Habash (2011) conducted the first quantitative analysis of gender and number agreement in the Arabic nominal system including nouns, proper nouns, and adjectives with a corpus containing 16.6K sentences and over 400K tokens with diacritics. In their analysis, Alkuhlani and Habash (2011) highlight the distinction between form and function gender designation and the occurrence of discrepancy between formal and functional designation in the Arabic nominal system. For example, they present the word *حامل* /*haməl*/ 'pregnant' to have a masculine form designation and a feminine function designation (MS/FS) while the word *حمرا* /*ham.ɪa*/ (red-fem.) is a masculine templetic form with a feminine function (MS/FS). The study results revealed that masculine forms were more frequent both in form and function and that matching form and function designations was more evident for the masculine forms ($M/M = 62.5$) than feminine forms ($F/F = 28.9$) which supports the general premise that masculine forms are generally simpler than feminine forms.

Similar findings showing that masculine forms are more frequent than feminine forms were reported in Alhafni et al.'s (2022) analysis of a 58035 first and second person sentences and 424,254 word corpus. The sentence level statistics analysis of the original corpus had 4% of sentences with masculine first person markers and 2.2% with feminine first person markers, whereas second person masculine was annotated for 21.7% of the sentences and second person feminine for 9.3% of the corpus. A word level statistical analysis showed that feminine was annotated for 2% and masculine was annotated for 4.5% of the corpus. These results provide further empirical evidence that masculine forms are the unmarked, more frequent, and less complex forms in Arabic. Although there are no theoretical accounts of this phenomenon yet, this work provides detailed data on the frequency of masculine and feminine forms in Arabic. The skew towards more complex forms in Arabic feminine morphosyntactic agreement based on the available computational data allows us to test potential linguistic simplification associated with CDS. Specifically, the higher complexity and lower frequency of feminine forms, combined with a semantic mismatch, should discourage their use with male children. For female children, however, semantic concurrence could offset the increased complexity of grammatically female forms.

On the other hand, studies on Gender-shift in adults propose that it is used to endorse affection (Tobin, 2001); if this is relevant in child-caretaker interactions too, we would expect to find its presence in CDS irrespective of the child's sex and to be correlated to parenting styles that exhibit higher levels of endearment. Parenting styles are little-studied in CDS use and function when it influences the nature of caregiver-child interaction and potentially the resulting messages conveyed in CDS (e.g., Tarabeh, 2013). We turn to this next and incorporate it into our examination of the patterns of CDS exhibited in Arabic-speaking parents.

Parenting style and CDS interactions

A central and widely used typology in understanding parenting styles in Western cultures is the one developed by Baumrind (1967, 1971, 1991; see also Berg-Cross, 2000). Baumrind's typology characterizes typical parenting styles based on their demandingness and responsiveness into three different categories. (1) Authoritative parenting style consists of the three positive dimensions autonomy granting, warmth/support, and

regulation. Autonomy granting refers to the ability of parents to allow their children a high level of psychological freedom and to have democratic participatory interactions with them. “Warmth/support” refers to the parents’ ability to accept their children with emotional warmth and support them and their choices in different situations. Regulation refers to the parents’ behavioral control that sets clear and consistent limits on the child’s behavior through inductive thinking about rules and determining consequences for inappropriate behavior (Matejevic et al., 2014; Sharma & Sandhu, 2006). (2) Authoritarian parenting style consists of the three negative dimensions physical coercion, verbal hostility, and non-reasoning punitiveness. Physical coercion describes the parents’ use of physical punishment such as slapping in order to control and discipline the child. “Verbal hostility” describes the parents’ use of abusive hostility to control, discipline, or frighten the child. “Non-reasoning punitiveness” describes the tendency of parents to punish their children without justification or reasonable reasoning (Matejevic et al., 2014; Sharma & Sandhu, 2006). (3) Permissive parenting style consists of two dimensions, autonomy granting and indulgence. “Indulgence” describes parents’ tendency to give children too many resources, do things for children that they should be doing for themselves, or set few rules or consequences for children’s behaviors (Clarke et al., 2004). A fourth parenting style has been added, the uninvolved parenting style. This consists of two negative dimensions, non-reasoning punitiveness and indulgence, which were defined earlier (e.g., Maccoby & Martin, 1983). It is currently referred to as one of the four main parenting styles (Sorkhabi, 2012).

The Parenting Styles and Dimensions Questionnaire (PSDQ) was designed by Robinson et al. (2001) and found to be a valid measure to examine the four parenting styles. The PSDQ has been widely used in large samples and various cultures (e.g., Kern & Jonyniene, 2012; Topham et al., 2011). The Parenting Styles and Dimensions Questionnaire (PSDQ) was adapted and validated for Arabic, specifically focusing on Palestinian families, the target population of this study with high levels of internal consistency (Yaffe, 2018). Studies using PSDQ (e.g., Brosnan et al., 2020; Davis et al., 2021; Neel et al., 2019) treat the four PSDQ subscales as separate, continuous measures, with higher scores indicating more behaviors consistent with each parenting style respectively (rather than a single category). Hence, we focus on the seven dimensions of parenting behaviors that yield responsiveness and control rather than requiring parents fit into narrow classifications of “parenting styles”. These seven dimensions, which have been defined earlier, are autonomy granting, warmth and support, regulation, non-reasoning punitiveness, indulgence, verbal hostility, and physical coercion.

While research on CDS has pointed to cultural differences in caregiver practice (e.g., Sorkhabi, 2012), we are not aware of studies looking at how parental styles may affect Gender-shift use in a particular culture. If we assume that caregiver input does not only bear linguistic based meanings, then examining parenting style dimensions may add depth and breadth to our understanding of CDS. Hence, we argue that incorporating parenting style and its interaction with caregivers’ linguistic productions is needed for comprehensive understanding of CDS in the child’s language, cognitive, and emotional development. Pioneering work has focused on the mental and emotional input infants are exposed to in relation to maternal mind-mindedness and its potential effect on infant attachment in Arabic (Tarabeh et al., 2019). Maternal Mind-Mindedness refers to mothers’ attunement to their infant’s mental states, including their thoughts, feelings, motives, and goals, and is evidenced in verbal references to the mental states that might be governing the child’s behavior (Meins, 1997). Such references are termed mind-related comments (Meins, 2013) and can be assessed from mothers’ child-directed speech during

mother–infant interactions (Meins et al., 2001). Mind-related comments are judged as appropriate when they match the child’s behavior or as non-attuned when they are not matched to the child’s behavior (Meins & Fernyhough, 2015). Tarabeh et al. (2019) revealed that mothers of secure infants used more appropriate and less non-attuned mind-minded comments than mothers of insecure-disorganized infants.

No study in any language has so far incorporated examination of Gender-shift within the linguistic input directed at infants by their parents, while controlling for parenting styles. This might be due to the difficulty in collecting such data or the fact that most studies are conducted in languages that do not present the use of Gender-shift. Hence, examining the use of Gender-shift in CDS in Arabic may contribute to our understanding of the nature of these productions in CDS and the underlying function and role of CDS in language acquisition in general. We hypothesize that the use of Gender-shift as an index of endearment within child-caretaker interactions would be more evident in the input of parents who exhibit increased linguistic responsiveness in their parenting style (i.e., authoritative and permissive styles) and less in those parents with decreased responsiveness (i.e., authoritarian and uninvolved styles).

Even though Gender-shift in CDS was reported by Ferguson in 1964, there have been no recent studies of its use. Most of the available investigations of Gender-shift have focused on its presence in adult interactions (e.g., Wilmsen, 1999; and for Hebrew, Tobin, 2001). These studies support the notion that Gender-shift is used in adult interactions for endearment. Hence, it is logical to believe that Gender-shift would be used for the same function with infants/children too; however, due to the fact that it incorporates presentation of more complex linguistic structures when addressed to male infants/children, observable variation may be exhibited in its use based on the child’s sex too.

The aim of this study is to explore whether the use of Gender-shift in child-directed-speech in Palestinian Arabic has potential linguistic motivation and/or is used as a tool to express affection and endearment. If Gender-shift in CDS plays a linguistic simplification role, it would be present more in interactions with female infant/children and less with male infant/children, given the presumed different complexity levels of the feminine and masculine forms in Arabic. Moreover, Gender-shift in CDS (and CDS in general) may have an affective function for expressing endearment. This should correlate with greater use of Gender-shift in parenting styles characterized by increased responsiveness levels, namely authoritative and permissive parenting styles. This is the first study to investigate the phenomenon of Gender-shift in CDS in Arabic using an interprofessional framework within which parenting styles and demographic factors are accounted for. We therefore asked the following research questions:

Do Palestinian parents report using Gender-shift in their interactions with their children? If so, is there a relationship between the use of Gender-shift and:

- a) the gender of their child
- b) their parental style

One challenge in studying Gender-shift is the difficulty in eliciting it in naturalistic interactions and very large corpora. In fact, preliminary analysis of pilot child-adult play sessions showed no presence of Gender-shift within these samples (Tarabeh, 2013). It is hard to establish whether this was due to the presence of a fieldworker or the low frequency of occurrence of Gender-shift constructions in general. We therefore decided to survey parents on the reported use of Gender-shift in their CDS using a large

participant pool and controlling for potentially relevant factors (gender, age, and parenting style). Future studies would then build on our results and consult dense corpora for a better chance at finding robust patterns in naturally occurring interactions.

Methods

Materials

Data were collected based on an online survey that was developed by the authors. A preliminary version of the survey was administered to 156 participants and major revisions were made based on editorial review of the work for publication as well as public comments on the work in scientific presentations (Khamis-Dakwar et al., 2016). One main revision of the survey was to ensure that survey wording clearly addresses parents' responses regarding their talk with one child at a time. The final version includes closed and open questions addressing three main categories: (1) background information of participating parent and child/children; (2) reported use and perception of CDS and Gender-shift; and (3) the PSDQ questionnaire. The three sections of the survey were as follows:

I. Background information section

This section included 16 questions soliciting background information on the target participants and their child/children. The first half of this part asked about the parental status of the participant (father or mother), where they live, their academic background (number of years of education), their age (father and mother), and work (father and mother). The second half included demographic questions relating to the child of interest, including age of the child, sex, birth order, age and sex of brothers and sisters, and childcare arrangement (e.g., home care, day care center, and babysitter). The third section of the survey requested parents to report the language(s) used at home, along with any hearing, speech, or language delays or disorders their child may have.

II. Reported use and perception of CDS and Gender-shift

This second section of the survey consisted of 1 open-ended question and 11 rating or multiple-choice questions. These were focused on the parents' reported child talk practices and their perceptions of these practices.

The first part included four statements for parents to rate as follows:

Dear Mother/Father. Below there are a number of statements about talking with your child (your son or daughter) that you are filling out this form about. Please rate on a scale of 1 (never), 2 (rarely), 3 (sometimes), 4 (many times), to 5 (always), how much does each of the following statements reflect the way you talk to your child in their early childhood years, compared to how you talk to adults.

1. When I talk to my son or daughter, I change the way I speak and use childish words (such as *weno dudu* ("where is dudu"), *taʔ mama niʔiab mbu*² ("come mommy to drink"), *habu:b lbaba* ("Dad's cutie"))

² *dudu* is a nickname; *mbu* is a childish word for water

2. I tend to speak with my son/daughter using short words (e.g., “give”; “take”; “come”) and lengthened melody (e.g., “where is heeeeeee?”)
3. If you are filling out the form in relation to your son, answer the following question: I talk to my son in the feminine form (e.g., *ma ?ahlaha haj lhilwi* (“How beautiful-sg.fem this handsome-sg.fem” how handsome this beautiful one), *Ṭayubi ktir inti* (“cutie-sg.fem a lot you-sg.fem” what a sweetie).
4. If you are filling out the form in relation to your daughter, answer the following question: I talk to my daughter in the masculine form (e.g., *ma ?atyabu hada lbatal* (“How kind-sg.masc this her in o-sg.masc” This hero is the best), *baḥibo kti:r lahada l?amar* (“I love him so much this-sg.masc moon-sg.masc”, I love this cutie so much)

The second part of this section included 1 open question about memories of the use of Gender-shift followed by 7 questions querying parents’ perception of CDS. The following are the translated versions of these questions:

- Do you remember ever talking to your male child in feminine voice or to your female child in masculine voice? Tell us when did that happen? What phrases and words were used? In what context did this happen?
- Do you think speaking with a male child in feminine voice or a female child using masculine voice influences their ability to learn Arabic?
 - It affects it mildly positively
 - It affects it greatly positively
 - It affects it mildly negatively
 - It affects it greatly negatively
 - It does not affect language learning
- Do you think that talking to a child in a simple and childish way affects learning and acquiring the Arabic language?
 - It affects it mildly positively
 - It affects it greatly positively
 - It affects it mildly negatively
 - It affects it greatly negatively
 - It does not affect language learning
- Do you think that talking to your male child using feminine voice or to your female child using masculine voice affects their responsiveness to others?
 - It affects it mildly positively
 - It affects it greatly positively
 - It affects it mildly negatively
 - It affects it greatly negatively
 - It does not affect their responsiveness with others
- Do you think that talking to your male child or your female child in a simple and childish way affects their response to others?
 - It affects it mildly positively
 - It affects it greatly positively
 - It affects it mildly negatively
 - It affects it greatly negatively
 - It does not affect their responsiveness with others

- Do you think that talking to your male child in the feminine voice or with your female child in the masculine voice affects their personality and self-confidence?
 - It affects it mildly positively
 - It affects it greatly positively
 - It affects it mildly negatively
 - It affects it greatly negatively
 - It does not affect their personality or self-confidence
- Do you think that talking to your male child or your female child in a simple and childish way affects their response to others or affects his personality and self-confidence?
 - It affects it mildly positively
 - It affects it greatly positively
 - It affects it mildly negatively
 - It affects it greatly negatively
 - It does not affect their personality or self-confidence

III. The Parenting Styles and Dimensions Questionnaire (PSDQ)

In the third part of the survey, each participant's parenting style was assessed using the reconceptualized PSDQ (Kimble, 2014) in order to identify the four types of parenting styles (i.e., authoritarian, permissive, authoritative, and uninvolved).

The Parenting Styles and Dimensions Questionnaire (PSDQ) consists of 32 self-report items designed to assess various dimensions of parenting styles. Typically, this questionnaire categorizes responses into four scales: authoritative (consists of three dimensions; autonomy granting, warmth/support, and regulation), authoritarian (consists of three dimensions; physical coercion, verbal hostility and non-reasoning punitiveness), permissive (consists of two dimensions; autonomy granting and indulgence), and uninvolved (consists of two dimensions; Indulgence and non-reasoning punitiveness). However, these different scales that are associated with different parenting styles share questions related to specific dimensions of parenting behavior. For example, the authoritative scale of the PSDQ includes 11 items, out of which one item addresses autonomy granting (e.g., item 21, "I show respect for my child's opinions by encouraging my child to express them"). Additional items addressing this dimension are found within the permissive scale, where 3 out of its 7 items relate to autonomy granting (items 3, 9, 15, 18, 22). Hence, our analysis focused on coding for and analysis of these seven distinguishing dimensions of parenting behaviors. The corresponding items that assess these features as follows:

Autonomy Granting: Evaluated by items like "I respect my child's opinions and encourage them to express them" (e.g., item 21).

Warmth and Support: Assessed through items such as "I show love and affection to my child" (e.g., items 1, 7, 12, 14, 27).

Regulation: Measured by items like "I set rules for my child and monitor them" (e.g., items 5, 11, 25, 29, 31).

Non-Reasoning Punitiveness: Determined by items such as "I use threats as punishment without explanation" (e.g., items 4, 10, 26, 28).

Indulgence: Captured by items like “I spoil my child” (e.g., items 8, 24).

Verbal Hostility: Indicated by items such as “I shout or yell when my child misbehaves” (e.g., items 13, 16, 23, 30).

Physical Coercion: Identified through items like “I slap my child when they misbehave” (e.g., items 2, 6, 19, 32).

Parents were asked to rate each PSDQ item on a five-point Likert scale ranging from “1 = never” to “5 = always”.

This approach is consistent with the latest best practices in parenting style research (Lau, 2019; Matejevic et al., 2014; Skinner et al., 2005). It addresses the limitations of categorizing parents into broad parenting styles by directly assessing the effects of these different features at their varying levels. Our method offers a more comprehensive analysis, allowing us to understand the specific impact of each distinct aspect of parenting behavior on overall parenting effectiveness and child outcomes, reflecting a departure from the broad categorization used in previous studies (as noted by Davis et al., 2021, with an acceptable internal consistency of $\alpha = 0.78$).

Procedure

An advertisement presenting the purpose of the study, targeted population, survey procedure, participants’ rights, the principal investigators’ contact information, and impact of the study was posted on three Arab speech pathologists’ and occupational therapists’ Facebook pages in Israel/Palestine after seeking the administrators’ permission. The advertisement contained a link to the online survey on SurveyMonkey. All members of the professional pages were encouraged to participate in the study and share the link with other participants they knew. Participation was voluntary. Once participants opened the link, a consent form was presented for them to sign. Once this step was completed each participant was presented with the questions of the survey in the same order. There was no time constraint for survey completion. The Adelphi University IRB committee approved the study.

Participants

180 parents participated in the study. No surveys were excluded from data collection. Ten of the participating parents were males and 170 were females. Average years of education for fathers was 15.39 (SD = 3.53), for mothers 16.99 (SD = 2.59).

In terms of the 180 children reported on by their parents, 93 were female (51.7%) while 87 were male (48.3%). Most, 78 (43.3%), were first-born children; 48 (26.7%) were second-born; 42 (23.3%) were third-born; 12 were fourth-born (6.7%). The average age of the male children reported in this survey was 42.86 months (SD = 20.08; range: 5–96) and for female children was 42.6 months (SD = 19.73; range 11–96). In order to check if there was a difference in terms of age between males and females, a Mann-Whitney U-test was conducted because the distribution of child age departed significantly from normality ($W = .97, p < .0001$) according to Shapiro-Wilks testing. The U-test did not reveal a significant difference in child age ($U = 3996, Z = -.14, p = .89$) between males ($Md = 39.00, n = 87$) and females ($Md = 38.00, n = 93$).

Data coding

To investigate the study questions, data were collected on: (1) demographic characteristics of child and parent; (2) reports on the use of Gender-shift and perception of its use in child talk; and (3) parental style, based on the PSDQ. Coding involved calculating total scores for items related to each of the four parenting styles, as well as the total scores for items corresponding to the seven parenting dimensions. At the completion of data collection, all raw data available through Survey Monkey was saved in Microsoft Excel file and later coded within Excel for subsequent statistical analysis using the Statistical Package for Social Sciences (SPSS) version (25).

The participants took on average 28 minutes to complete the surveys ($SD=13.49$). The parents' responses for the different questions in the questionnaire were coded as follows:

Background information:

- Participant number, gender of respondent: 1 = male, 2 = female
- Years of mother's education: numeric total number of years of education
- Years of father's education: numeric total of number of years of study
- Gender of the child reported on: 1 = male, 2 = female
- Age of child reported on: total months
- The child's order in the family (1st, 2nd, 3rd, etc.)
- Number of brothers and sisters: numeric total
- Educational/day care setting: 1 = at home with family caregiver; 2 = unrelated caregiver; 3 = municipality daycare/non-governmental day care; 4 = kindergarten
- Parent's judgment of child's language comprehension skills: 1 = typical; 2 = atypical
- Parent's judgment of child's language expression skills: 1 = typical; 2 = atypical
- Parent report of child's hearing, vision, neurological, developmental issues or educational needs: 1 = no; 2 = yes.
- Language(s) spoken at home: 1 = Arabic; 2 = Hebrew; 3 = English; 4 = Arabic and Hebrew; 5 = Arabic and English, 6 = Other (please specify) _____

Then, each rating (1–5) for the statements addressing parents' use and perception of CDS and Gender-shift was entered as a separate question in the Excel sheet.

For the questions asking parents to report on the use and effects of child talk in general and Gender-shift in particular, answers were coded based on the reported frequency of use; 0 = no, 1 = rarely, 2 = rarely, 3 = sometimes, 4 = often, and 5 = always. For questions addressing parent reports of the influence of child talk and the use of Gender-shift, responses were coded in the following five categories: 1 = high negative effect, 2 = low negative effect, 3 = no effect, 4 = low positive effect, and 5 = high positive effect. For the question seeking information on the contexts in which parents reported use of Gender-shift, answers were orthographically transcribed and thematically analyzed to identify important categories.

Four values for the four different parenting styles were calculated based on the categories outlined by Robinson et al. (2001): parental permissiveness, uninvolved, authoritarianism, and authoritative. In addition, seven values were calculated based on the seven parenting dimensions outlined by Kimble (2014): autonomy granting, warmth and support, regulation, non-reasoning punitiveness, indulgence, verbal hostility, and physical coercion.

Data analysis

The main objective of this study was to examine how the reported use of Gender-shift in child-directed-speech with Arabic-speaking children relates to parenting styles and the gender of a child. We were in particular interested in comparing whether Gender-shift was more evident in interactions with female infants/children when compared with male infants/children due to the linguistic simplification consequences in the case of the former. In addition, the study aimed to investigate interrelationships and interactions between parenting styles and the frequency of Gender-shift in CDS, considering high levels of responsiveness and warmth characteristics of authoritative and permissive parenting styles compared to authoritarian and uninvolved parenting styles.

To investigate the relationship between a child's gender (nominal measurement) and reported gender-shift use (ordinal measurement) in child-directed speech (CDS), we conducted a Mann-Whitney U test. This choice was based on the Shapiro-Wilk test, which indicated a non-normal distribution of parenting styles in our sample. To explore the link between parenting style dimensions and gender-shift use (both ordinal measurements), we employed Spearman's rank correlation analysis. We also calculated descriptive statistics, including means and standard deviations, for the age of the child, father, and mother, as well as for the four parenting styles and seven parenting dimensions. These were followed by Spearman's rank correlations to assess the relationships among these variables. Finally, we analyzed the prevalence (valid percentages) of reported impacts of gender-shift use in CDS on language learning, personality development, and responsiveness to others. It should be noted that due to the nature of the measurements and the non-normal distribution of the data, it is not feasible to conduct an interactive analysis of the effects of gender and parenting style with the current statistical tools available.

Results

General descriptive analysis: Child's age, parent's age, and parenting styles

Descriptive statistics for the age of the parents, age of the child, and the four parenting styles and dimensions are provided in [Table 1](#).

Table 1. Descriptive Statistics for Ages and Parenting Styles—Means and Standard Deviations (N = 180)

Measure	M	SD	Range
Father age	36.89	5.52	24.00–52.00
Mother age	32.36	4.47	23.00–46.00
Male child age (months)	42.86	20.08	5.00–96.00
Female child age (months)	42.60	19.73	11.00–96.00
Child age (months)	42.73	19.85	5.00–96.00
PSDQ - Authoritative	4.64	0.49	1.00–5.00
PSDQ - Permissive	3.37	0.43	1.20–4.60
PSDQ - Authoritarian	1.82	0.59	1.00–4.25
PSDQ - Uninvolved	1.90	0.78	1.00–5.00

Table 2. Means and Standard Deviations for Seven Parenting Dimensions Among Participating Parents (N = 180)

Measure	M	SD	Range
Autonomy granting	4.62	0.62	1.0–5.0
Warmth/support	4.73	0.48	1.0–5.0
Regulation	4.51	0.64	1.0–5.0
Non-reasoning punitiveness	1.73	0.69	1.0–4.75
Indulgence	1.92	0.78	1.0–5.0
Verbal hostility	2.23	0.87	1.0–5.0
Physical coercion	1.24	0.49	1.0–3.76

Table 3. Spearman's Rank Correlations between Parenting Style Dimensions and Parents' Age, Education, and Child's Age

Parenting styles dimension	Child's age	Father's age	Mother's age	Father's education	Mother's education
Autonomy granting	.24**	-.17*	-.11	-.07	.00
Regulation	.19*	-.004	.05	-.11	-.08
Warmth/support	.03	-.13	-.14	-.08	-.10
Verbal Hostility	.06	.07	.08	-.12	.02
Physical Coercion	.11	-.07	-.03	-.06	-.06
Indulgent	.03	.02	.09	-.05	.02
Non-reasoning punitiveness	.09	.02	.09	-.18*	-.06

* $p < .05$ ** $p < .01$ *** $p < .001$

The results in relation to the distribution of the four parenting styles are consistent with reported findings from previous studies showing high means of Authoritative and Permissive parenting styles, contrasted with lower means of Authoritarian and Uninvolved styles (see Table 2). This pattern has been observed not only among Arabic speakers (as noted in studies by Al-Khatib, 2005; Yaffe, 2018, 2021) but also among non-Arabic speaking populations (e.g., Davis et al., 2021). Table 2 shows the results for the seven specific dimensions of parenting behaviors (e.g., Lau, 2019; Skinner et al., 2005) that make up the four parenting styles to allow for a broader understanding of parenting dynamics beyond the constraints of traditional categorizations into distinct parenting styles. The Shapiro-Wilk test showed that the distribution of the seven parenting styles' dimensions significantly deviated from normality (see Appendix 1).

Spearman's rank correlations were computed to assess the relationships between parenting style dimensions and age of child; age of father and mother; and education years of father and mother (see Table 3). We interpreted the results based on Rea and Parker's (1992) scale for reporting and interpreting effect sizes.

The mean scores for parenting dimensions showed high levels of autonomy granting ($M = 4.62$), warmth/support ($M = 4.73$), and regulation ($M = 4.51$), indicating these are prevalent self-reported parenting behaviors. In contrast, lower mean scores were observed in non-reasoning punitiveness ($M = 1.73$), indulgence ($M = 1.92$), verbal hostility ($M = 2.23$), and physical coercion ($M = 1.24$).

According to Table 2, there was a positive correlation between autonomy granting and the child's age, with a medium effect size. Participating parents reported that as the child grows older, their autonomy granting behavior increases. However, there was a negative correlation between autonomy granting and father's age, with a small effect size. i.e., the older the father, the less likely he is to exhibit autonomy granting behavior. In addition, there was a positive correlation between regulation and child's age, with a small effect size, i.e., participating parents reported that as the child grows older, their regulation behavior increases more. Lastly, there was a negative correlation between non-reasoning punitiveness and father's education, with a small effect size, i.e., the higher the father's years of education, the less he exhibits non-reasoning punitiveness.

Gender-Shift and Child's Gender

The Mann-Whitney U test showed no significant difference in Gender-shift usage between male ($Md = 1.00$, $n = 87$) and female ($Md = 1.00$, $n = 93$) infants/children ($U = 3790$, $Z = -.85$, $p = .40$).

Table 4. Spearman's Rank Correlations Between Parenting Styles' Dimensions and Gender-Shift

Parenting styles' dimension	Gender-shift (N = 180)
	Correlation coefficient
Autonomy granting	-.18**
Regulation	-.19**
Warmth/support	-.20**
Verbal Hostility	.08
Physical Coercion	-.08
Indulgence	.19**
Non-reasoning punitiveness	.05
PSDQ - Authoritative	-.18*
PSDQ - Permissive	-.10
PSDQ - Authoritarian	.03
PSDQ - Uninvolved	.14

* $p < .05$

** $p < .01$

*** $p < .001$

Table 5. Spearman's Rank correlations between Gender-Shift and Parents' age, Education, and Child's Age

Parameters	Gender-shift (N = 180)
Correlation coefficient	
Father's age	.04
Mother's age	.04
Father's education	.15*
Mother's education	.09
Child's age	-.05

*p < .05

**p < .01

***p < .001

Table 6. Prevalence (Valid percentages) of reported effects of using Gender-shift and child directed speech on language learning, personality development and responsiveness to others

	Positive mild effect	Positive great effect	No effect	Negative mild effect	Negative great effect
Gender-shift effect on learning Arabic	1.7	1.7	13.9	82.8	0
Simplified language effect on learning Arabic	8.9	0	6.7	25.6	58.9
Gender-shift effect on responsiveness to others	2.2	0	18.3	31.1	48.3
Simplified language effect on responsiveness to others	8.9	0	11.1	28.9	51.1
Gender-shift effect on personality and self-confidence	2.2	0	22.2	25.6	50
Simplified language effect on personality and self-confidence	7.8	0	17.2	27.8	47.2

Gender Shift and Parenting Style Dimensions

Spearman's rank correlations results, exhibited in Table 4 below, showed a positive correlation between Gender-shift and indulgence, albeit with a small effect size, suggesting increased Gender-shift usage with more indulgent behavior. Conversely, negative correlations, with small effect sizes, were observed between Gender-shift and autonomy granting, as well as regulation, indicating less Gender-shift usage with increased autonomy granting or regulation behavior. Lastly, there was a negative correlation between Gender-shift and warmth/support dimension, with a medium effect size, signifying reduced Gender-shift usage with more warmth/support behavior.

Parental Age, Education, and Child's Age on Gender Shift

Spearman's rank correlations between Gender-shift and child's age, education years of fathers and mothers, and age of fathers and mothers showed a positive correlation between Gender-shift and father education, with a small effect size. i.e., fathers who reported more years of education reported more use of Gender-shift. (see [Table 5](#))

Reported use and perceptions of child talk and Gender-shift use by parents

When parents were asked about their general use of child talk, the majority stated they use childish words in their talk with their children (never or rarely (74.4%); sometimes (16.7%) and often or always (8.9%). Similarly, most parents did not report using child directed speech that includes shorter phrases and exaggerated intonation (67% of the participants reported they never or rarely use short words or exaggerated intonation, 18.4% sometimes, and 14.5% used it often or always). When prompted about their perception of the influence of child talk on children, 80% reported it would have high or low negative effect of children's responsiveness with others, 75% reported it would have negative strong or mild effect on child's personality and self confidence, and a cumulative percentage of 84.5% reported it would have either strong or mild negative impact on the child's learning and acquisition of Arabic. Questions about the effect of using Gender-shift specifically showed that 79.4% of respondents reported that use of Gender-shift would negatively impact the child's responsiveness to others either strongly or mildly, 75.6% perceived that use of Gender-shift would have either strong or mild negative effect on the child's personality and self confidence, and a cumulative percentage of 96.7% reported it would have either strong or mild negative impact on the child's learning and acquisition of Arabic ([Table 6](#)).

Discussion

The aim of the current study was to investigate the presence of Gender-shift, an understudied phenomenon, on child-caretaker interactions in Arabic. We aimed to explore possible factors correlated with the presence of Gender-shift based on the two possible roles Gender-shift may play when used in CDS – as a means for linguistic simplification and/or as a means to express affection and endearment. We predicted that the use of Gender-shift for linguistic simplification would lead to its more frequent use with female infants/children than male infants/children. In addition, we predicted that the use of Gender-shift for endearment would correlate with its use by parents who exhibit a responsive parenting style (i.e., permissive and authoritative). These are not two conflicting or competing accounts of CDS and the examination is assuming both can be true. The study's results revealed a relatively low overall incidence of reported Gender-shift use and no significant difference in its usage based on the child's gender. However, small but significant correlations were observed between the use of Gender-shift and parenting style. Interestingly, the use of Gender-shift was associated with the indulgence dimension, characteristic of permissive parenting, as opposed to the authoritative style. This finding contrasts with our initial hypothesis, which suggested a potential correlation with the permissive and authoritative styles due to their typically higher level of responsiveness. This responsiveness is a common trait shared with permissive parenting within

the conventional framework that categorizes four parenting styles based on the balance of responsiveness and demandingness.

The non significant interrelationship between the child's gender and Gender-shift does not follow the simplifications argument in CDS. The lack of simplification finding has been reported in other studies. For instance, Kuntay and Slobin (1996) investigated the CDS of a Turkish mother to examine whether simplification of structures is exhibited in CDS in complex languages, and found no cases of simplifications or avoidance of complex forms. The authors proposed that "the entire set of cues is necessary for the child to be able to solve the problem. That is, without being exposed to this range of variety, it would probably take much longer to identify the relevant dimensions of lexical, morphological, and syntactic variation in the language" (1996: 284).

We initially hypothesized that parenting styles with higher levels of responsiveness would likely incorporate verbal feedback rich in emotional content, aimed at enhancing the child's mental state and engagement in interactions with parents. Consequently, we theorized that responsive parents (specifically those following authoritative and permissive styles) might use gender-shift as an expression of warmth and affection. However, upon conducting a seven-dimension analysis, we discovered that the use of gender-shift is more closely associated with indulgence and pampering, rather than the warmth and support characteristic of authoritative parenting. This finding suggests that gender-shift use aligns more with the indulgent aspects of parenting and is not as prominent in the authoritative style as previously thought.

Given that gender-shift most likely indicates indulgence, further research is needed to investigate its clinical applications, particularly in the context of culturally and linguistically responsive parent education programs for parents of typically developing children and those with communication disabilities. For example, it would be important to explore if Gender-shift use might reflect the stage parents have reached in the five stages of grief model (e.g., Kübler-Ross & Kessler, 2009) particularly in terms of accepting their children's communication disabilities. Such usage could provide insights into the ways parents support their children, taking into account the specific communicative barriers and developmental trajectory these children face. Understanding the nuances of gender-shift use in this context could offer valuable guidance for interventions and support strategies tailored to these families' unique needs.

The significant interrelationship found between parenting style and the reported use of Gender-shift, along with the reported perceived potential negative effects on the child development, exhibit the complexity of the use of CDS at the implicit and explicit level of its reporting. These preliminary findings highlight the need for further interprofessional investigations of language development to enhance our deep understanding of language development and all the interactive factors in the process.

The present study approaches the investigation of Gender-shift in CDS from an interprofessional perspective, incorporating both fields of language acquisition and parenting style. The intention is to initiate interprofessional studies of an interesting phenomenon such as Gender-shift in order to inform our general understanding of CDS and to expand the theoretical debate on its role, taking into account the child and the parent, as well as the different functions of language use including emotional, communicative, and cognitive. A clear understanding of the Gender-shift phenomenon as well as its role in language development for typically and atypically developing children and in non-concatenative languages with rich morphological systems is predicated on a deep understanding of its use as well as precise understanding of its occurrence in adult-adult interactions versus adult-child interactions.

We suggest potential interprofessional research directions to advance our understanding of this understudied phenomenon which have the potential to inform our understanding of CDS in general and contribute to the theoretical debate on the nature and role of CDS. To this effect, three aspects of Gender-shift use in child-adult interactions in Arabic need to be addressed: 1) specific linguistic structures eminent to Gender-shift, i.e., an investigation into the types of linguistic structures which are perceived to be acceptable to be Gender-shifted and the ones that are used across the lifespan; 2) cross-linguistic examinations of Gender-shift, with the view of exploring whether Gender-shift is used cross linguistically in child-adult interactions and the impact this has on complexity, especially in rich morphological systems; and 3) the use of Gender-shift in interactions with children with language delay/impairment, or emotionally unresponsive environments with the view to establish appropriate educational and clinical practices in relation to the use of Gender-shift with this population.

Limitations

These results are preliminary and should be interpreted in light of the fact the feminine complexity hypothesis is based mainly on frequency data. Future research should focus on direct observations to examine the complexity assumption in more detail. Such expansion needs to consider the different facets of complexity relevant to concatenative languages compared to non-concatenative languages. Given that European languages differ from Semitic languages in this regard, complexity in Arabic may incorporate various patterns, affixations, and cliticizations not found in European languages. This necessitates a more nuanced analysis of the forms that receive gender-shift beyond the syllabic structure, typically used to index complexity in CDS use in concatenative languages.

Although the results revealed interesting and original findings, it is important to highlight the limitation of the selected methodology, relying on parental reports. Analysis of direct observation of Gender-shift was not possible since the phenomenon was not present in parent-child interaction samples collected in Arabic, potentially due to the presence of an experimenter during recorded interactions (Tarabeh, 2013), the lack of a Gender-shift corpus, and the specific contexts in which this phenomenon occurs, making it difficult to capture in most short, structured parent-child recorded interactions.

In a prominent study by Haggan (2002) examining the validity of self-reports of use of CDS by Kuwaiti adult caregivers, adults who reported not to use CDS were later observed to do so. Analysis of their interactions showed use of motherese in spite of their different reporting, highlighting the limitations of studying CDS using self-reports. In addition, the study participants were speech therapists which was a way to address the potential reliability limitation of self-reports since they would be more informed participants to decrease this possibility of over- or under-reporting. Such participant selection limits generalizability. Our findings may therefore not accurately reflect the broader population's experiences and perspectives.

Future studies should aim to broaden the scope by including parents from diverse backgrounds, not limited to those specialized in the field of inquiry. Additionally, implementing more direct and objective measurement methods, such as observational data, note-taking, or diaries, would enhance the reliability and specificity of our understanding of gender-shift in Arabic CDS. We hope this work will catalyze further studies

addressing this query and assist in identifying methodological designs for direct observations.

We posit that capturing instances of gender-shift in child-directed speech (CSD) necessitates extensive natural recordings of child input over a prolonged duration, such as an entire week or month. Advances in technology, like the utilization of Language ENvironment Analysis System (LENA) recording devices, make such comprehensive data collection feasible. However, it is important to note that these methodologies have distinct limitations, particularly in cultural and linguistic contexts. For instance, when applied to Arabic-speaking families, these tools exhibit specific challenges and constraints, as highlighted in recent research (e.g., Khamis-Dakwar et al., 2023).

Furthermore, it is crucial to recognize the inherent methodological constraints of our approach, especially regarding the studied variables. Assessments of Gender-shift, child gender, and parenting style are based on parent-reported tools, such as the PSDQ questionnaire. Marchman et al. (2017) note that parent reports are extensively used in parenting research and typically yield results comparable to those obtained from child-report methods. However, their reliance on nominal or ordinal measurements narrows the scope of statistical analysis, thereby limiting a thorough investigation of the interplay between parenting style and child gender in the context of gender-shift. Additionally, the frequent observation of authoritative parenting in studies, including ours, leads to data that deviate from a normal distribution, posing challenges for parametric statistical analysis. Some researchers, diverging from conventional norms, treat these data as normally distributed, based on the central limit theorem, within large samples with non-normal distributions (e.g., Davis et al., 2021).

There is also a need to expand the examination of contexts of Gender-shift use in child-caregiver interactions. Future research should delve into the specific linguistic structures of Gender-shift occurrences, particularly analyzing the changes in complexity at both phonological and morphosyntactic levels. This exploration is crucial because the complexity associated with the gender-shifted forms is not consistently evident. For example, when comparing masculine and feminine forms, such as /ʔu:m/ (stand up - masculine) and /ʔu:me/ (stand up - feminine), the complexity is not always increased in the feminine form. Moreover, studies should control for form-function designation and rationality effects; factors that were outlined to account for the different complexity levels related to gender agreement in Arabic (e.g., Alkuhlani & Habash, 2011), which can be conducted using a judgment task of CDS versus adult speech used in other types of studies. Understanding these nuances from a child language development perspective requires a careful analysis of the structure of syllables and morphological patterns. Further studies should focus on identifying specific subgroups and patterns within the varied instances of Gender-shift. This will allow a deeper understanding of how these shifts influence language perception and processing in real-world interactions. By addressing these aspects, we can gain a more comprehensive insight into the intricate dynamics of Gender-shift and its impact on language acquisition and development.

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Appendix 1

Normality Tests for Parenting Styles' Dimensions Using Shapiro-Wilk

Parameters	Shapiro-Wilk		Significance
	df	statistic	
Autonomy granting	180	.632	***
Regulation	180	.734	***
Warmth/support	180	.547	***
Verbal Hostility	180	.947	***
Physical Coercion	180	.561	***
Indulgence	180	.915	***
Non reasoning punitiveness	180	.868	***

*** $P < .001$

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