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Correlates of School-Home Communication from Caregivers of Children with Autism --Manuscript Draft--

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Abstract

School-home communication may be especially critical for families of children with autism given their tenuous partnerships with school professionals. In this study, we explored the child, caregiver, and family-professional partnership correlates of school-home communication. Data were collected from 179 caregivers of children with autism (age 3-21) via a national survey. Participants overwhelmingly reported having less than monthly communication with educators (i.e., general and special education teachers) despite wanting at least weekly communication. A preference for email communication negatively correlated with participants who were Black and/or from lower-income households but this should be met with caution due to limited sample diversity. These findings indicate that it is necessary to attain a nuanced understanding of school-home communication and identify other potential correlates.

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School-home communication has long been touted as a foundational aspect of school-collaboration and educational involvement. In Epstein's (2010) seminal studies, six types of involvement were identified: parenting, communicating, volunteering, learning at home, decision making, and collaborating with community. However, Epstein's framework of involvement was not developed specifically for children with disabilities. Unlike their peers without disabilities, children with disabilities may have unique family involvement methods per the Individuals with Disabilities Education Act (IDEA, 2004). Reflecting children with disabilities and the recent shift to focus on family-professional partnership (versus family involvement), Haines and colleagues (2017) developed the Sunshine Model framework which details seven principles of family-professional partnerships: communication, respect, professional competence, commitment, equality, advocacy, and trust. Notably, the only similar component between the two frameworks is communication. This article focuses on the principle of communication.

Defining School-Home Communication

School-home communication, or any verbal or written dialogue between caregivers and educators that conveys information about a child, is vital to the success of family-professional partnerships. When school-home communication occurs, caregivers become more informed of their children's learning activities, positive qualities, progress, and ways they can further their children's education at home (Epstein, 2010). Facilitating meaningful school-home communication not only enhances caregiver involvement by keeping families informed but also invites caregivers to participate in an open and collaborative school culture (Sheridan & Wheeler, 2017). Conversely, the absence of communication may cause misunderstandings and even conflicts between educators and caregivers (Mereoiu et al., 2016). Aside from allowing

caregivers and educators to better understand each other's perspective on the child's learning, school-home communication serves as a low-cost method of stimulating academic engagement (Kraft & Dougherty, 2013) and has been suggested to improve child behavior by strengthening the match between home and school expectations (Sheridan et al., 2022). The benefits of increased educational involvement and school-home alignment would allow for a more holistic understanding by including multiple perspectives of the child's learning, and subsequently improving the effectiveness of interventions (Azad et al., 2021). However, school-home communication can also be exceedingly nuanced and multi-faceted when thoroughly investigated. Therefore, five dimensions of communication were examined in the present study: *content* (the general topic of information exchanged through communication), *frequency* (the number of exchanges over a time interval), *mode* (the method by which the communication was made), *initiation* (the individual who initiates the exchange), and *tone* (the mood or attitude conveyed in the exchange).

School-Home Communication for Families of Children with Autism

For caregivers of children with autism, perceptions of school-home communication may provide even more valuable information to improve both school and home outcomes. In a systematic literature review of 25 studies about school-home communication for families of children with autism, caregivers reported insufficient and often negative reports (e.g., challenging behaviors) from the school despite wanting open, honest, and frequent communication (Authors, submitted). When families only hear from schools regarding negative (versus positive) events, families are less inclined to initiate or respond to communication (Brooks et al., 2023). Moreover, given that children with autism (versus other types of disabilities) are more likely to receive services across school and home settings, regular

communication in support of coordination and improve alignment across settings becomes critical (Ruble et al., 2019). By identifying the child (e.g., academic, behavior, gender), caregiver (e.g., age, ethnicity, income), and family-professional partnership (e.g., child-school relationship, family-school relationship) correlates of school-home communication, we may be able to determine the variables that can be targeted for intervention. Thus, the purpose of this study was to explore school-home communication by caregivers of children with autism and to identify the child, caregiver, and family-professional partnership correlates of school-home communication.

Nature of School-Home Communication

At the most basic level, there is a need to characterize the school-home communication experience of caregivers of children with autism. Despite the importance of school-home communication, studies that have examined specific dimensions (i.e., content, frequency, mode, initiation, and tone) among families of children with autism have been limited. For example, the primary focus of research on communication content between caregivers and educators has been on the challenging behaviors of the child with autism (Azad & Mandell, 2016). In addition, while some researchers have found that caregivers of children with autism desire at least weekly school communication (e.g., Azad et al., 2018b; Tucker & Schwarts, 2013), few have collected data about the actual school-home communication frequency and its modes. Furthermore, despite numerous confirmations of caregivers' desire for more positive (Azad et al., 2018b) and bidirectional (Gwernan-Jones et al., 2015) communications, the actual prevalence of the tone (positive versus negative) and initiation (caregiver-initiated versus educator-initiated) of school-home communication requires deeper investigation. Examining all these dimensions will allow us to assess how specific aspects of communication could influence the family-professional partnerships of caregivers of children with autism.

Preference of School-Home Communication

It is also necessary to examine school-home communication preferences of caregivers of children with autism to inform interventions that aim to improve communication. Put simply, what do caregivers want in terms of communication (e.g., How often do they want communication with the school?; Who do parents want to initiate communication?).

Unfortunately, according to caregivers of children with autism, there is a discrepancy between actual and desired school communication (Rispoli et al., 2019). While there is some consensus among caregivers about ways to improve school-home communication (LaBarbera, 2017), research specifically regarding communication preferences remains sparse. Relatedly, it is important to discern whether there are significant differences between the actual and desired dimensions of school-home communication.

Correlates of School-Home Communication

In addition, it is crucial to identify correlates of school-home communication. For example, the needs of children with autism may vary due to their gender (Dean et al., 2017), academic performance (Avnet et al., 2019), adaptive functioning (Aishworiya et al., 2021), and maladaptive behaviors (Goldman et al., 2019). Accordingly, the dimensions of school-home communication may vary across families. In terms of family characteristics, caregivers of children with autism (versus other types of disabilities) are more likely to have poor family-professional partnerships (Casagrande & Ingersoll, 2017), which may lead to increased conflict with the schools (Burke & Goldman, 2015). A lack of cultural responsiveness from schools may also impact caregiver engagement with school-home communication (Rios et al., 2020). Further, socioeconomic factors may impact communication as caregivers of children with autism with

higher levels of education (Garbacz et al., 2018) and/or income (Santiago et al., 2022) often demonstrate greater educational involvement, including school-home communication.

Due to the increasing prevalence of autism in the United States and the importance of communication between educators and caregivers (Interagency Autism Coordinating Committee, 2020), it is critical to understand the nuances of school-home communication from families of children with autism. For this preliminary study, the following research questions were addressed according to caregivers of children with autism: (1) What were the actual experiences for each dimension (i.e., content, frequency, mode, initiation, and tone) of school-home communication?; (2) What were the preferred dimensions (i.e., content, frequency, mode, initiation, and tone) of school-home communication?; (3) What were the differences between actual and preferred dimensions of school-home communication; and (4) What were the child, caregiver, and family-professional partnership correlates of school-home communication? With respect to actual communication experiences, based on a systematic literature review of school-home communication for caregivers of children with autism (Authors, submitted), we hypothesized that caregivers would prioritize communication about child behavior as the most important content area and mostly engage in daily or weekly communication with educators. We also hypothesized that communication would more likely be conducted over the phone (Houser et al., 2015), perceived as negative (Azad et al., 2018b), and initiated by caregivers (Azad et al., 2018a). With respect to school-home communication preference, we hypothesized that caregivers would want more communication relating to the academic content and progress of their child (Azad et al., 2018b) as well as frequent and positive communication (LaBarbera, 2017). We also hypothesized that caregivers would prefer in-person communication (Tucker & Schwarts, 2013) that is initiated by the school (Azad et al., 2018a).

Regarding the correlates of school-home communication, we had several hypotheses. Based on the extant literature, we hypothesized that communication frequency would be positively correlated with caregivers who were White (versus racial minority; Rios et al., 2020), from higher-income households (Santiago et al., 2022), and had stronger family-professional partnerships (Tucker & Schwartz, 2013) and/or their children with autism were younger (Benson, 2015), male (Dean et al., 2017), with lower academic performance (Avnet et al., 2019), greater maladaptive behaviors (Goldman et al., 2019), and less functional abilities (Aishworiya et al., 2021). Based on a study of barriers to caregiver involvement (Williams & Sanchez, 2013), we hypothesized that digital communication modes would positively correlate with household income and negatively correlate with age. With respect to communication initiation, we expected an inverse relation between maladaptive behavior and caregiver initiation because educators typically contact families in response to behaviors (Azad et al., 2018a). Regarding tone of communication, we expected an inverse relation between maladaptive behavior and positive tone because caregivers have reported perceptions of negativity when educators communicated with them about behavior challenges (Azad et al., 2018b).

Method

Participants

Participants included 179 caregivers of children with autism. The inclusionary criteria were to have a child who was: (a) between the ages of 3-21, (b) enrolled in a public school, and (c) reported to have autism by the caregiver. This criteria adhere to Part B of the Individuals with Disabilities Education Act (IDEA, 2004) which highlights the involvement of caregivers of children with disabilities within the specified age range who are attending public schools. Participants averaged 44.43 ($SD = 8.12$) years of age and ranged in age from 25 to 76. The

majority of the participants was female (96.6%, $n = 173$). The sample was primarily White (74.3%, $n = 133$). On average, participants were highly educated with 85.5% ($n = 153$) having at least a college degree. Regarding marital status, 74.9% ($n = 134$) were married or in a domestic partnership. In relation to annual household income, approximately 40% ($n = 72$) of the participants reported earning over \$100,000. Participants represented 35 states excluding Alabama, Alaska, Delaware, Hawaii, Idaho, Kansas, Mississippi, New Hampshire, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, West Virginia, and Wyoming. Regarding the children of the participants, 74.9% ($n = 134$) were male. Their ages ranged from 3-20 ($M = 10.69$, $SD = 4.23$). Furthermore, of the types of co-occurring conditions reported, speech/language impairment (47.5%, $n = 85$) was the most common. See Table 1 for details.

Recruitment

To attain a diverse and national sample, participants were recruited in multiple ways. E-mails and recruitment flyers were disseminated to local, state, and national disability agencies throughout the United States. Agencies included chapters of The Arc, the University Centers for Excellence in Developmental Disabilities, chapters of the Autism Society of America, the Autism/Developmental Disability State Councils, the Parent Training and Information Centers, and Community Parent Resource Centers. Several personalized emails were also sent to a subset of the above organizations that specialize in providing services to underserved families of children with disabilities in an effort to further recruit a diverse sample. Additionally, social media and listservs were used to distribute information about the study.

Procedures

The School-Home Communication Survey was developed with the advice of five individuals comprised of disability researchers, caregivers of children with autism, and

community advocates (i.e., staff in organizations that provide services to families of children with disabilities). Before launching the survey, we piloted the survey with three caregivers of children with autism. Based on the feedback received from the pilot, the survey was revised to correct grammatical errors and to improve clarity via minor changes to wording. For example, to reflect the education of all potential caregivers, the response options were amended for the question, “*What is your highest level of education?*”. Upon receiving University Institutional Review Board approval, the survey was put onto REDCap (i.e., a secure survey platform). The survey was available from March to July 2022. All of the surveys were completed electronically. On average, the survey took 20–25 minutes to complete. Participants received resources about facilitating school-home communication upon completing the survey.

Measures

Dependent Variable: Actual School-Home Communication

The Parental Academic Support Scales (PASS; Thompson & Mazer, 2012) is a 16-item measure adapted to assess five dimensions (i.e., frequency, content, mode, initiation, and tone) of school-home communication across five domains (i.e., academics, classroom behavior, preparation, peer interaction, and health). Specifically, participants were asked the prompt: “*This past month, I communicated with my child’s primary teacher about...*” followed by items such as, “*My child’s grades in the class*”. For frequency, participants indicated how often each item occurred over the last month, using a 5-point Likert-type scale (1 = “*not at all*”, 2 = “*once a month*”, 3 = “*once a week*”, 4 = “*several times a week*”, 5 = “*about every day*”). For content, participants reported how important each item was for their child’s learning on a 3-point Likert-type scale (i.e., “*not important*”, “*moderately important*”, and “*very important*”). For mode, participants marked the most utilized method of communication (i.e., “*letter*”, “*e-mail*”, “*text*”,

“*phone*”, “*video-call*”, and “*in-person*”) for each item. For initiation, participants indicated who initiated the communication (0 = “*educator*”; 1 = “*caregiver*”) for each item. For tone, participants reported the attitude (0 = “*negative*”; 1 = “*positive*”) of the educator when communicating, for each item. Although the PASS was not developed specifically for families of children with autism, it has been used successfully with this population (e.g., Hobday, 2015) and previous studies show the PASS to have high internal consistency (e.g., $\alpha = .93$; Ökten, 2016). In this study, Cronbach’s alpha was .94.

Dependent Variable: Preferred School-Home Communication

To measure the preferences of school-home communication, a 25-item scale based on the PASS was developed by the authors. Participants were asked to indicate the content, frequency, mode, initiation, and tone which would enable the most effective communication with school personnel across five domains (i.e., academics, classroom behavior, preparation, peer interaction, and health). Participants responded to the items for each dimension of school-home communication using the same Likert-type options as presented for their respective dimensions of school-home communication in the PASS. Despite a lower Cronbach’s alpha ($\alpha = .79$) compared to the PASS, the measure still shows sufficient internal consistency.

Independent Variable: Academic Performance

The Academic Performance Rating Scale (APRS; DuPaul & Rapport, 1991) is a 19-item scale developed for educators to measure a child’s academic abilities and achievements on a 5-point scale. Sample items included whether the respondent had ever: “*How consistent has the quality of your child’s academic work been over the past week?*”. Items were summed into a cumulative score ranging from 19 to 95, with higher scores indicating greater classroom academic performance. For this study, the measure was adapted with changes to wording that

would be appropriate for caregivers. Previous studies have shown that the APRS is valid for children with autism (e.g., Sam et al., 2021). For this study, Cronbach's alpha was acceptable at .78 and this lower value may be due to changes associated with the measure adaptation.

Independent Variable: Adaptive Behavior

The Activities of Daily Living Index (ADL; Seltzer & Li, 1996) is a 15-item scale to measure the functional abilities of individuals with disabilities. Participants were asked, "*Can your child with a disability perform the following activities with total help, some help, or without help?*" Activities included house- work, laundry, and prepare meals. For each item, there were three potential responses: (1) *without help*; (2) *with some help*; and (3) *with total help*. Variables were summed into a single, cumulative score ranging from 15 to 45, with higher scores indicating less functional independence. In a previous study of caregivers of children with autism, the ADL had high reliability (e.g., $\alpha = .85$; Burke & Goldman, 2015). In this study, the ADL scale also had high reliability ($\alpha = .89$).

Independent Variable: Maladaptive Behavior

The Scales of Independent Behavior-Revised (SIB-R; Bruininks et al., 1996), was used to measure eight types of maladaptive behaviors: self-injurious behavior; disruptive behavior; unusual or repetitive habits; socially offensive behavior; withdrawal or inattentive behavior; and uncooperative behavior. Participants rated the frequency and severity of each behavior. The frequency was gauged by a six-point Likert scale: (1) *never*; (2) *less than once a month*; (3) *1-3 times per month*; (4) *1-6 times per week*; (5) *1-10 times per day*; and (6) *1 or more times per hour*. The severity was measured by a six-point Likert scale: (1) *does not apply*; (2) *not severe*; (3) *slightly severe*; (4) *moderately severe*; (5) *very severe*; and (6) *extremely severe*. Previous

studies indicated this scale has strong reliability with caregivers of children with autism (e.g., $\alpha = .83$; Magaña et al., 2020). In this study, Cronbach's alpha was .89.

Independent Variable: Child Gender

Possible responses included: (1) *male*, (2) *female*, (3) *transgender*, and (4) *other*.

Independent Variable: Age at Diagnosis

Respondents reported the child's age in years during their earliest diagnosis of autism.

Independent Variable: Caregiver Age

For "What is your age?", the caregiver reported their age in years.

Independent Variable: Ethnicity

Responses included: (1) *Black or African American*; (2) *Latino, Latinx, or Hispanic*; (3) *Asian or Pacific Islander*; (4) *Native American*; (5) *White*; and (6) *Other*.

Independent Variable: Household Income

Possible responses included: (1) *less than \$15,000*; (2) *\$15,000-\$29,999*; (3) *\$30,000-\$49,999*; (4) *\$50,000-\$69,999*; (5) *\$70,000-\$99,999*; and (6) *more than \$100,000*.

Independent Variable: Family-Professional Partnership

The Family-Professional Partnership Scale (FPPS; Summers et al., 2005) is an 18-item scale comprised of two subscales (i.e., Child-Focused Relationship Subscale and Family-Focused Relationship Subscale) used to measure the degree of partnership between a family and the school. In the Child-Focused Relationship Subscale, a sample item was "*To what extent does the school let you know about the good things your child does?*" In the Family-Focused Relationship Subscale, a sample item was "*To what extent is the school friendly?*" Participants answered the questions on a 5-point Likert scale ranging from: (1) *very dissatisfied* to (5) *very satisfied*.

Previous studies have shown that the FPPS is valid among families of children with autism (e.g., $\alpha = .94$; Burke et al., 2020). In this study, the FPPS had high reliability ($\alpha = .98$).

Data Analysis

We used descriptive statistics to examine the actual and preferred school-home communication. Specifically, items were averaged to provide a mean score for the five dimensions and additionally presented as the percentage of participants' responses (for mode of delivery) for the PASS overall and across its five domains. To compare the difference in actual and preferred school-home communication, we conducted paired samples t-tests between the overall mean scores as well as for the five domains for each dimension. To understand the relations of the child, caregiver, and family-professional partnership in school-home communication, we conducted linear regressions with multiple imputations. Prior to conducting the regressions, two methods were used to identify multicollinearity between the independent variables: correlations above .65 and Variance Inflation Factor (VIF) above 2.5. None of the correlations were found to be high and the VIFs were below 2.5; thus, multicollinearity was not a concern. Given the nested structure of the PASS, there was only sufficient variability and number of responses to conduct regression on the frequency dimension of actual school-home communication. For the regression with overall actual frequency, the dependent variable was the average of the 16 items reflecting frequency. Each item was recoded to be dichotomous (i.e., "*not at all*" was coded as a 0, and all other responses were coded as a 1). Response options were dichotomized because 70.7% of the responses were "*not at all*". Regarding preference of school-home communication, regressions were conducted for three of the five dimensions due to the lack of variance in responses for preferred content and tone of communication. For the regression about overall preferred frequency, the dependent variable was the average of the five

items encompassing the frequency preference. For the regression about overall preferred mode, the dependent variable was the average of the five items encompassing the mode preference. Each individual item was recoded to be dichotomous (i.e., all other response options were coded as a 0, and “*email*” was coded as a 1). Response options were dichotomized because 51.2% of the responses were “*email*”. For the regression about overall preferred initiator, the dependent variable was the average of the five items encompassing the initiator preference.

Results

Actual School-Home Communication

The overall frequency score averaged 1.46 ($SD = .41$) which corresponds to almost no communication (1 = “*not at all*”, 2 = “*once a month*”, 3 = “*once a week*”, 4 = “*several times a week*”, 5 = “*about every day*”). Specifically, approximately 30% of the scores were “1” while over 90% of scores were below a “2”. Among the domains, Classroom Behavior had the highest score for frequency of communication ($\bar{x} = 1.59$, $SD = .71$). For the overall content score, participants averaged 2.71 ($SD = .45$) which indicates that participants, on average, reported that communication was “*somewhat important*”, with the highest domain score for Peer Interaction ($\bar{x} = 2.83$, $SD = .44$). For the overall mode of delivery, the majority (59.4%) of the responses were “*email*”, with “*text*” the second (19.1%) most reported utilized. When asked about the initiator of communication, participants averaged .65 ($SD = .36$, 0 = *educator*, 1 = *caregiver*), with the highest domain score for Health ($\bar{x} = .71$, $SD = .45$). For the domains, participants reported the lowest scores for Classroom Behavior ($\bar{x} = .47$, $SD = .48$) and Peer Interaction ($\bar{x} = .46$, $SD = .48$), meaning that educators were more likely to initiate communication for these two areas. For the overall communication tone, the average was .80 ($SD = .31$) wherein 0 = *negative* and 1 =

positive. For this dimension, Health was reported with the highest domain score ($\bar{x} = .86$, $SD = .34$) while Peer Interactions had the lowest domain score ($\bar{x} = .61$, $SD = .46$). See Tables 2 and 3.

Preferred School-Home Communication

The overall preferred frequency score of the participants averaged 2.78 ($SD = .95$) which corresponds to communication between monthly and weekly frequency (2 = *once a month*, 3 = *once a week*). Further, over 50% of the scores were “3” or above, indicating that the majority of participants desire weekly communication or more. Among the domains, Classroom Behavior had the highest score ($\bar{x} = 3.18$, $SD = 1.33$). For the overall preferred content score, participants averaged 2.81 ($SD = .26$) which indicates that effective communication, in general, would be “*very important*” to their child’s learning, and with Peer Interactions showing the highest domain score ($\bar{x} = 2.86$, $SD = .35$). In terms of overall preferred mode, the most desired method for communication was “email” (51.2%), while “phone-call” was the second highest (16.8%). When asked about the preferred initiator of the communication, participants’ scores averaged .31 ($SD = .30$, 0 = *educator*, 1 = *caregiver*), with the highest score for Health ($\bar{x} = .71$, $SD = .46$). For the overall preferred communication tone, participants scored .95 ($SD = .16$, 0 = *negative* and 1 = *positive*). Both Academic and Preparation tied for the highest score ($\bar{x} = .97$, $SD = .16$) whereas Classroom Behavior was found with the lowest score ($\bar{x} = .91$, $SD = .29$). See Tables 2 and 3.

Comparing Actual and Preferred School-Home Communication

For overall communication frequency, participants reported wanting significantly more communication than what they received, $t(165) = -19.10$, $p < .001$. For overall communication content, participants indicated that obtaining preferred communication content is more important than what they received, $t(144) = -2.37$, $p < .05$. For overall communication mode, participants reported receiving more communication through email than they preferred, $t(147) = -3.31$, $p <$

.001. For overall communication initiation, participants reported initiating communication significantly more than they preferred to initiate, $t(144) = 9.46, p < .001$. For overall communication tone, participants reported that the tone they received was significantly more negative than the tone of communication they wanted, $t(144) = -6.04, p < .001$. See Table 2.

Correlates of School-Home Communication

Correlates of Overall Actual Frequency

The regression model explained 14.44% of the variance ($F = 2.58, p < .001$). The significant variables were: household income, child gender, academic performance, and maladaptive behavior. Participants with household incomes between \$50,000-69,999 and between \$70,000-99,999 (versus incomes over \$100,000) reported more frequent overall communication ($p < 0.001$ and $p < 0.05$, respectively). Participants with a female (versus male) child with autism correlated with less frequent overall communication ($p < 0.05$). There was a significant, positive correlation between perceived academic performance and overall communication with the school ($p < 0.001$). Furthermore, there was a significant positive correlation between maladaptive behavior and communication ($p < 0.01$). See Table 4.

Correlates of Overall Preferred Frequency

The regression model explained 4.29% of the variance ($F = 1.47, p = .11$). Although the model was not significant, results indicate significant correlates for child gender and maladaptive behavior. Specifically, respondents of a female (versus male) child with autism correlated with lower levels of desired communication ($p < 0.05$). Caregivers whose children exhibited more maladaptive behaviors reported desiring higher levels of communication ($p < 0.05$). See Table 4.

Correlates of Overall Preferred Mode

The regression model explained 11.22% of the variance ($F = 2.18, p < .01$). The significant correlates were ethnicity and household income. Participants who identified as Black/African Americans (versus White) were significantly less likely to report “email” as their desired mode of communication ($p < 0.01$). Respondents with household incomes between \$15,000-29,999 or \$30,000-49,999 (versus incomes over \$100,000) were significantly less likely to report “email” as their desired mode of communication (p 's < 0.05). See Table 4.

Correlates of Overall Preferred Initiator

The regression model explained 11.38% of the variance ($F = 2.20, p < .01$). Significant correlates included household income, child gender, and maladaptive behavior. Respondents with household incomes less than \$15,000 and between \$70,000-99,999 (versus incomes over \$100,000) indicated that they preferred to be the initiator for communication (p 's < 0.05). Respondents with a female (versus male) child with autism were also more likely to choose themselves as the initiator for communication ($p < 0.05$). For caregivers of children with more maladaptive behaviors, they preferred for the educator to initiate ($p < 0.01$). See Table 4.

Discussion

The purpose of this study was to understand the perspectives of caregivers of children with autism on school-home communication. There were four main findings. First, there was an absence of actual school-home communication for caregivers of children with autism. Not only did the majority of participants (>90%) receive less than monthly communication with educators in any domain area, but many participants (~30%) had no communication with the school in the past month. Further, the actual communication frequency was significantly lower when compared with the participants' preferred communication frequency. These findings contrast

with previous studies (e.g., Houser et al., 2015; Tucker & Schwartz, 2013) which have indicated higher actual communication frequency by caregivers of children with autism.

Certain child characteristics were significantly related to the actual frequency of school-home communication. Participants were more likely to report frequent communication if their child with autism was male, had greater academic performance, and/or had more maladaptive behaviors. Regarding gender, it may be that female (versus male) children with autism are better able to camouflage their social challenges in school, making them less likely to receive notice from educators (Dean et al., 2017). Participants who indicated their children had greater academic performance may have more communication exchanges and, subsequently, teacher guidance which leads to greater personal efficacy in helping their children learn. This is evident in a meta-analysis assessing the effects of family-school partnership interventions whereby school-home communication benefitted children's academic competencies (Smith et al., 2020). When a child with autism has greater maladaptive behaviors, they may require more intense support related to daily care and service coordination (Goldman et al., 2019). Hence, caregivers of children with greater maladaptive behaviors may receive more frequent communication because educators may be inclined to initiate communication about behavior.

Second, the results of our study revealed several correlates of the mode of school-home communication. Whereas most prior research did not address the modality of school-home communication (Author, submitted), our findings indicate that electronic forms of communication (i.e., email and text) were the most common for all content areas. Further, two of the top three most preferred modes of communication by participants were also electronic communication. While this finding may reflect the changing nature of communication preferences due to the proliferation of smartphones, there are also advantages of digital

communication such as translation capabilities and logistic convenience (Thompson et al., 2015). However, there were lower percentages for selecting electronic communications for the content areas of classroom behavior, peer interactions, and health. It may be that caregivers prefer oral communication for complex issues to reduce the likelihood of misinterpreting a message due to a lack of non-verbal cues (Bordalba & Bochaca, 2019).

Additionally, participants' desired mode of communication is linked to two caregiver characteristics: ethnicity and household income. A possible explanation for the former finding may lie in cultural differences. Black families have been reported to desire proactive dialogues when engaging in communications with schools which might render the text-based nature of email to be less appealing (Love et al., 2021). While prior studies (e.g., Rios et al., 2020) have found that socio-cultural differences can affect parent involvement and school partnerships for families of children with autism, this study further suggests that ethnicity is particularly pertinent in determining the effective mode of communication. As for the latter finding, email may be an additional burden and unrealistic for families from low-income households with higher rates of mobility, lack of computer/Internet access, and/or insufficient computing skills (Williams & Sanchez, 2013). However, findings associated with race/ethnicity and socio-economic status must be carefully considered and interpreted with caution especially since the diversity of our study's sample is limited and these findings might further compound existing disparities for racial ethnic minority and/or low-income, children with autism (Azad et al., 2022; Stahmer et al., 2019). Thus, it may be crucial for schools to account for demographic factors by ensuring the availability of varying modes of communication when developing school-home engagement practices.

Third, the caregiver was the most likely to initiate all actual school-home communication except for communication about classroom behavior and peer interaction. In contrast, when asked about preferred communication, the majority of participants indicated that they wish for educators to be initiators of communication with the exception of communication relating to health. This discrepancy is consistent with extant research (e.g., Azad et al., 2018b; Houser et al., 2015) wherein caregivers have stated that they were usually only contacted by the school when confronted with behavior challenges. Likewise, some caregivers might feel more inclined to initiate communication in areas (i.e., health) they believe are integral to their own primary responsibility for their child.

Fourth, although the majority of participants considered communication in all content areas to be important to their child's learning, communication relating to peer interactions above all was especially critical. This is consistent with findings from previous studies indicating social interaction as the primary concern for most caregivers (Azad & Mandell, 2016). The importance of the peer interaction domain could be because many children with autism struggle with social interactions. Moreover, given the studies linking distress of caregivers of children with autism and social impairment (Firth & Dryer, 2013), it is possible that these concerns would be considered important during school-home communication. Despite participants' indications of the importance of communication relating to peer interactions, participants reported that these communications had more negative tones. This is concerning given that positive communication is a crucial aspect of alignment between home and school expectations for a child's learning (Sheridan et al., 2022). These findings may explain why some studies (e.g., Azad et al., 2021) have consistently indicated reports of negativity faced by caregivers of children with autism during their school-home communications.

Limitations

The current study has several limitations. First, despite our efforts to target a more diverse and representative sample during recruitment, this sample was primarily White, female, well-educated, and middle-class. While the findings of this study might not accurately reflect the experiences of underrepresented families of children with autism, it provides critical insight into the general state of school-home communication across a wide geographic range within the US. Second, the study relied on a cross-sectional design which cannot address potential cohort effects. Without multiple time points, causal inferences cannot be made. Third, we collected data via a web-based survey. Participants from low-resourced communities and homes may especially have more difficulty accessing the internet (Williams & Sanchez, 2013). Fourth, the children's autism diagnoses were only confirmed via caregiver reports without any additional follow-up questions. Fifth, although school-home communication requires multiple stakeholders, this study only focused on caregivers' perspectives and the characteristics of the educators were not collected. Therefore, the demographic match between caregivers and educators (e.g., racial background, income, etc.) that could potentially moderate the findings was not examined in our analyses (Azad et al., 2018a). Sixth, the strictly quantitative nature of the survey and the usage of the PASS for this study restricted our data collection and analyses to the specific dimensions and domains of communication which may leave out other important factors and evidence of greater depth afforded by qualitative methods (Kozleski, 2017).

Directions for Future Research

First, researchers need to identify other potential correlates of school-home communication. Since the significant regression models only explained 10-15% of the variance, other correlates need to be identified. Further, this may be even more pertinent for the overall

preferred frequency measure where the results were not statistically significant because other parent characteristics that were not examined instead contribute to school-home communication. For example, special education knowledge and service access have been shown to directly affect the advocacy of caregivers of children with autism (Burke et al., 2018). Since advocacy is a type of school-home communication, it may be that such factors also explain the variance in communication. It is also important to determine if the educators' school-home communication experiences with caregivers of children with autism will reflect similar findings. Prior studies have reported mixed findings, indicating both agreements and disagreements between educators and caregivers regarding their communication with one another (Azad et al., 2018b). Since bidirectionality is a critical aspect of school-home communication, failure to account for the perspectives of educators is problematic. Therefore, researchers should consider including caregiver-educator dyads of children with autism to allow for between-group comparisons in future studies and interventions about school-home communication.

Implications for Practice

Practitioners should be aware of their important roles in school-home communication. Our findings indicate caregivers' preference for educators to be the initiator of communication. Thus, communication relies heavily on educators. Given the crucial role of school-home communication as part of caregiver involvement in education especially for children with autism (Goldman & Burke, 2019), educational professionals have the responsibility to make targeted efforts to facilitate better communication practices with their families. Additionally, practitioners need to be aware of the communication modes of access for different families as well as their approach when informing caregivers of children with autism of news relating to behaviors and social interactions. For example, some lower-income families might have difficulty accessing or

responding to digital forms of communication so schools should account for these concerns to avoid alienating certain families (Williams & Sanchez, 2013). Altogether, practitioners may want to reflect on their current communication practices (e.g., keep track of communication initiation, determine if there is sufficient flexibility in contact methods and/or schedule available to caregivers) to better meet the preferences of families.

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Table 1*Participants Demographics*

Characteristic	% or <i>M</i> (<i>n</i> or <i>SD</i>)
Gender	
Caregiver (Female)	96.6% (173)
Child (Male)	73.3% (74)
Age	
Caregiver	44.4 (8.1)
Child	10.7 (4.2)
Child's Diagnosis	4.4 (3.0)
Marital Status	
Married	74.9% (134)
Race/Ethnicity	
White	74.3% (133)
Hispanic/Latino	12.8% (23)
Black/African American	10.6% (19)
Asian/Pacific Islander	1.1% (2)
Native American	0.6% (1)
Other	0.6% (1)
Educational Background	
Some Highschool	0.6% (1)
Highschool Graduate	14.0% (25)
Associate's Degree	16.2% (29)
Bachelor's Degree	38.5% (69)
Graduate Degree	30.7% (55)
Annual Household Income	
Less than \$15,000	6.1% (11)
Between \$15-29,999	7.3% (13)
Between \$30-49,999	11.7% (21)
Between \$50-69,999	16.8% (30)
Between \$70-99,999	17.9% (32)
More than \$100,000	40.2% (72)

Class Type	
General Education	48.6% (87)
Self-Contained	39.1% (70)
Other	11.3% (22)
Location	
Rural	18.4% (33)
Suburban	58.1% (104)
Urban	23.5% (42)
Co-occurring Conditions*	
Speech/Language Impairment	47.5% (85)
Developmental Delay	38.0% (68)
Emotional Behavior Disorder	33.5% (60)
Learning Disability	25.1% (45)
Other Health Condition	22.9% (41)
Intellectual Disability	21.2% (38)
Other (i.e., VI, HI, OI, TBI) **	10.1% (18)
Related Services*	
Speech-Language Pathology	70.9% (127)
Occupational Therapy	59.8% (107)
Behavioral Services	31.3% (56)
Social Work Services	26.8% (48)
Counseling Services	21.2% (38)
Psychological Services	17.9% (32)
Physical Therapy	11.2% (20)
Medical Services	11.2% (20)
School Health Services	8.4% (15)
Other Unlisted Services	8.9% (16)
Other (e.g., Audiology, Interpreting, O&M, RT) ***	8.9% (16)

* Percentages do not add up to 100% as participants could choose to check multiple responses

** VI = Visual Impairment, HI = Hearing Impairment, OI = Orthopedic Impairment, TBI = Traumatic Brain Injury

*** O&M = Orientation and Mobility, RT = Recreational Therapy

Table 2*Descriptive Statistics and Comparison of Actual and Preferred School-Home Communication*

Dimension	Overall (\bar{x})			Academic (\bar{x})			Behavior (\bar{x})			Preparation (\bar{x})			Interaction (\bar{x})			Health (\bar{x})		
	A	P	t	A	P	t	A	P	t	A	P	t	A	P	t	A	P	t
Frequency	1.46	2.78	-19.1 ***	1.47	2.66	-15.4 ***	1.59	3.18	-16.9 ***	1.37	2.60	-11.9 ***	1.37	2.92	-15.6 ***	1.41	2.55	-11.9 ***
Mode	2.66	2.94	-3.3 ***	2.43	2.44	-.1	2.79	3.56	-5.5 ***	2.97	2.46	3.2 **	2.81	3.21	-2.1 *	2.59	3.20	-3.6 ***
Content	2.71	2.81	-2.4 *	2.70	2.85	-3.6 ***	2.72	2.80	-.9	2.78	2.67	1.6	2.83	2.86	-.5	2.63	2.83	-2.5 *
Initiation	.65	.31	9.5 ***	.74	.24	9.2 ***	.47	.17	6.1 ***	.62	.21	7.4 ***	.46	.23	3.0 **	.70	.71	-1.0
Tone	.80	.95	-6.0 ***	.83	.97	-4.6 ***	.74	.91	-3.0 **	.81	.97	-3.6 ***	.61	.95	-5.6 ***	.88	.96	-3.1 **

Note: A = Actual; P = Preference.

Variable scale ranges: Frequency (1 = "not at all", 2 = "once a month", 3 = "once a week", 4 = "several times a week", 5 = "about every day"); Mode (1 = "letter", 2 = "e-mail", 3 = "text", 4 = "phone", 5 = "video-call", 6 = "in-person"); Content (1 = "not important", 2 = "moderately important", 3 = "very important"); Initiator (0 = "educator", 1 = "caregiver"); Tone (0 = "negative", 1 = "positive").

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Table 3*Percentages by Each Mode of School-Home Communication*

Mode	Overall (%)		Academic (%)		Behavior (%)		Preparation (%)		Interaction (%)		Health (%)	
	<i>A</i>	<i>P</i>	<i>A</i>	<i>P</i>	<i>A</i>	<i>P</i>	<i>A</i>	<i>P</i>	<i>A</i>	<i>P</i>	<i>A</i>	<i>P</i>
Letter	5.0	5.4	4.9	5.6	5.7	4.9	5.6	6.8	4.4	5.6	4.4	4.3
Email	59.4	51.2	65.4	70.4	54.5	32.1	51.1	69.1	51.1	40.1	60.2	44.4
Text	19.1	13.7	19.2	9.9	21.0	15.4	18.9	15.4	15.6	14.2	18.6	13.6
Phone	6.3	16.8	2.4	3.7	5.1	28.4	6.7	3.7	20.0	21.6	9.7	26.5
Video-call	1.7	3.6	2.2	4.3	1.1	4.3	4.4	0.6	0.0	6.2	0.0	2.5
In-person	8.6	9.3	5.9	6.2	12.5	14.8	13.3	4.3	8.9	12.3	7.1	8.6

Note: A = Actual; P = Preference.

Table 4*Results from Multiple Regression Analyses*

Independent Variable	OAF			OPF			OPM			OPI		
	<i>B</i>	<i>t</i>	<i>p</i>	<i>B</i>	<i>t</i>	<i>p</i>	<i>B</i>	<i>t</i>	<i>p</i>	<i>B</i>	<i>t</i>	<i>p</i>
Caregiver Age	-.030	-.383	.702	-.039	-.474	.636	.047	.593	.554	-.098	-1.230	.220
Ethnicity (Ref: White)												
Hispanic/Latino	-.167	-.729	.467	-.259	-1.096	.274	.251	1.078	.283	-.296	-1.272	.205
Black/African American	.019	.079	.938	-.477	-1.875	.063	-.674	-2.780	.006**	-.326	-1.344	.181
Asian/Pacific Islander	.160	.235	.814	.248	.341	.733	.560	.809	.420	-.116	-.167	.867
Native American	-.660	-.701	.484	.196	.197	.844	.057	.060	.953	-.830	-.866	.388
Other	-.062	-.063	.950	.005	.005	.996	1.082	1.086	.279	1.231	1.236	.218
Income (Ref: > \$100,000)												
Less than \$15,000	-.360	-1.123	.263	.182	.583	.561	-.615	-1.881	.062	-.818	-2.506	.013*
Between \$15-29,999	.398	1.295	.197	.182	.575	.566	-.821	-2.619	.009**	-.570	-1.819	.071
Between \$30-49,999	.167	.699	.486	.115	.465	.643	-.526	-2.165	.032*	-.008	-.035	.972
Between \$50-69,999	.808	3.530	<.001***	.089	.374	.709	.073	.312	.756	-.068	-.290	.772
Between \$70-99,999	.529	2.576	.011	-.050	-.232	.817	-.114	-.542	.588	-.587	-2.809	.006**
Age at Diagnosis	.025	.298	.766	-.125	-1.496	.137	.092	1.066	.288	-.047	-.545	.586
Child Gender (Ref: Male)	-.374	-2.156	.033*	-.361	-2.049	.042*	.200	1.139	.256	-.361	-2.057	.041*
Family Partnership	.071	.938	.350	-.064	-.824	.411	-.104	-1.345	.181	.149	1.924	.056
Academic Performance	.323	3.888	<.001***	.081	.927	.355	.116	1.369	.172	.146	1.719	.088
Adaptive Behavior	-.001	-.015	.988	-.114	-1.229	.221	.064	.684	.495	-.061	-.655	.513
Maladaptive Behavior	-.250	-2.939	.004**	-.195	-2.299	.023*	-.057	.662	.509	-.259	-2.992	.003**

Note: OAF = Overall Actual Frequency, OPF = Overall Preferred Frequency, OPM = Overall Preferred Mode, OPI = Overall Preferred Initiator.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.