

Estimating the Economic Costs of Communication Disorders: A Tool Development and Pilot Testing Study

Bernice Alecsa D. Austria, MSc, RSLP and Michael C. Valdez, MRS-SP

Department of Speech Pathology, College of Allied Medical Professions, University of the Philippines Manila

ABSTRACT

Background. Communication disorders impose a significant financial burden on families, particularly in low- and middle-income countries where services are largely financed through out-of-pocket payments. In the Philippines, limited tools exist to estimate both the direct and indirect costs associated with these conditions.

Objective. The objective of the study is to develop and pilot test a valid survey tool for estimating the economic costs of communication disorders.

Methods. This study employed a descriptive design using primary-sourced data. An initial draft of the questionnaire was developed based on existing literature and was subjected to expert-driven content validation. The expert-screened version was pilot tested at the UP CAMP Clinic for Therapy Services – Pediatrics using the internet-based survey platform, Qualtrics. The respondents were then invited to a 30-minute group debriefing interview session with the research team and other fellow respondents.

Results. The questionnaire was marked with acceptable levels of validity. A total of 15 parents participated in the pilot testing, 10 of whom consented to the online synchronous interview. The average survey completion time was 47 minutes and 29 seconds (SD = 0:13:53). All respondents frequently chose among the pre-coded choices, but instances of confusion were noted on items requiring short-form answers. This was linked to the use of complex Filipino words and the vague or limited set of sample answers. Hence, the survey underwent modifications in terms of question type, word choice, and given examples.

Conclusion. The CoDES questionnaire shows preliminary evidence of content validity and feasibility for capturing the economic burden of communication disorders from a household perspective. However, further refinement and additional psychometric evaluation are needed to reduce respondent burden and establish reliability prior to large-scale economic studies.

Keywords: communication disorders, Philippines, health expenditures, developing countries



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Corresponding author: Bernice Alecsa D. Austria, MSc, RSLP
Department of Speech Pathology
College of Allied Medical Professions
University of the Philippines Manila
Pedro Gil St., Ermita, Manila 1000, Philippines
Email: bdaustria@up.edu.ph
ORCID: <https://orcid.org/0009-0007-3425-1050>

INTRODUCTION

Communication disorder (CD) is an umbrella term for variations that affect the processes of speech, language, and hearing. It manifests as difficulties in comprehending and expressing information through verbal, nonverbal, or graphic means.^{1,2} It commonly exists alongside neurodevelopmental disabilities such as autism spectrum disorder, intellectual disability, and attention-deficit/hyperactivity disorder, thereby characterizing it as a persistent, lifelong disability.^{3,4} In low- to middle-income countries, at least 25% of children have a form of neurodevelopmental delay with communication impairment.⁵ Exact prevalence rates in the Philippines remain unknown.

The high burden of CD is evident not only in the mental, financial, and social state of individuals living with it, but they also strain countries economically.² Individuals with CD have lower employment rates, lower educational attainment, increased productivity losses, and lower labor force efficiency.⁶⁻¹⁰ The impact is magnified for individuals in lower socioeconomic strata and for those living in developing countries with suboptimal healthcare financing systems.¹¹ Families primarily depend on their out-of-pocket payments rather than government financing schemes to cover CD-related needs. Periodic developmental assessments, weekly speech-language therapy sessions, childcare, transportation, and other medical-related services substantially add to the direct costs of assessing and treating CD. In the Philippines, pediatric neurodevelopmental doctor consultations range from PhP 1,500 - 10,000, while one-hour speech-language therapy sessions in Metro Manila may cost around PhP 300 - 8,000.¹² This variability reflects differences in service setting (public vs private), provider expertise, geographic location (urban vs rural), and availability of services. However, the total cost of CD also encompasses indirect costs, which are often described by losses to the family and to society. Indirect costs include loss of leisure time, family income, and productivity opportunities.^{13,14} Furthermore, people with CD face a higher likelihood of experiencing unemployment, which then reflects in the gross domestic product and rate of health expenditures of a country.³

A number of health policies concerning children with disabilities have been enforced to build a more inclusive health service framework in the Philippines.¹⁵⁻¹⁷ The PhilHealth Z Benefits for Children with Developmental Disabilities is a key policy initiative aimed at improving healthcare financing and access to services for this population. This health insurance policy aims to mitigate catastrophic health expenditures, or expenditures that jeopardize a household's financial capacity to meet the substantial daily needs of a household.⁹ In this benefit package, children with developmental disabilities are entitled to PhP 3,626 to PhP 5,276 for initial assessment services. For ongoing care, PhP 5,000 covers ten therapy sessions (PhP 500 per session), shared across disciplines and renewable for up to nine additional sets (maximum of 90 sessions). Because the subsidy is limited to PhP 500 per session, families are inevitably faced with significant out-of-pocket expenses to cover the remaining balance on professional service fees. Furthermore, since communication disorders are lifelong disabilities requiring consistent, long-term intervention, these cumulative costs often build into a substantial financial burden over time. This burden is further compounded for children with CD who require support from multiple allied health professionals. Therefore, given the prevalence of CD and its repercussions to the country, it is crucial to evaluate the economic impact of the associated costs, especially for a country with scarce resources.¹⁸ There have been efforts to measure direct expenses related to communication disorders secondary to neurodevelopmental

disabilities, but none has aimed to estimate both direct and indirect costs of raising a child with a communication disorder secondary to a range of neurodevelopmental disabilities in the Philippines.^{12,19} Furthermore, existing survey questionnaires have limited applicability in local context since health expenditures in Western countries are often financed by the government or insurance companies.^{11,20} These instruments may not sufficiently capture indirect costs or the complexities of out-of-pocket financing that characterize low-resource settings such as the Philippines. And so, to estimate the cost of communication disorders from the patient perspective in local context, a valid and reliable questionnaire must first be developed.

This study aims to develop a survey questionnaire for estimating the direct and indirect costs associated with communication disorders with a 6-month retrospective time horizon, following a patient perspective, among parents or caregivers of affected children. Specifically, the study seeks to establish content validity of the instrument through expert evaluation and to conduct pilot testing to assess its feasibility, including survey completion time, response patterns, and sources of respondent difficulty. These findings are intended to inform further refinement of the tool prior to large-scale economic evaluation.

METHODS

Study Design

This was a descriptive study on the development of a questionnaire evaluating the economic costs of communication disorders and the pilot testing of the questionnaire. This study used the COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) Reporting Guideline as a guide.²¹ Only the parameters on content validity and feasibility were examined in this study; other parameters such as structural validity, reliability, and responsiveness were not examined.

Development of the Communication Disorders Expenditures Survey (CoDES)

Questionnaire items were drafted and developed based on the recommendations of Beecham and other cost description studies of developmental disabilities and CD.^{3,11,13,22,23} The "2015 National Survey on The Economic Costs for Families Raising a Child with an Autism Spectrum Disorder" created by Roddy was the primary guide for the general flow of questions.¹³ The 35-page survey collected information on the family's background and employment, medical diagnosis of the child, professionals and treatments referred to and availed, hours spent caring for the child, activities done with the child, weekly and monthly expense estimates, and sources of financial support. Data considered for estimating the direct costs included information on the amount paid for speech-language therapy, physician consultations, childcare, transportation, medication, and speech therapy-related

materials. Indirect costs included time spent caring for the child with CD, loss of income, time spent traveling for therapy services, and productivity losses (i.e., time lost on work due to catering to the needs of the child with CD).

Since Roddy's survey mainly focused on Autism Spectrum Disorder, the scope of the drafted survey was expanded to encompass possible neurodevelopmental disorders commonly associated with CD. While the sections on medical history and intervention services were split and a communication history section was added, the initial version otherwise followed the general structure of Roddy's survey. Fifty-two (52) questions were included and grouped into 9 sections for the initial version. Data considered for estimating the direct costs included information on the amount paid for speech-language therapy, physician consultations, childcare, transportation, medication, and speech therapy-related materials. Indirect costs included time spent caring for the child with CD, loss of income, time spent traveling for therapy services, and productivity losses (i.e., time lost on work due to catering to the needs of the child with CD). Twenty-six of the questions were multiple-choice questions, except for items that pertain to the exact amount of money spent due to the expected high degree of variability in rates. The survey was phrased in Filipino to account for general public understanding, with some technical terms kept in English to lessen misinterpretation. Financial items were adapted for the Philippine context by including specific options for health insurance providers (PhilHealth and HMOs) and common sources of aid, such as government subsidies and charitable foundations.

Content Validation

A team of experts was formed to assess the content validity of the survey and to achieve agreement on the preliminary version of the survey instrument for pilot testing. The expert panel was composed of three parents of children with CD who have been receiving speech-language therapy within Metro Manila for at least a year, and three registered speech-language pathologists who have been providing services within Metro Manila for at least three years. They were identified through purposive sampling, and each was assigned a randomized code to pseudo-anonymize their responses.

The experts rated the relevance of each item using a 4-point Likert scale (e.g., *"How relevant is this question? Gaano kahalaga ang tanong na ito?"*) and provided comments for every item and for the survey as a whole. They were also asked to judge the comprehensibility of each item (e.g., *"Is this question clearly written and easily understood? Malinaw ba ang pagkakasulat ng tanong na ito?"*). The principal author and co-author categorized the comments into one of three – add, revise, and remove to streamline the revision process. Among the 48 comments, 16 comments were deemed inconsequential by the team if they fell beyond the scope of the study or if it reflects individual preference. In an attempt

to keep the survey as short yet comprehensive as possible, the team refrained from adding questions that are beyond the scope of the study and from adding choices to several items. The primary author and co-author documented key discussion points and resolutions reached during in-person conflict resolution meetings. Revisions were applied only upon reaching consensus.

Pilot Feasibility Testing

The participants were recruited via convenience sampling from the UP CAMP Clinic for Therapy Services – Pediatrics. Given the COVID-19 restrictions, most of the communication was conducted online via regular e-mail reminders and/or text messages. These were sent out on a weekly basis to attain high response rates. At most, 30 participants were targeted to evaluate the following aspects of the survey instrument: flow, time taken to respond, length of questionnaire, sources of confusion, and pattern of answers.²⁴ All respondents 1) have a child with a formal diagnosis of a neurodevelopmental disorder by a developmental pediatrician 2) have a child diagnosed with communication disorder by a registered speech-language pathologist 3) can read and write in basic Filipino 4) have been receiving speech-language intervention spanning for at least 8 weeks and 5) utilize out-of-pocket spending to cover intervention costs. Consent from both the clinic and the prospective participants was obtained prior to survey dissemination.

The preliminary version of the survey was converted into an online version using the Qualtrics platform to improve ease of distribution. Participants were provided one week to complete the survey. Subsequently, they were invited to a 30-minute group debriefing interview session via the Zoom conferencing platform with the research team and fellow respondents. Those who did not consent to the debriefing session received a version of the survey that included the debriefing questions. Four interview sessions were conducted via the Zoom video conferencing platform using a secure, university-mandated account. Video recordings were then transcribed by members of the team. Results of the pilot testing and interviews were used to further revise the survey instrument.

Data Analysis

The gathered data was analyzed using Microsoft Excel. Data obtained from the Likert scale was treated as interval data. Descriptive statistics such as frequency, mean, and standard deviation were utilized for the pilot testing responses. The content validity index was measured per item and as a whole. An item-content validity index (I-CVI) value of ≥ 0.78 and a scale-content validity index (S-CVI) value of ≥ 0.80 are acceptable.^{25,26} The 4-point Likert scale (1 = Strongly Disagree to 4 = Strongly Agree) was dichotomized into two categories: 'Disagree' (scores 1 and 2) and 'Agree' (scores 3 and 4). Only complete surveys were included in the analysis. No other psychometric properties were measured

since the survey items are based on factual reports and the current sample size is too small for robust psychometric analysis.^{27,28} Data from the debriefing interviews were systematically sorted into categories – (1) Add, for items or instructions deemed to be missing, (2) Modify, for items requiring better terminological quality, and (3) Remove, for items determined to be redundant.

Ethical Considerations

This study was granted ethical clearance by the University of the Philippines-Manila Research Ethics Board (UPMREB 2021-225-01). All the participants read and signed an electronic informed consent delivered either through Google Forms or the Qualtrics survey platform prior to beginning their participation.

RESULTS

Content Validity

All 52 items were marked as acceptable with I-CVI scores ranging from 0.83 to 1.00. Initially, one expert scored three items with a 0 and a 1, which is equivalent to a rating of not relevant and not quite relevant, respectively. After synchronous consultation with the expert via phone call, a rating of 4, highly relevant, was given. The initial rating of 1 was selected as they were judging the relevance of the item with their own child and not in general. The overall survey was also marked as having an acceptable content validity with an S-CVI of 0.98. Table 1 shows the ratings of each item.

Pilot Feasibility Testing

A total of 21 parents were contacted, of whom 15 consented to participate (71% response rate). Two responses were excluded due to incomplete survey completion, resulting in a final analytic sample of 13 respondents. Among these, 10 participated in synchronous debriefing interviews and 5 in asynchronous debriefing.

Survey Completion Time

The average time reported on the Qualtrics platform was 47 minutes and 29 seconds ($SD = 0:13:53$). We excluded three respondents whose response time ranged from 7 to 27 hours because they reported leaving the platform active the entire day. In terms of perceived duration captured during the debriefing interview, the participants reported an average of 31:15 minutes to accomplish the survey. These reported averages were longer than the team's estimated survey test-taking time of 20 minutes. The section that required the longest time for completion was the intervention history section, followed by the income section. The fastest section to be completed was the information on insurance companies and the child's medical history.

Respondent Behavior

All respondents frequently chose among the pre-coded choices. There were no instances of skipped items, unless the questions were not applicable to them (e.g., the grade level of their child who studies in a progressive school). For open text responses, a number of respondents used the letter "O" in place of zero. There was some confusion among respondents regarding the information requested in the question about frequency of speech therapy sessions. Instead of stating

Table 1. Content Validity Index Ratings of Each Item

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Number in agreement	Item CVI
Seksyon 1: Demograpikong Panlipunan								
Name	3	3	1	3	3	4	5	0.8333
Participant Code	3	3	1	3	3	4	5	0.8333
Phone Number	3	3	4	3	3	4	6	1.0000
Occupation	3	3	4	3	3	4	6	1.0000
Marital Status	3	4	3	3	4	4	6	1.0000
Members of the Household	3	4	4	3	3	4	6	1.0000
Details on the Household	3	4	4	3	4	4	6	1.0000
Type of Area	3	2	4	3	3	4	5	0.8333
Type of Housing	3	4	4	3	4	4	6	1.0000
Seksyon 2: Kasaysayan ng Komunikasyon ng Bata								
Age of Child	4	4	4	3	4	4	6	1.0000
Sex of Child	4	4	3	3	3	4	6	1.0000
Age when SLP service began	3	4	4	3	4	4	6	1.0000
Assistive device	4	4	4	1	4	4	5	0.8333
SLP diagnosis	4	4	4	3	4	4	6	1.0000
Date of SLP Evaluation	3	4	4	3	4	4	6	1.0000
Place of Diagnosis	3	4	3	3	4	4	6	1.0000

Table 1. Content Validity Index Ratings of Each Item (*continued*)

Item	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Rater 6	Number in agreement	Item CVI
Seksyon 3: Kasaysayan ng Medikal na Pangangailangan ng Bata								
Medical Diagnosis	4	4	4	4	4	4	6	1.0000
Hospitalization	3	3	3	4	4	4	6	1.0000
Reason for hospitalization	3	4	3	4	4	4	6	1.0000
Medications	4	4	3	4	4	4	6	1.0000
Schedule of medications	4	4	4	4	4	4	6	1.0000
Seksyon 4: Kasaysayan ng "Intervention" na Natanggap ng Bata								
Professionals referred to	4	4	4	4	4	4	6	1.0000
Professional Service fees	4	4	4	4	4	3	6	1.0000
Frequency of visits	3	4	4	4	4	3	6	1.0000
Type and frequency of speech therapy	3	4	4	4	4	4	6	1.0000
Seksyon 5: Edukasyon								
Type of education	4	4	4	4	4	4	6	1.0000
Grade level	4	4	4	4	4	4	6	1.0000
School Entry Age	4	4	4	4	4	2	5	0.8333
Inclusion of SLP in tuition fees	4	4	4	3	4	4	6	1.0000
History of stopping formal education	4	3	4	4	4	4	6	1.0000
Reason	3	3	4	4	4	4	6	1.0000
Seksyon 6: Kita at Hanapbuhay								
Income contributors	4	4	4	4	4	4	6	1.0000
Monthly Income Range	4	4	4	4	4	4	6	1.0000
Caregiver Employment Status	4	4	4	4	4	4	6	1.0000
Daily Caregiving Hours	4	4	4	4	4	4	6	1.0000
Availability of childcare Support	4	4	4	4	4	4	6	1.0000
Average work hours	3	3	4	4	4	2	5	0.8333
Productivity Losses	3	4	4	4	4	3	6	1.0000
Absenteeism	3	4	4	4	4	4	6	1.0000
Career Interruptions	4	4	4	4	4	4	6	1.0000
Hours lost to childcare	4	4	4	4	4	4	6	1.0000
Estimated Income Loss	4	4	4	4	4	4	6	1.0000
Career Progression	3	4	4	3	4	4	6	1.0000
Seksyon 7: Mga Gastusin								
Budget allocation breakdown	4	4	4	4	4	4	6	1.0000
Amount of service fees per visit	3	4	4	4	4	4	6	1.0000
Amount of SLP fees per visit	4	4	4	4	4	4	6	1.0000
Additional SLP-related expenses	3	4	4	4	4	4	6	1.0000
Seksyon 8: Oras na Nilalaan sa Pag-alaga ng Bata								
Hours spent for each SLP-related activity	4	4	4	3	4	4	6	1.0000
Travel duration	3	4	4	3	4	4	6	1.0000
Seksyon 9: Pagbayad ng Insurance								
Availability of financial assistance	3	4	4	4	4	4	6	1.0000
Type of medical insurance	3	4	4	4	4	4	6	1.0000
Coverage of medical insurance	3	4	4	4	4	4	6	1.0000
SUM								51.0000
S-CVI								0.9808

Legend: 1 = no relevance; 2 = some relevance; 3 = adequate relevance; 4 = high relevance

the number of speech therapy sessions they receive in a month, one respondent inputted the price of each session.

Difficulties in recalling speech-language diagnosis were evident since 53.85% of them chose the “*hindi matandaan*” (*Cannot recall*) option. Two respondents reported a “speech delay/disorder” and “phonological disorder” diagnosis; however, they did not choose the “articulation disorder” pre-coded option. Another frequently expressed difficulty was the reporting of the breakdown of monthly expenses because a number of the respondents often calculated expenses on a weekly basis. During the debriefing session, they suggested modifying the item on budget allocation into a ranking type of question to decrease survey response time.

Inconsistent answers were provided for questions regarding employment. A respondent was identified as unemployed, but they disclosed that they get paid for 40 hours per week. Similarly, for an employed respondent, they answered “not applicable” for the item on the average paid hours. This indicates the need to revise the question item due to the vagueness of the question.

Platform Interface

There were no reported difficulties in loading the website among all respondents. The survey was reported to be easier to navigate on laptops compared to cell phones, especially when inputting answers into table-type questions. However, a few respondents were unable to proceed to succeeding sections of the questionnaire due to entering data that did not match the online form’s data validation settings. For example, some respondents entered numerical values in input fields that required a text response. Some respondents left input fields blank when those input fields required an input. The latter reason was observed for questions which respondents felt did not apply to them. The team eventually disabled this function to prevent further technical issues and confusion.

Comprehensibility and Comprehensiveness of Items

In terms of question wording and language, the respondents expressed positive comments on the logical flow of questions, provision of sufficient examples, and clear phrasing of most questions. However, two respondents expressed difficulty in understanding some items due to the use of complex Filipino words and a lack of examples provided, particularly for the intervention history, income, and expenses sections. Given the linguistic landscape of the Philippines, variations in word choice and the use of more formal Filipino words likely resulted in confusion and vagueness in the questions. Thus, several Filipino words were modified to mimic daily life conversations (e.g., “*pagliban*” was changed to “*pag-absent*”) while other technical terms were kept as is (e.g., “*indibidwal na session*” was changed to “*individual sessions*”).

Also, confusion arose about which context (i.e., pre-pandemic or current situation) should be considered while answering the expenses section. In addition to that, a portion

of the participants proposed adding a statement to recognize which items can accept more than one option. For the item pertaining to budget allocation, 6 out of thirteen answered incorrectly because their answers did not add up to 100%. Misinterpretation of this item may be due to the absence of an instruction explicitly stating that responses should add up to 100%. The presence of such discrepancies further supports the suggestion of changing the question type into a ranking type of question. In the question pertaining to the speech-language diagnosis, respondents rarely chose from the pre-coded choices, possibly due to unfamiliarity with the terms and what they encompass.

Debriefing Interview

The feedback received during the interview was generally positive. They expressed favorable views on the flow of questions, types of questions, pre-coded choices, length of questions, and straightforwardness of the survey. Some respondents recognized the comprehensiveness of the tool in obtaining the daily activities of both the parent and the child. There were a few who perceived their survey taking time as longer than anticipated because they had to recall dates and calculate their exact monthly expenses. They suggested changing the time frame from monthly expenses to weekly expenses since that was their common practice.

DISCUSSION

The pilot testing of the CoDES questionnaire provides preliminary evidence supporting its feasibility and content validity, particularly in terms of response patterns, item acceptability, and identification of areas requiring refinement. However, these findings should be interpreted with caution, as additional psychometric evaluation, including test-retest reliability, measurement error, and responsiveness to recall framing, may be necessary before the tool can be used in large-scale economic evaluations.

The successful pilot testing of the CoDES questionnaire demonstrated the feasibility of conducting an Internet-based questionnaire in a low- to middle-income country with internet connection issues.²⁹ The selected online platform, mode of survey distribution, selected population, and use of any available gadget aligned with the contents of the survey. The survey documented the direct and indirect costs of raising a child with communication disorder, and the possible sources of financial support for paying for speech-language therapy services.

The automated survey time function of the Qualtrics platform proved to be useful in estimating the average survey completion time, although the resulting average exceeded the team’s initial estimates. It should be noted that the respondents took longer to complete the survey because of difficulties in recalling information, entering data onto the platform, and possible off-task behaviors (e.g., looking after their children). It is for this reason that pen-and-paper versions

are recommended to be made available for future respondents so they can fill out the survey with fewer distractions and to avoid encoding errors. Provision of a 1-2 minute survey video walkthrough may also be considered to lessen errors in data entry and chances of drop-outs. Despite the longer than ideal survey response time, the 71% survey return rate during the pilot testing reflects positive reception among the respondents and internal motivation to participate.³⁰

The final version of the CoDES questionnaire included 47 questions grouped into 8 sections as seen in Table 2. Refinements were made according to comments gathered from respondents. These included improvements to question phrasing, terminology, provision of examples, and question type. More examples were also added to improve comprehension and to facilitate faster retrieval of information. Since the pilot test was conducted during the COVID-19 pandemic, confusion arose among most respondents regarding the context within which they should consider the questions, i.e., pre-pandemic setting or during-pandemic setting. This was relevant for the questions pertaining to routines, family set-up, and expenses. However, the team regarded this concern as of minimal significance to future administrations of the survey given that the COVID-19 pandemic had ended.

The average completion time of approximately 47 minutes suggests that the current version of the questionnaire may impose a substantial response burden, which could limit its feasibility in large-scale implementation. Rather than a self-reported format, future versions could utilize interviewer-led sessions, reducing the mental effort required. Alternatively, future iterations could maintain a self-administered format while optimizing for brevity by reducing the number of items, streamlining sections with high cognitive load (e.g., intervention history and income), and refining response formats. These modifications are essential to balance comprehensiveness with practicality in large-scale data collection.

Limitations of the Study

The study sample was recruited from a single urban clinic, which, while functioning as a service and charity-based facility, caters to families with varying levels of financial capacity. Although this may have allowed inclusion of participants with relatively lower out-of-pocket expenditures compared to purely private settings, the sample remains limited to those who are actively accessing services within an urban context. As such, this may have introduced socioeconomic and geographic bias, limiting the generalizability of the findings to the broader Filipino population, particularly those in rural areas or those with limited or no access to rehabilitation services.

In addition, the inclusion of families primarily engaged in out-of-pocket spending—albeit at varying levels—may not fully capture cost experiences in settings where services are subsidized, publicly funded, or not accessed at all. This has

Table 2. Final Version of Communication Disorders Expenditure Survey

I. Social Demographics	
A.	Name
B.	Age
C.	Relationship to the Child
D.	Address
E.	Contact Number
F.	Current Occupation
G.	Marital Status
H.	Highest Educational Attainment
I.	Type of Area
J.	Type of Accommodation
K.	Number of People in the Household
L.	Number of People diagnosed with Communication Disorders
II. Communication History of the Child	
A.	Chronological Age
B.	Diagnosis of Speech Therapist
C.	Date of Diagnosis
D.	Place of Diagnosis
E.	Reason for Speech Therapy Intervention
F.	Use of Alternative and Augmentative Communication Device
III. Medical and Educational History of the Child	
A.	Other medical conditions
B.	Hospitalization
C.	Current Medications
D.	Professionals sought (e.g., Specialized Doctors)
E.	Frequency of Visit
F.	Type of schooling
G.	Inclusion of SP intervention services as part of their tuition
H.	Type of SP intervention
IV. Intervention	
A.	Professionals Referred to
B.	Professionals sought (e.g., Rehab Professionals)
C.	Schedule with Rehab Professionals
D.	Duration of SP Services
E.	Types of Services (Individual, Dyad, Group)
F.	Frequency of Sessions
V. Income	
A.	Number of Individuals contributing to family income
B.	Monthly family income
C.	Loss of income due to time spent caring for the child
VI. Expenses	
A.	Prioritization of expenses
B.	Amount spent on medical services (per session, frequency - per week)
C.	Amount spent on intervention services (per session, frequency - per week)
D.	Amount spent on extra costs related to speech therapy (per session, frequency, weekly cost)
E.	Amount spent on childcare services
VII. Time spent caring for the child	
A.	Activities done with child
B.	Time (e.g., hours and minutes) spent for each intervention
C.	Time spent for travelling to the therapy
VIII. External Insurance Companies	
A.	Financial Assistance for Communication Disorder (source)
B.	Type of medical insurance
C.	What insurance
D.	What is covered by the insurance

implications for the applicability of the tool across different healthcare financing contexts.

The language restriction in the research poses challenges to the generalizability and applicability of the findings. As the developed tool is limited to Tagalog and English versions, the study may have overlooked the experiences of families from other linguistic backgrounds, considering the multilingual and multicultural diversity in the Philippines. Forward-backward translation of the original tool was also not conducted, which may influence linguistic ambiguity or cultural appropriateness of terms reflected in the survey. Consequently, the economic costs of communication disorders within these linguistic groups may not have been accurately assessed, thereby affecting the comprehensiveness of the study's conclusion. To mitigate this limitation and attain a more inclusive understanding of the economic costs of communication disorders in the country, future research endeavors could explore the translation of the developed tool into a broader range of languages. Subsequent pilot testing in these languages would ensure the representation and inclusivity of diverse linguistic populations, thereby enhancing the validity and relevance of the study's findings.

Furthermore, the use of group debriefing sessions may have introduced social desirability bias, as participants may have been less inclined to express negative feedback in the presence of others. This could have influenced the overall tone of the feedback collected during the pilot phase.

CONCLUSION

The pilot testing of the CoDES questionnaire confirms that it is a promising tool for documenting the financial challenges faced by Filipino families of children with communication disorders. Even among participants from a low-resource urban clinic, the internet-based version proved accessible. The successful use of an online platform shows that online data collection is possible despite local internet connectivity issues. Further revisions to the survey may be needed to decrease the administration time, lessen encoding errors, and reduce cognitive load. To make the tool more practical for large-scale administration, an interview-guided survey may also be considered.

Statement of Authorship

Both authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

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REFERENCES

1. American Speech-Language-Hearing Association. Definitions of communication disorders and variations [Internet]. 1993 [cited 2024 Aug]. Available from: <https://www.asha.org/policy/RP1993-00208/>
2. Ruben RJ. Redefining the survival of the fittest: Communication disorders in the 21st century. *The Laryngoscope*. 2000 Feb;110(2):241–241. doi: 10.1097/00005537-20000210-00010. PMID: 10680923
3. Sciberras E, Westrupp EM, Wake M, Nicholson JM, Lucas N, Mensah F, et al. Healthcare costs associated with language difficulties up to 9 years of age: Australian population-based study. *Int J Speech Lang Pathol*. 2015 Feb;17(1):41–52. doi: 10.3109/17549507.2014.898095. PMID: 24801409
4. Olusanya BO, Ruben RJ, Parving A. Reducing the burden of communication disorders in the developing world: an opportunity for the millennium development project. *JAMA*. 2006;296(4):441–442. doi: 10.1001/jama.296.4.441. PMID: 16868302.
5. Marshall J, Wylie K, McLeod S, et al. Communication disability in low and middle-income countries: a call to action. *BMJ Global Health*. 2024 Jul 10;9(7):e015289. doi:10.1136/bmjgh-2024-015289
6. World Health Organization. World report on disability [Internet]. 2011 [cited 2024 Aug]. Available from: <https://www.who.int/teams/noncommunicable-diseases/sensory-functions-disability-and-rehabilitation/world-report-on-disability>
7. Law J, Zeng B, Lindsay G, Beecham J. Cost-effectiveness of interventions for children with speech, language and communication needs (SLCN): a review using the Drummond and Jefferson (1996) "Referee's Checklist." *Int J Lang Commun Disord*. 2012;47(1):1–10. doi: 10.1111/j.1460-6984.2011.00084.x. PMID: 22268897. PMID: PMC3627306.
8. Jiang WX, Long Q, Lucas H, Dong D, Chen JY, Xiang L, et al. Impact of an innovative financing and payment model on tuberculosis patients' financial burden: Is tuberculosis care more affordable for the poor? *Infect Dis Poverty*. 2019 Mar 24;8(1):21. doi: 10.1186/s40249-019-0532-x. PMID: 30904025. PMID: PMC6431427
9. Wan Puteh SE, Almualm Y. Catastrophic health expenditure among developing countries. *Health Syst Policy Res*. 2017;04(01). doi: 10.21767/2254-9137.100069
10. Olusanya BO, Davis AC, Wertlieb D, Boo NY, Nair MKC, Halpern R, et al. Developmental disabilities among children younger than 5 years in 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet Glob Health*. 2018;6(10):e1100–e1121. doi: 10.1016/S2214-109X(18)30309-7. PMID: 30172774. PMID: PMC6139259.
11. Shahat ARS, Greco G. The economic costs of childhood disability: a literature review. *Int J Environ Res Public Health*. 2021;18(7):3531. doi: 10.3390/ijerph18073531. PMID: 33805375. PMID: PMC8036354.
12. Quilendrinio MIO, Castor MAR, Mendoza NRNP, Vea JR, Castillo-Carandang NT. The direct cost of autism and its economic impact on the Filipino family. *Acta Med Philipp*. 2022;56(9). doi: 10.47895/amp.v56i9.5005
13. Roddy A, O'Neill C. The economic costs and its predictors for childhood autism spectrum disorders in Ireland: How is the burden distributed? *Autism*. 2018 Jul;23(5):1106–18. doi: 10.1177/1362361318801586. PMID: 30270653
14. Ellis C, Mauldin P. The real cost of communication disorders. *ASHA Leader*. 2013;18(3):34–35.
15. Republic Act No. 11650. Department of Education. Published March 21, 2022. Accessed December 29, 2025. <https://www.deped.gov.ph/wp-content/uploads/TRR-of-RA-11650.pdf>
16. United Nations Children's Fund (UNICEF). Philippines policy brief no. 6 - children with disabilities: Finding the way to an inclusive service framework (July 2018) [Internet]. 2018 [cited 2024 Aug]. Available from: <https://reliefweb.int/report/philippines/philippines-policy-brief-no-6-children-disabilities-finding-way-inclusive-service>

17. PhilHealth. PhilHealth introduces Z benefit package for children with developmental disabilities [Internet]. 2018 [cited 2024 Aug]. Available from: https://www.philhealth.gov.ph/news/2018/zben_cdd.html
18. Ulep VGT, Dela Cruz NAO. Analysis of out-of-pocket expenditures in the Philippines. *Philipp J Dev*. 2013;40(72):93-123.
19. United Nations Children's Fund. Cost of Raising Children with Disabilities in the Philippines. UNICEF; 2022. Accessed January 7, 2026. <https://www.unicef.org/philippines/reports/cost-raising-children-disabilities-philippines>
20. Ortiz-Ospina E, Roser M. Healthcare spending. *Our World in Data* [Internet]. 2017 [cited 2024 Aug]; Available from: <https://ourworldindata.org/financing-healthcare>
21. Gagnier JJ, de Arruda GT, Terwee CB, Mokkink LB; Consensus group. COSMIN reporting guideline for studies on measurement properties of patient-reported outcome measures: version 2.0. *Qual Life Res*. 2025 Jul;34(7):1901-1911. doi: 10.1007/s11136-025-03950-x. PMID: 40153128.
22. Beecham J, Law J, Zeng B, Lindsay G. Costing children's speech, language and communication interventions. *Int J Lang Commun Disord*. 2012;47(5):477-486. doi: 10.1111/j.1460-6984.2012.00157.x. PMID: 22938059.
23. Selvaraj S, Farooqui HH, Karan A. Quantifying the financial burden of households' out-of-pocket payments on medicines in India: A repeated cross-sectional analysis of national sample survey data, 1994–2014. *BMJ Open*. 2018 May;8(5):e018020. doi: 10.1136/bmjopen-2017-018020.
24. Chaudhary AK, Israel GD. Savvy survey #8: pilot testing and pretesting questionnaires: AEC402/PD072, 12/2014. *EDIS*. 2015; 2015(1). doi: 10.32473/edis-pd072-2014.
25. Polit DF, Beck CT. The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Res Nurs Health*. 2006 Oct;29(5):489–97. doi: 10.1002/nur.20147. PMID: 16977646
26. Alexandre NMC, Coluci MZO. Content validity in the development and adaptation processes of measurement instruments. *Cien Saude Colet*. 2011;16(7):3061-3068. doi: 10.1590/S1413-81232011000800006. PMID: 21808894.
27. Streiner DL, Norman GR, Cairney J. *Health Measurement Scales*. OUP Oxford; 2014.28.
28. Johanson GA, Brooks GP. Initial Scale Development: Sample Size for Pilot Studies. *Educ Psychol Meas*. 2010;70(3):394-400. doi: 10.1177/0013164409355692.
29. Porcalla D. Philippines internet 'second slowest' in Asean, ranks 110th worldwide [Internet]. 2020 [cited 2024 Aug]. Available from: <https://www.philstar.com/headlines/2020/12/28/2066612/philippines-internet-second-slowest-asean-ranks-110th-worldwide>
30. Bosnjak M, Tuten TL. Classifying response behaviors in web-based surveys. *J Comput Mediat Commun*. 2001;6(3):JCMC636. doi: 10.1111/j.1083-6101.2001.tb00124.x.

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