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Scientometric study of Literature output on Internet addiction in children from 1999-2018

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Abstract

Internet addiction. Phone addiction. Technology addiction, now a days all the parents are expressing worries that their children are addicted to their devices. Children, who become addicted to the Net, are mostly allured by online games initially. However, they may eventually be exposed to unwanted or obscene content on the Net or even commit a cybercrime. The data is collected from PubMed database using keyword search. The collected data is analyzed for total number of publications on Internet addiction in children, authorship pattern, geographical wise contribution, most prolific author contributions, most affiliated institute, relative growth rate and so on. From the collected data total number of publications from 1999 to 2018 is 502, authorship pattern shows multi authors contributed 156 (31.08%) articles, single author contributed 50(9.96%), average Relative growth rate (RGR)was 0.328 and doubling time(dt) was 2.709. the top 10 prolific contributed countries they are China contributed 84 articles, Second by United States 68, Third by Korea contributed 57. India contributed 4 articles occupies 20th position. The most preferred language of authors was found to be English is the most preferred language of the author totally 452 (90.04%) articles. Second by Germany total of 18(3.58%), Chinese contributed 9(1.79%) articles, ranking of the authors on their number of contributions Guangheng Dong contributed 8 articles, Daniel T L Shek and Lutz Wartberg contributed 6 articles each. the prolific contributed affiliated institution for internet addiction Department of Psychiatry, Kaohsiun Medical University Hospital, Taiwan and Department of Psychology, Zhejiang Normal University, Jinhua, Zhejiang, PR China. Electronic address: dongguangheng@zjnu.edu.cn.Each contributed 8(1.56%), Degree of collaboration by Dr. k. Subramaniam formula is 0.8 Journal of Behavioral Addictions contributed 41(8.2%) articles, followed by Cyberpsychology, Behavior, and Social Networking contributed 26 (5.2%) articles, third by Addictive Behaviors has contributed 20 (4.0%) articles. From the result of analysis shows that Indian contribution on internet addiction is too meagre, contribution of single author Is too low compare with multiauthor.

Keywords: Internet, Addiction, Scientometric Study, internet addiction in children, Authorship pattern, degree of collaboration.

I. Introduction

Internet is a worldwide framework that can be utilized for sharing data, giving overall administrations and correspondence. Day by day updates are effectively and immediately accessible in the web. Quite a long time ago, phone was viewed as a quick method of correspondent. Presently, web has hugely developed and supplanted phone as quick method of communication. The web has barged in internationally into everything than we could envision.

There are not really individuals who don't depend on the web for their day by day life. Web has risen so that we happen to utilize it to run our day by day life in some way[1]. The employments of web are perpetual it is valuable in every one of the fields like education, communication, current updates, corporate base, E Business and so on.

Internet addiction is a motivation control issue that includes the over the top utilization of cell phones, the web or computer games, in spite of negative results to the client of the innovation. The disorder may also be referred to as digital addiction or internet addiction[2]. Technology addiction falls into the category of compulsive behavior that it is difficult or impossible to simply abstain from, like food or sex addictions[3]. Internet addiction is one of the national health problems in countries like South Korea[4].

II.   Review of Literature

Sookeun Byun, Ph.D. and Others (2009)[5] they analyzed the Internet addiction published in academic journals for the period 1996–2006. From their examination found that past investigations have used conflicting criteria to characterize Internet addicts, applied selecting strategies that may cause genuine inspecting predisposition, and analyzed information utilizing essentially exploratory as opposed to corroborative information investigation procedures to research the level of affiliation instead of causal connections among factors. . From their examination found that past investigations have used conflicting criteria to characterize Internet addicts, applied selecting strategies that may cause genuine inspecting predisposition, and analyzed information utilizing essentially exploratory as opposed to corroborative information investigation procedures to research the level of affiliation instead of causal connections among factors. Suggestions are given on how analysts can fortify this developing field of research. Analysts should work to build up an institutionalized meaning of Internet habit with supporting avocation. We found that past examinations on Internet enslavement were principally worried about the forerunners of Internet compulsion and with recognizing highlights in members that made an individual increasingly defenseless to turning into an Internet fanatic.

Young K, and de Nabuco Abreu C (2011)[6] Young K, and de Nabuco Abreu C (2011) Internet Addiction was first researched in 1996, and findings have been provided on the American Psychological Association. The look at reviewed over six hundred cases of heavy Internet customers who exhibited scientific signs and symptoms of dependency as measured through an adapted model of the DSM-IV standards for pathological gambling (Young, 1996). Since then, next studies over the last decade have examined numerous elements of the ailment. Early studies attempted to define Internet dependency and examined behavior styles that differentiated compulsive from normal Internet usage. The Internet Addiction Test (IAT) is the first established tool to assess Internet dependency, the take a look at measures the extent of a purchaser's involvement with the computer and classifies the addictive behavior in phrases of moderate, slight, and excessive impairment

Olatz Lopez-Fernandez (2015)[7] reviewed that During the past two decades, Internet addiction (IA) has been the most commonly used term among researchers examining online activities and their influence on the development of general or specific behavioral addictions. IA typically is

characterized as a person's powerlessness to control their Internet use, which may prompt the improvement (and upkeep) of addictive symptomatology, practical impedance, and, in certain clients, comorbidity. The term is thought to have been coined around the mid-1990s [1•]; expert researchers, such as Griffiths [2•], argued for the existence of technologic (behavioral) addictions in 1995, the main finds are learned from this analysis are as follows: (i) as research lines have diversified and specialized, the focus of IA explore has started to move from an increasingly summed up build in a few spaces (i.e., epidemiologic, clinical, and neuropsychological) to explicit online addictive practices. (ii) From a mental point of view, there is by all accounts a reasonable heterogeneity inside the particular cyberaddiction range, with an accentuation on web-based gaming, cybersex, and informal communication. (iii) IGD slightly affected the IA logical writing distributed by specialists in brain science during the period under research, and the vast majority of the papers discovered were remarks identified with the APA proposition in DSM-5

Sachin R Gedam and others (2017)8 broke down the web utilization among the understudies by cross-sectional examination was directed among 846 understudies of different resources from Deemed University. Understudies were surveyed with semi-organized information, Internet Addiction Test and Mental Health Inventory, in the wake of giving them brief directions. Understudies were arranged into ordinary understudies and dependent understudies for correlation. The all-out predominance of web dependence was 19.85%, with moderate and serious fixation being 19.5% and 0.4%, separately. Critical affiliation was found among psychopathology and web compulsion. Male sexual orientation, login status, passionate ties, and mental trouble were seen as significant indicators of web compulsion among understudies

Manish Kumar, and Anwesha Mondal (2018)[9] they analyzed the internet usage among college students by collecting samples A total of 200 college students were selected from different colleges of Kolkata through random sampling. After selection of the sample, Young's Internet Addiction Scale, Symptom Checklist-90-Revised, and Rosenberg Self-Esteem Scale were used to assess the Internet usage, psychopathology, and self-esteem of the college student. Sorrow, nervousness, and relational affectability were seen as associated with Internet compulsion. Alongside that, low confidence has been seen in understudies as related with potential clients of Internet. Web use has been found to have an exceptionally solid effect on undergrads, particularly in the regions of uneasiness and sorrow, and on occasion it influenced their public activity and their association with their family.

Geetha.S and Thilagavathy.N(2018)[10], analyzed the journal of addictive behaviors from 2013 to 2017 for authorship pattern, degree of collaboration, growth analysis.   From analysis it is found that article contribution was increased gradually and decreased. Original article was highly contributed by authors than other type of articles. Multi author contribution was more than single author. They suggest that single author contribution have to be increased.

III. **Objective**

1. To find the year wise growth of literature on internet addiction

2. To find the Authorship pattern

3. To find the Relative Growth Rate

4. To find the Geographical wise distribution of contribution

5. To find the language of Contributions

6. To find the Ranking of author's contribution

7. To find the Degree of collaboration

8. To find the most prolific contributed institution

9. To find the Ranking the Journals contribution

IV.   Material and Methods

Internet Addiction in children is also known as the technology advancement impact on children's behavior, psychological changes etc., By using key word search the data is collected from PubMed data base. The collected data is arranged in excel format. Analyzed for year wise distribution of article, authorship pattern, Relative growth rate, Geographical wide distribution of contributions by authors, ranking of author, degree of collaboration is found.

V.   Analysis

V.1   Table 1 Year wise growth of literature on Internet addiction.

Year	Number of contributions	Cumulative	percentage
1999	1	1	0.2
2000	2	3	0.398
2001	1	4	0.2
2002	2	6	0.398
2003	1	7	0.2
2004	8	15	1.593
2005	6	21	1.195
2006	10	31	1.992
2007	12	43	2.390
2008	14	57	2.788
2009	20	77	3.984
2010	23	100	4.581
2011	20	120	3.984
2012	30	150	5.976
2013	23	173	4.581
2014	49	222	9.760
2015	55	277	10.956
2016	54	331	10.756
2017	76	407	15.139

2018	95	502	18.924
Total	502		100

From the above table it is observed that totally 502 articles are published on internet addiction. It is found that there are only 21 articles were published between 1999-2005 on internet addiction, in the year 2017 there are 76 articles published, in the year 2018 there are 95 articles published.

V.2   Table 2. Authorship Pattern

S.No.	Type of author	No. of Contributions	Cumulative	Percentage
1	Single	50	50	9.96
2	Double	70	140	13.94
3	Triple	75	225	14.94
4	Four	74	296	14.74
5	Five	77	385	15.34
6	Multi	156	1497	31.08
		502	2593	100

Table 2 shows that there are 50 research papers were contributed by single authors, is fewer than double author contributions 70 articles, triple author contributed 75 articles, four authors contributed 74 articles, five authors contributed 77 articles and finally multi author contributed 156 articles, so it shows that authors are preferred collaborative work.

V.3   Table 3 **Relative growth rate (RGR)and Doubling time (DT)**

Year	Number of contributions	Cumulative	W1	W2	RGR	Dt
1999	1	1		0		
2000	2	3	0	1.099	1.099	0.348
2001	1	4	1.099	1.386	0.287	2.415
2002	2	6	1.386	1.792	0.406	1.706
2003	1	7	1.792	1.946	0.154	4.5
2004	8	15	1.946	2.708	0.772	0.897
2005	6	21	2.708	3.045	0.337	2.056
2006	10	31	3.045	3.434	0.389	1.781
2007	12	43	3.434	3.761	0.327	2.119
2008	14	57	3.761	4.043	0.282	2.457
2009	20	77	4.043	4.344	0.301	2.302
2010	23	100	4.344	4.605	0.261	2.655
2011	20	120	4.605	4.787	0.182	3.808
2012	30	150	4.787	5.011	0.224	3.094
2013	23	173	5.011	5.153	0.142	4.880
2014	49	222	5.153	5.403	0.25	2.772
2015	55	277	5.403	5.624	0.221	3.136
2016	54	331	5.624	5.802	0.178	3.893

2017	76	407	5.802	6.009	0.207	3.348
2018	95	502	6.009	6.219	0.21	3.3
Total	502				0.328	2.709

From the table 3 the average relative growth rate is 0.328 and Doubling time is 2.709.

V.4   Table 4 **Geographical wide top 10 countries contribution on internet addiction**

Name of the Country	Number of Contributions	Percentage	Rank
China	84	16.73	1
United States	68	13.55	2
Korea	57	11.35	3
Germany	38	7.570	4
Taiwan	28	5.578	5
Turkey	25	4.980	6
Canada	17	3.386	7
Australia	16	3.187	8
Spain	15	2.988	9
Greece	13	2.590	10

Table 4 shows the top 10 prolific contributed countries, First by China contributed 84 articles, Second by United States 68, Third by Korea contributed 57. India contributed 4 articles occupies 20th position.

V.5   Table 5 **Author preferred Language for their research articles**

Language	No. of contributions	Percentage	Rank
English	452	90.04	1
Germany	18	3.58	2
China	9	1.79	3
French	7	1.39	4
Korea	4	0.80	5
Spain	4	0.80	5
Poland	2	0.40	6
hrv	1	0.2	7
Hungary	1	0.2	7
Iceland	1	0.2	7
Italy	1	0.2	7
Japan	1	0.2	7
Russia	1	0.2	7
	502	100	

From the table 5 it shows the author preferred language for their contributions, English is the most preferred language of the authors publications, there are 452 (90.04%) articles are contributed in English. Second by Germany total of 18(3.58%), Chinese contributed 9(1.79%) articles,

V.6   Table 6 **Ranking of author depends on their number of contributions**

Name of the Author	No. of Contributions	Percentage	Rank
Guangheng Dong	8	1.6%	1
Daniel T L Shek	6	1.2%	2
Lutz Wartberg	6	1.2%	3
Daniel L King	5	1.0	4
Antonius J van Rooij	4	0.80	5
Chih-Hung Ko	4	0.80	6
Kai W Müller	4	0.80	7
Marc N Potenza	4	0.80	8
Alexandra Torres-Rodríguez	3	0.6	9
Dimitri A Christakis	3	0.6	10

From the table 6 ranking of the authors on their number of contributions author Guangheng Dong

contributed 8 articles, Daniel T L Shek and Lutz Wartberg contributed 6 articles each.

V.7   Degree of collaboration by Dr.K. Subramaniam Method

Degree of collaboration $Dc = Nm/Nm+Ns$, $156/156+50 = 0.8$

Table 8

Top 10 affiliated institutions contributions

Name of the institute	No. of contribution	Percentage
Department of Psychiatry, Kaohsiung Medical University Hospital, Taiwan.	8	1.56
Department of Psychology, Zhejiang Normal University, Jinhua, Zhejiang, PR China. Electronic address: dongguangheng@zjnu.edu.cn.	8	1.56
Department of Applied Social Sciences, The Hong Kong Polytechnic University, Hung Hom, Hong Kong, China.	7	1.4
Department of Psychiatry, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan; Department of Psychiatry, Faculty of Medicine, and Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan.	7	1.4

Department of Psychology, Zhejiang Normal University, Jinhua, Zhejiang Province; Institute of Psychological and Brain Sciences, Zhejiang Normal University, Jinhua, Zhejiang Province. Electronic address: dongguangheng@zjnu.edu.cn.	7	1.4
Department of Child and Adolescent Psychiatry, Istanbul Medicine Faculty, Istanbul University, Faith, 34116, Istanbul, Turkey. drmc78@gmail.com.	6	1.2
Department of Psychiatry, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan; Department of Psychiatry, Faculty of Medicine, and Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan.	6	1.2
Department of Psychology, Zhejiang Normal University, Jinhua, Zhejiang Province, PR China. Electronic address: dongguangheng@zjnu.edu.cn.	6	1.2
Department of Psychiatry, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan.	5	1.0
Department of Psychology, Zhejiang Normal University, Jinhua, PR China; Institute of Psychological and Brain Sciences, Zhejiang Normal University, Jinhua, China. Electronic address: dongguangheng@zjnu.edu.cn.	5	1.0

From the table 8 the prolific contributed affiliated institution for internet addiction Department of Psychiatry, Kaohsiun Medical University Hospital, Taiwan and Department of Psychology, Zhejiang Normal University, Jinhua, Zhejiang, PR China. Electronic address: dongguangheng@zjnu.edu.cn.Each contributed 8(1.56%)

V.8   Table 9 Ranking the Journal depend on its number of contributions

S. No	Name of the Journal	No. of Contribution	Percentage	Rank
1	Journal of Behavioral Addictions	41	8.2	1
2	Cyberpsychology, Behavior, and Social Networking	26	5.2	2

3	Addictive Behaviors	20	4.0	3
4	PLoS One	18	3.6	4
5	Cyberpsychology & Behavior	13	2.6	5
6	Psychiatry Research	12	2.4	6
7	Psychiatry and Clinical Neurosciences	10	2.0	7
8	Addiction	8	1.56	8
9	BMC Public Health	6	1.2	9
10	Child and Adolescent Psychiatric Clinics of North America	6	1.2	10

From the table 9 it is observed that Journal of Behavioral Addictions contributed 41(8.2%) articles, followed by Cyberpsychology, Behavior, and Social Networking contributed 26 (5.2%) articles, third by Addictive Behaviors has contributed 20 (4.0%) articles.

VI. Conclusion

Web fixation among youngsters is a developing concern everywhere throughout the world. Online access is an imperative piece of the cutting-edge world and a significant apparatus in our kids' training.

Like dependence on medications and liquor, the web offers kids and teenagers an approach to escape difficult sentiments or disturbing circumstances. They penance required long periods of rest to invest energy on the web and pull back from loved ones to escape into an agreeable online world that they have made and formed. The guardians should consider their youngster future they ought not engage this propensity for dependence on the net. The parent ought to go through parcel of hours with their children, energize the child on physical exercises like open air games so on.

From the collected data total number of publications from 1999 to 2018 is 502, authorship pattern shows multi authors contributed 156 (31.08%) articles, single author contributed 50(9.96%), average Relative growth rate (RGR)was 0.328 and doubling time(dt) was 2.709. the top 10 prolific

contributed countries were found, First by China contributed 84 articles, Second by United States 68, Third by Korea contributed 57. India contributed 4 articles occupies 20th position. The most preferred language of author for their contributions, English is the most preferred language of the author totally 452 (90.04%) articles are contributed in English. Second by Germany total of 18(3.58%), Chinese contributed 9(1.79%) articles, ranking of the authors on their number of contributions author Guangheng Dong contributed 8 articles, Daniel T L Shek and Lutz Wartberg contributed 6 articles each. the prolific contributed affiliated institution for internet addiction Department of Psychiatry, Kaohsiun Medical University Hospital, Taiwan and Department of Psychology, Zhejiang Normal University, Jinhua, Zhejiang, PR China. Electronic address: dongguangheng@zjnu.edu.cn.Each contributed 8(1.56%), Degree of collaboration by Dr. k. Subramaniam formula is 0.8 Journal of Behavioral Addictions contributed 41(8.2%) articles, followed by Cyberpsychology, Behavior, and Social Networking contributed 26 (5.2%) articles, third by Addictive Behaviors has contributed 20 (4.0%) articles. From the result of analysis shows that Indian contribution on internet addiction is too meagre, contribution of single author Is too low compare with multiauthor

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