

Scientometric Profile of Communication Disorders

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Abstract

The paper reports on a scientometric study of 14150 publications on communication disorders research conducted from 1999 to 2018. The study analyses literature to determine different forms of documents, authorship patterns, keywords, citations, language of publication, etc. The results indicate that the majority of the publications are published in journals (75%), with the highest number of papers published in Autism (50744) and more than 54 (16575) cited references. At the same time, Autism has published below 21 (15115) volumes of articles. The dominant language of publications is English, scoring 96.39%. A significant number of publications have below 19 (82.1%) pages. This study observed that the maximum number of publications was 137287 (97%). Thus, communication disorders research is collaborative rather than solo authorship.

Keywords: Communication disorder, Scientometric, Authorship pattern, Hearing impairment, Speech and language impairment

1. INTRODUCTION

A communication disorder is an impairment in the ability to receive, comprehend or send messages verbally, nonverbally, or graphically. Communication disorders may be defined as any speech, language, and hearing impairment that interferes with conveying or understanding a person's wants, needs, thoughts, feelings and knowledge.

These disorders can affect speech, language, hearing, and cognitive communication processes, making it difficult for the affected individual to interact with others effectively. The severity and impact of communication disorders can vary widely, ranging from mild difficulties to severe impairments that significantly hinder daily life and social participation.

Scientometric research began in the early nineteenth century. However, since the beginning of the twenty-first century, the area has experienced tremendous growth. It draws interest from a wide range of sources outside the confines of academic institutions. Creating the Impact Factor and Eugene Garfield's seminal work are two of Scientometrics' best-known achievements. As a technique for choosing journals to be included in a genetics citation index, he originally introduced the impact factor in 1955. As a result, the Science Citation Index was finally published in 1961 to connect papers through their references.

Derek De Solla Price (1963) was working on a study of the exponential expansion of research and the citation of scientific publications at the same time. In addition to his research on scientific communication patterns and the history and study of science in general, Price published many publications outlining the essential components of scientometric analysis. In the 1960s, the body of scientometric literature had a huge expansion, and since then, the discipline has grown and been divided into many specializations. The first publication in the area, *Scientometrics*, created and edited by Tibor Braun (1985) of the Hungarian Academy of Sciences, brought them together. Citation analysis is one of the most remarkable developments.

2. BACKGROUND OF THE STUDY

Scientometrics studies involve the analysis of review articles such as scholarly journal articles, conference papers, or other forms of research papers.

Alasmari et al.'s (2024) study to provide a comprehensive overview of the research landscape in autism spectrum disorder, identifying trends, patterns, and knowledge gaps. The methods deployed in the review comprise a systematic search of three scientific databases: Scopus (5,026 documents), Web of Science (WoS; 4,570 documents), and Lens (3,235 documents). The analysis includes bibliometric indicators such as knowledge production size by year, country, university, source, subject area, author, and citation. Scientometric indicators consist of burst detection, silhouette, clusters, citation, and co-occurrence of keywords. In conclusion, this scientometric review highlights the top 10 clusters and their respective Silhouette values, providing valuable insights into language acquisition in ASD.

Alduais et al. (2022) present empirical evidence on scientometrics. The data was collected between 1935 and 2022 from Scopus, Web of Science (WoS), and Lens. The 1570 research documents were analyzed from Scopus, WoS 1440 and 5275 from Lens. This analysis was performed using MS Excel-generated reports and CiteSpace, R3, and VOSviewer to conduct the scientometric analysis. This study used eight scientometric indicators to measure the data. The significant finding of this study is that it identifies the field of speech and language disorders in genetics that has been examined the most.

Alduais et al. (2022) this study addressed pragmatics to conduct a scientometric analysis of Scopus (6554), Web of Science (1167) and Lens (6554) documents between 1939 and 2022. This research analysed the past, present and future developments in pragmatics using scientometric indicators. This analysis used CiteSpace, VOSviewer, and R3 software, which enabled tabulation, visualisation, and measuring data in the pragmatics field.

Paul et al. (2024) focus on the evolution of authorship trends in neuroscience. This study contains 580782 datasets in neuroscience publications produced from 2000 to 2022 in the G10 countries. This analysis used a matrix-based method to extract data and analyse the average number of authors per country. This study reveals a consistent rise in authorship across G10 countries over the last twenty years. The highest average number of authors emerged from Italy and France, significantly increasing in the last ten years. The lowest number of authors per publication were in the USA, UK and Canada.

Vaishya et al. (2024) aim to assess the osteoporosis and prediabetes in their scientometric features. This study identified 272 publications written by 531 authors from 48 countries, including 252 organizations. Those data were taken from the Scopus database between January 1994 and November 2023. This data was used in MS Excel and VOSviewer for visualization and scientometric analysis. The USA is the leading country with the most significant research publication (n=84), and Canada had the highest citation impact per paper (109.0). The University of California and San Francisco contributed the maximum publications (n=6). At the same time, Università degli Studi di Torino, Italy, had the highest citation impact (275.0 and 5.25), the most productive journal is Frontiers in Endocrinology (n=7), the most influential citation impact per paper in Annals of Internal Medicine (322.0). 30.5% funded research and international collaboration was involved in 17.6% of research.

3. OBJECTIVES OF THE STUDY

The main objectives of the study are:

- To assess the research output based on key words
- To analyze the year and keywords
- To examine the cited reference
- To identify the volume of publications
- To find out the languages
- To assess forms of documents
- To identify the length of research articles
- To find out the number of authors per articles

4. MATERIALS AND METHODS

The present study is based on a Web of Science database from 1999 to 2018 on communication disorders research literature. A total of 141540 records were available. The researcher analyzed the downloaded data using

scientometric tools. Also, analyze the distribution of forms of documents, year, keywords, cited references, languages, etc.

5. RESULTS AND DISCUSSION

The following tables effectively present the results of scientific research productivity in communication disorders.

5.1 FORMS OF DOCUMENTS

The form-wise distribution of documents is shown in Table 1. These include published journal articles, reviews, conference and seminar proceedings, editorial materials, corrections and book chapters.

Table 1: Forms of Documents

S/N	Forms of Documents	Research Output	Percentage
1	Article	106855	75.5
2	Review	12423	8.7
3	Meeting Abstract	8478	6
4	Proceedings Paper	4555	3.2
5	Editorial Material	3958	2.8
6	Letter	2600	1.8
7	Book Review	1016	0.7
8	Correction	564	0.4
9	News Item	455	0.3
10	Review; Book Chapter	278	0.2
11	Book Chapter	194	0.1
12	Reprint	62	0
13	Poetry	25	0
14	Retracted Publication	23	0
15	Biographical-Item	18	0
16	Review; Retracted Publication	10	0
17	Retraction	9	0
18	Data Paper	6	0
19	Editorial Material; Book C	4	0
20	Record Review	2	0
21	Review: Early Access	2	0
22	Software Review	2	0
23	Fiction, Creative Prose	1	0
	Total	141540	100

It is observed from Table 1 shows the majority of publications are published in journals, i.e., 106855 (75.5%), followed by reviews 12423 (8.7%), 8478 (6%) of papers published in meeting abstracts, 4555 (3.2%) articles are published in conference proceedings paper and 3958 (2.8%) articles are published as editorial material.

5.2 YEAR-WISE AND KEYWORDS-WISE BREAKUP OF THE RESEARCH PRODUCTIVITY

The year-wise and keyword-wise distribution of the research output on communication disorders is shown in Table 2.

It is observed from table 2 that 50744 articles were downloaded from the WoS database subjected to Autism followed by Hearing Disorder (43323 articles), Deafness (14349 articles), Aphasia (12017 articles), Tinnitus (6666 articles), Language Impairment (4962 articles), Dysarthria (3679 articles), Stuttering (23611 articles), Language Disorder (10630 articles), Speech Disorder (5560), Speech Impairment (5350 articles), Voice

Disorder (4420 articles), Communication Disorder (2450 articles), Speech Sound Disorder (1820, articles), Auditory Neuropathy Spectrum Disorder (1490 articles), Central Auditory Processing Disorder (1190, articles), Articulation Disorder (74 articles). It is concluded from the analysis that communication disorders have produced more research articles in “Autism” whereas it produced the most minor research articles in “Specific Language Disorder”.

Table 2: Year-wise and Key Words-wise Breakup

Keywords	Years																				Total
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Aphasia	541	303	317	372	368	392	441	494	497	519	556	367	413	447	1	1259	1415	1416	1440	459	12017
Articulation Disorder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	7	74
Auditory Neuropathy Spectrum Disorder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	149	0	149
Autism	1096	689	789	827	1085	1106	1310	1571	2004	2075	2671	1788	2353	0	9	5179	4601	8599	7541	5451	50744
Central Auditory Processing Disorder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	34	119
Communication Disorder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	220	0	245
Deafness	29	0	0	49	0	73	0	195	240	198	262	649	807	847	0	161	0	0	2099	8740	14349
Dysarthria	0	0	0	0	242	466	520	546	508	571	611	215	0	0	0	0	0	0	0	0	3679
Fluency Disorder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	32	10	43
Hearing Disorder	1163	867	1787	1969	1972	2099	985	1453	0	0	0	0	14	0	34	6370	6724	6754	6521	4611	43323
Language Impairment	533	889	525	471	321	59	53	66	70	88	98	119	146	168	0	198	230	196	269	463	4962
Language Disorder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	728	22	0	0	313	1063
Specific Language Disorder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	7	31
Speech Disorder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	556	0	0	0	556
Speech Impairment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	201	334	0	0	535
Speech Sound Disorder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182	0	182
Stuttering	0	0	0	0	0	0	0	0	0	0	0	431	743	79	0	0	0	0	0	408	2361
Tinnitus	347	124	48	50	53	40	56	53	54	56	43	53	181	4011	2362	405	547	705	643	445	6666

Voice Disorder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44 2	0	0	442
Total	3	2	3	3	4	4	3	4	3	3	4	3	4	2	2	14 30 0	1	18 47 1	19 27 2	20 94 8	141 540
	7	8	4	7	0	2	3	3	3	5	2	6	6	6	4		4				
	0	7	6	3	4	3	6	7	7	0	4	2	5	4	0		2				
	9	2	6	8	1	5	5	8	3	7	1	2	7	2	7		9				

5.3 CITED REFERENCES

Cited reference means searching to find articles that have been cited previously. Because many databases index each citation listed in a bibliography, it is possible to search these cited references. One can follow a particular cited reference or cited author forward to find more current articles that have also cited that author or work. Citation searching evaluates the faculty's research quality at many universities or colleges.

Table 3: Keywords Vs Cited References-wise

Category for Cited References					Total
Key Words	Below 19 Cited References	20-34 Cited References	35-54 Cited References	Above 54 Cited References	
Aphasia	3214	3325	2915	2562	12016
Articulation Disorder	9	14	18	33	74
Auditory Neuropathy Spectrum Disorder	43	27	27	52	149
Autism	11813	8970	13374	16575	50732
Central Auditory Processing Disorder	41	20	28	30	119
Communication Disorder	43	37	69	96	245
Deafness	4304	4370	3253	2422	14349
Dysarthria	1037	826	961	855	3679
Fluency Disorder	15	8	10	9	42
Hearing Disorder	12068	13411	10060	7735	43274
Language Impairment	1355	1318	1248	1041	4962
Language Disorder	258	178	284	343	1063
Specific Language Disorder	4	8	7	12	31
Speech Disorder	168	83	133	172	556
Speech Impairment	122	97	149	167	535
Speech Sound Disorder	32	27	57	66	182
Stuttering	610	463	630	658	2361
Tinnitus	720	756	1182	1646	4304
Voice Disorder	130	72	99	141	442
Total	35986	34010	34504	34615	139115

The basic premise is that the more times an author is cited, the more important it is for authors. However, the highest citations can indicate that an author or article has had a significant impact. It is observed from above Table 3 that 'Aphasia' related articles 20-34 cited references (3325), 'articulation disorder' has above 54 cited references (33), 'auditory neuropathy spectrum disorder' had above 54 cited references (52), 'autism' also have above 54

cited references (16575), central auditory processing disorder had below 19 cited references (41), ‘communication disorder’ has above 54 cited references (96), ‘deafness’ has 20-34 cited references (4370), ‘dysarthria’ had below 19 cited references (1037), ‘fluency disorder’ had below 19 cited references (15), ‘hearing disorder’ had 20-34 cited references (13411), ‘language impairment’ has below 19 cited references (1355), ‘language disorder’ had above 54 cited references (343), ‘specific language disorder’ had above 54 cited references (12), ‘speech disorder’ had above 54 cited references (172), ‘speech impairment’ had above 54 cited references (167), ‘speech sound disorder’ had above 54 cited references (66), ‘stuttering’ had above 54 cited references (658), ‘tinnitus’ had above 54 cited references (1646) and ‘voice disorder’ had above 54 cited references (141). It is concluded from the table that ‘autism’ had more than 54 cited references, whereas ‘hearing disorder’ had less than 19 cited references.

5.4 VOLUME OF PUBLICATIONS

It is depicts from Table 4 that Aphasia based research output had produced above 77 volume of articles (3731), articulation disorder has published 22-40 volume of articles (18), auditory neuropathy spectrum disorder has published above 77 volume of articles (54),autism has published below 21 volume of articles (15115),central auditory processing disorder had published below 21 volumes of articles (46), communication disorder has published 22-40 volumes of articles (130), deafness has published above 77 volumes of articles (4853), dysarthria has published 22-40 volumes of articles (1061), fluency disorder has published 22-40 volumes of articles (12),hearing disorder has published above 77 volumes of articles (9588), language impairment has published below 21 volumes of articles (1536), language disorder has published 22-40 volumes of articles (337), specific language disorder has published below 21 volumes of articles (17), speech disorder has published 22-40 volumes of articles (238),speech impairment has published 22-40 volumes of articles (225), speech sound disorder has published 22-40 volumes of articles (71), stuttering has published 22-40 volumes of articles (930) tinnitus has published 41-77 volumes of articles (1348) and voice disorder has published above 77 volumes of articles (141). It is noticed from the table that hearing disorders have published above 77 volumes of articles (9588), while autism has published below 21 volumes of articles (15115).

Table 4: Volume of Publications

Key Words	Category for Volume				Total
	Below 21 Volumes	22-40 Volumes	41-77 Volumes	Above 77 Volumes	
Aphasia	2730	2919	2527	3731	11907
Articulation Disorder	15	18	24	17	74
Auditory Neuropathy Spectrum Disorder	28	32	35	54	149
Autism	15115	12469	13968	8979	50531
Central Auditory Processing Disorder	46	23	22	28	119
Communication Disorder	46	130	40	29	245
Deafness	3222	3081	2888	4853	14044
Dysarthria	1044	1061	851	702	3658
Fluency Disorder	10	12	13	8	43
Hearing Disorder	6264	6416	5891	9588	28159
Language Impairment	1536	1211	1180	975	4902
Language Disorder	284	337	230	209	1060
Specific Language Disorder	17	5	2	7	31
Speech Disorder	75	238	90	148	551
Speech Impairment	119	225	86	104	534
Speech Sound Disorder	31	71	38	42	182

Stuttering	459	930	516	450	2355
Tinnitus	934	1329	1348	665	4276
Voice Disorder	114	105	82	141	442
Total	32089	30612	29831	30730	123262

5.5 LANGUAGES-WISE PUBLICATIONS

Language-wise publication of research output in any discipline is crucial to communication disorders. Researchers throughout the world do not know all languages. Generally, English is the medium of research communication as it is generally accepted all over the world. However, a few research papers have been published in other languages (regional languages). An attempt is made here to analyse the language medium of published output in communication disorders research output. This type of analysis enables one to identify the most preferred language for publishing in communication disorders research output.

Table 5: Languages-wise Publications

S. No	Languages	No. of Articles	Percentage
1	Afrikaans	2	0.001413
2	Arabic	4	0.002826
3	Catalan	1	0.000707
4	Chinese	30	0.021195
5	Croatian	26	0.018369
6	Czech	83	0.058641
7	Danish	2	0.001413
8	Dutch	6	0.004239
9	English	136442	96.39819
10	Estonian	1	0.000707
11	French	1062	0.750318
12	Georgian	2	0.001413
13	German	2331	1.646884
14	Hungarian	26	0.018369
15	Icelandic	6	0.004239
16	Italian	32	0.022608
17	Japanese	40	0.028261
18	Korean	15	0.010598
19	Lithuanian	1	0.000707
20	Norwegian	1	0.000707
21	Polish	78	0.055108
22	Portuguese	217	0.153314
23	Russian	106	0.07489
24	Serbian	24	0.016956
25	Serbo-Croa	1	0.000707
26	Slovak	8	0.005652
27	Slovene	3	0.00212
28	Slovene; E	3	0.00212
29	Slovenian	7	0.004946
30	Spanish	827	0.584287
31	Swedish	7	0.004946
32	Turkish	144	0.101738
33	Unspecific	2	0.001413
	Total	141540	100

Table 5 provides the language-wise distribution of publications; the scientists/researchers on communication disorders are published in different languages: English, Chinese, Japanese, German, Welsh, French, Portuguese,

and Spanish, etc.; it is observed from the table that the majority (96.39%) of articles published in English language and very a smaller number of articles were published in Serbo-Croat, Norwegian, Lithuania, Estonian and Catalan. English language publications have dominated the data from the research articles on communication disorders. English is the dominant communication language for publication among worldwide research scientists.

5.6 LENGTH OF THE RESEARCH ARTICLES

Table 6 depicts the page-wise analysis of publications' contributions towards communication disorders. The most significant number of publications, 116173 papers (82.1%), have page numbers below 19 pages, and 24599 (17.4%) papers are between 20-34 pages, and like-wise, 589 (0.4%) publications have page numbers between 35-54 pages.

Table 6: Length of the Research Articles

S. No.	Length of the Articles	Nos.	Percentage
1	Below 19 pages	116173	82.1
2	20-34 pages	24599	17.4
3	35-54 pages	589	.4
4	Above 54 pages	179	.1
	Total	141540	100.0

5.7 Single Author Vs Multi – Authors

The analysis of the authorship pattern explains the extent of the research contribution by the researchers. Generally, research is carried out by a group of researchers rather than individuals. It indicates the growing popularity of collaborative research endeavours among scientists. The authorship pattern analysis explains the performance of scientists contributing to the number of papers in a given period. The study of authorship patterns aims to bring out the research pattern in a discipline. The extent of the research contribution by the researchers is explained in the analysis of the authorship pattern. Hence, it is an essential aspect of scientometric analysis. It aims to analyze the performance of scientists in contributing to research, individually or collectively. Many studies have analyzed the subject literature's characteristics and focused their attention on the quality and rate at which authors published in their respective fields. It has received adequate attention in the present research, taking the single author contribution and collaborative author's contribution involved in publications output.

Table: 7: Single Author Vs Multi – Authors

Authors	Total Publications	Percentage
Single Authors	4253	3.00
Multi Authors	137287	97.00
Total	141540	100.00

Table 7 depicts that multi-authors contributed 137287 (97%) publications for twenty years from 1999-2018, and single authors contributed 4253 (3%) publications. Thus, the authorship pattern in communication disorders research is collaborative rather than solo authorship.

5.8 DISTRIBUTION OF YEARS AND NUMBER OF AUTHORS

Table 8 shows that single-authored publications decreased after 2014, showing increasing collaboration trends in communication disorders. Multi-authored papers, especially two to ten authors, have increased in publications in recent years. The most significant growth occurred in publications with ten or more authors, reflecting the rise in collaborative research in communication disorders. The collaboration trends steadily increased from 1999 until 2013, after which considerable collaborative efforts in publications.

Table 8: Years Vs Number of Authors

No. of Authors/	Years of Publication																				Total
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
1	112	90	103	110	117	128	93	129	106	108	133	105	139	82	72	433	423	550	586	634	4253
2	273	216	246	271	290	316	242	308	251	271	321	259	338	191	176	1058	1041	1351	1431	1536	10386
3	185	147	174	185	203	213	156	219	172	176	217	172	234	133	121	717	712	916	966	1062	7080
4	187	146	175	184	205	210	154	227	171	172	212	175	233	134	121	716	711	915	968	1064	7080
5	258	212	227	264	281	302	235	293	241	254	297	261	318	184	165	1013	1003	1298	1356	1453	9915
6	270	208	245	270	299	312	246	317	256	256	302	277	339	194	180	1049	1050	1351	1420	1546	10387
7	240	180	222	230	258	263	210	283	214	222	262	234	296	174	157	900	898	1170	1220	1329	8966
8	260	207	242	257	288	288	230	318	231	245	296	257	329	192	170	991	997	1300	1343	1468	9909
9	280	214	263	270	302	294	241	334	246	253	314	272	341	206	180	1032	1044	1361	1404	1527	10378
10	289	225	270	302	321	348	293	340	270	273	339	291	376	200	188	1152	1155	1490	1535	1658	11318
11	159	118	150	165	176	186	157	187	144	150	185	154	204	110	103	622	625	803	831	899	6128
12	144	109	140	150	162	175	143	171	134	137	169	144	190	96	94	575	574	747	765	839	5658
13	48	38	47	50	56	54	46	62	43	47	55	47	60	40	35	187	191	245	254	280	1885
14	157	120	154	164	176	186	151	189	145	149	183	156	206	107	103	623	620	804	831	905	6129
15	158	119	154	164	178	186	150	189	145	150	185	156	208	108	104	622	620	804	832	903	6129
16	135	98	129	143	149	158	131	159	119	122	153	133	175	86	86	524	529	681	702	764	5183
17	52	36	50	51	56	52	42	62	44	45	55	48	62	39	34	187	188	244	255	284	1886
18	171	131	163	180	186	200	164	202	154	165	195	167	216	122	111	665	675	860	896	977	6600
19	174	128	163	181	186	200	164	204	154	166	195	166	215	123	110	666	674	860	899	972	6600
20	66	49	64	63	66	66	51	78	54	56	70	59	78	49	41	233	236	303	322	355	2359

No. of Auth ors/	Years of Publication																				To tal
	19 99	20 00	20 01	20 02	20 03	20 04	20 05	20 06	20 07	20 08	20 09	20 10	20 11	20 12	20 13	201 4	201 5	201 6	201 7	201 8	
21	24	24	25	24	25	28	19	30	23	22	29	24	30	22	16	96	95	119	132	139	946
22	25	24	24	24	25	28	19	30	23	22	29	26	30	20	16	97	94	119	132	139	946
23	14	11	12	12	12	14	9	16	11	11	15	14	14	10	8	48	47	60	64	71	473
24	14	11	12	12	12	14	9	16	11	11	16	13	14	10	8	47	47	60	64	72	473
25	14	11	12	12	12	14	10	15	11	11	16	13	14	10	8	47	47	60	64	72	473
Tota l	37 09	28 72	34 66	37 38	40 41	42 35	33 65	43 78	33 73	35 07	42 41	36 22	46 57	26 42	24 07	143 00	142 96	184 71	192 72	209 48	1415 40

6. CONCLUSION

The present study analyses data from the Web of Science from 1999 to 2018 in communication disorders. Most papers published in the research on communication disorders are journal articles, comprising 75.5% of research outputs, followed by reviews and conference proceedings—most of the publications in the field of Autism, Hearing disorders, and Deafness. This study observed that multi-author publications (97%) have grown while single-author publications have notably declined, showing the collaborative author's publications in communication disorders. It indicates a shift towards collaborative research in this field. Single-author contributions have consistently decreased from 2014 onwards. This study shows that English (96.4%) dominates as the primary language of publications, with a small percentage of papers published in other languages, such as German, French, and Chinese. Most of the research papers published (82.1%) are under 19 pages long, and only a small portion exceeds 35 pages. This study shows valuable insights into the evolving research patterns in communication disorders, highlighting the growing collaborative research with Autism and Hearing disorders as dominant areas of the study.

7.0 REFERENCES

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