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Recent Trends, Current Research in Cyberpsychology: a literature review

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Recent Trends, Current Research in Cyberpsychology: a literature review

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Abstract

Cyberpsychology refers to the study of the mind and behavior in the context of interactions with technology. It is an emerging branch, which has focused on the psychological aspects connected to the increasing presence and usages of technology in modern lives. This paper traces recent advancement and trends of Cyberpsychology is an emerging domain of knowledge and goes on to give a literature review of the same. An analysis of the recent research and literature covering 300 most relevant research papers from the period of 2012 to 15, August 2019 was conducted to determine and shape the research pattern based on year of publication, country, and subject domains of Cyberpsychology along with its determinants of subjective well-being.

Keywords: Cyberpsychology, Literature review, Applied Psychology, Clinical Psychology, Digital devices, Virtual reality, Augmented reality, Artificial intelligence, Digital addiction, Digital anxiety.

Introduction

Cyberpsychology is a relatively new field of study (Suler, J., 2004), it aims to understand how human interacts with emerging technologies, such as digital devices, internet, virtual reality and artificial intelligence (Riva, G. & Galimberti, C. (Eds.), 2001). In this sense, it can utilize in the mental health wellbeing (Liu, C. Y. & Yu, C. P., 2013; Baek, Y. M., Bae, Y. & Jang, H., 2013; Gaggioli, A. & Riva, G., 2013; McDaniel, B. T., Coyne, S. M. & Holmes, E. K., 2012). It can also be widely used, for instance, in the context of cyber world (Khichi Jr, N. N., 2019; Chawki, M., Darwish, A., Khan, M. A. & Tyagi, S., 2015; Wiederhold, B. K., 2009) and clinical psychology (Vincelli, F., 1999; Riva, G., 2003; Castelnovo, G., Gaggioli, A. & Riva, G., 2001). The Cyberpsychology newly emerging discipline defined as “the study

of how new communication technologies influence, and are influenced by, human behaviors and subjectivities (Harley, D., Morgan, J. & Frith, H., 2018)".

Background of the study

The term "Cyberpsychology" had origin in the field of applied psychology (Barak, A. & Suler, J., 2008; Kirwan, G., 2010). The term Cyberpsychology may be unfamiliar, but it goes back more than two decades. It was a term that surfaced in the mid-1990s among the early researchers who were studying online behavior (Suler, J. R., 2000). According to past studies, "Cyberpsychology and Behaviour" was the first journal to use the term Cyberpsychology, which launched in 1998, that U.S. based journal changed its name to "Cyberpsychology, Behaviour, and Social Networking " in 2010 (Young, K. S. & Rogers, R. C., 1998). The American Psychological Association only adopted the Cyberpsychology term first used in Cyberpsychology & Behaviour journal in 1998 but it in a general way 2017 (American Psychological Association, 2017). The stress and negative impulse rapidly increased in human life due to heavily used of technologies (Yuvaraj, M. & Singh, A. K., 2015), strongly need to Cyberpsychology as a mainstream subject domain. The recent research focused on definition of Cyberpsychology (Parsons, T. D., 2017; Power, A. & Kirwan, G. (Eds.), 2013; Norman, K. L., 2017; Connolly, I., Palmer, M., Barton, H. & Kirwan, G. (Eds.), 2016)

Thus, the Cyberpsychology is a relatively new field within applied psychology, which examines how we interact with others using technology, how our behavior is influenced by technology. The most commonly studied technology in Cyberpsychology research on the internet, all through the area considers human interactions with many devices, including mobile computing, games consoles, virtual reality and artificial intelligence (Connolly, I., Palmer, M., Barton, H. & Kirwan, G. (Eds.), 2016). At the conclusive ends, Cyberpsychology is an emerging branch of applied psychology included examine the World Wide Web (WWW), and in the particular the advent of social media. However, other technologies have been also closely examined, including gaming both online & offline, mobile computing, artificial intelligence, virtual reality and augmented reality.

Methodology

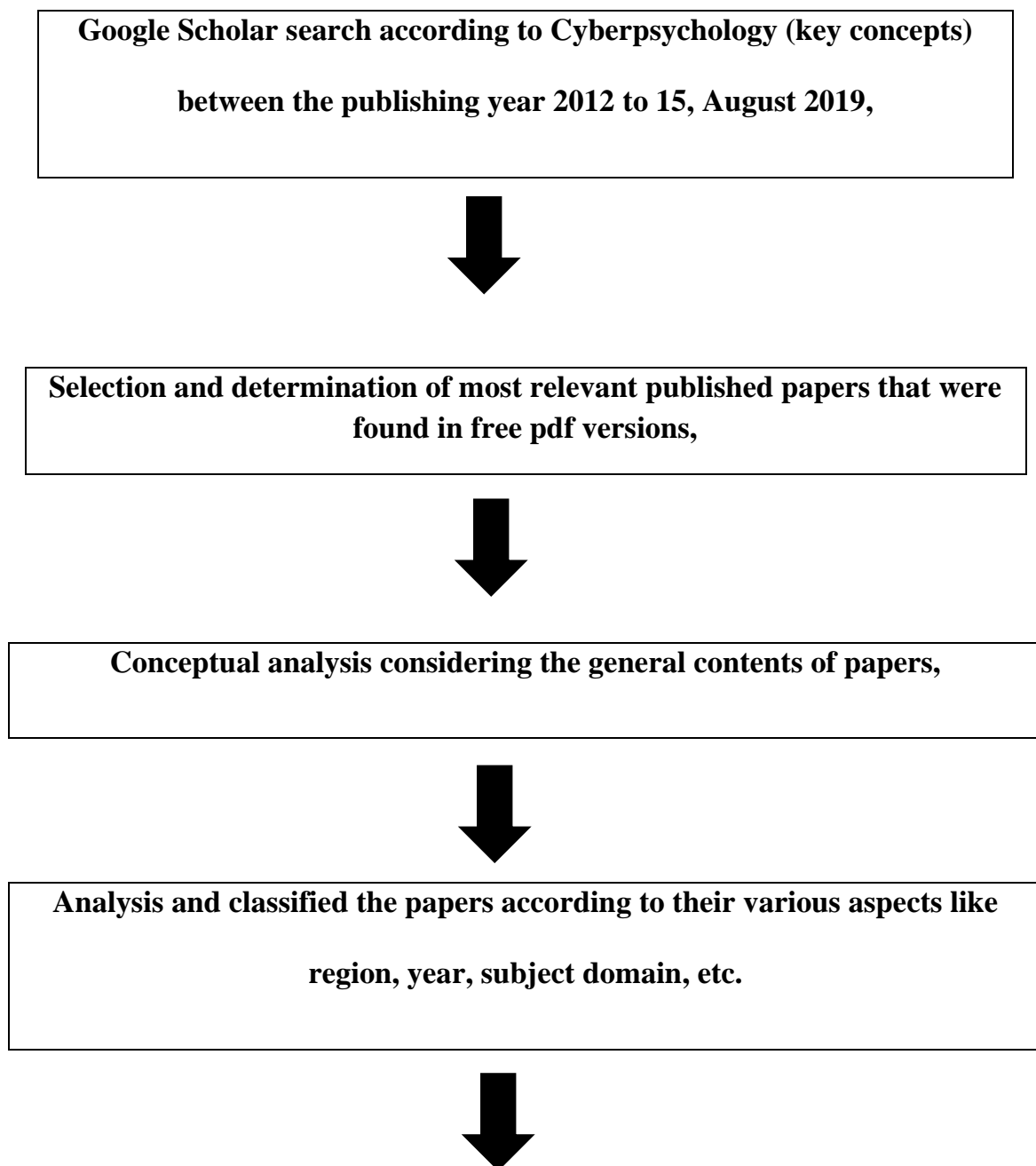
We conducted a literature review in following steps, to reach for a conceptual dimension on Cyberpsychology according to analyzed papers contents (see Figure-1.) consisting of:

- [1] Searches in Google Scholar for the most relevant scientific scholarly papers published between the year 2012 to 15, August 2019,

- [2] Selection and determination of most relevant published papers that were found in free pdf versions,
- [3] Conceptual analysis considering the general contents of papers,
- [4] Analysis and classified the papers according to their various aspects like region, year, subject domain, etc.
- [5] Review and classified the papers according to their respective subject domains,
- [6] Generate conceptual view of Cyberpsychology.

Figure.1: Pictorial representation of steps of reviewing literature related to Cyberpsychology

Process Steps



Review and classified the papers according to their respective subject

domains,



Generate conceptual view of Cyberpsychology.

Procedure

Focused in Cyberpsychology literature and following the essential process steps followed which graphically described in the figure. 1.

The first step to start searching the literature review was established. Cyberpsychology was the most important filter or keyword considered, and we only selected papers that had this keyword in the respective sections (i.e., abstract, keyword, introduction, conclusion and future research, etc.). Google scholar was chosen for its broad coverage of available scientific documents.

Results and discussion

A total number of results after searching Google Scholar 1635 were found in the first step (Table. 1).

**Table.1: Total number of publications on Cyberpsychology from 2012 to 15, August 2019
(Result after the first search)**

Keyword search term	Total results found after the search
Cyberpsychology	1635 articles

Through the application of the inclusion criteria (most relevant papers), this number decreased to 506 papers (Table.2).

**Table.2: Total number of publications on Cyberpsychology from 2012 to 15, August 2019
(Result after the second search)**

Results after filtering as relevant articles	506 articles
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Another use of the inclusion criteria (free pdf papers), the number of 506 papers again decreased to 300 papers (Table.3).

**Table.3: Total number of publications on Cyberpsychology from 2012 to 15, August 2019
(Result after the third search)**

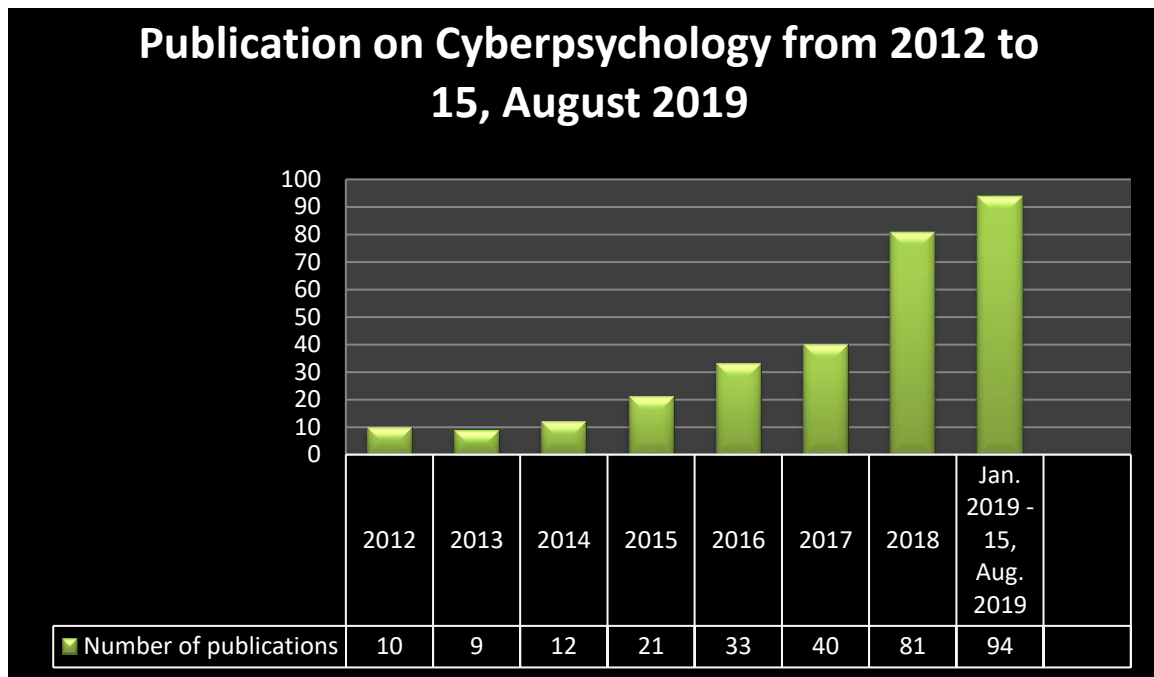
Results after filtering as relevant articles in a free pdf version	300 articles
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Key topics and publications conclusions were observed carefully. In a first overview, we could see that from 2012 until 2019 we found that publications increased, from 2014 to 2019 exponential growths shown (Table.4).

Table.4: Publication on Cyberpsychology from 2012 to 15, August 2019

Year of publication	Number of publications
2012	10
2013	09
2014	12
2015	21
2016	33
2017	40
2018	81
January 2019 – 15, August 2019	94

Graph.1: Publication on Cyberpsychology from 2012 to 15, August 2019



The region where the study was conducted is identified which shows that the researcher belongs to which country (Table.5). The overall aim of each publication is also stated. The majority of studies are being developed in United Kingdom (117 number of publications), Netherlands (54) and the United States (52). Furthermore, a dispersion of remaining publications is observable in Europe through different countries such as Hungary (07), Spain (15), Italy (13), Germany (21) and some Asian country like China (18), and South Korea (08). It is interesting to note that the European countries are in the lead of recent research of Cyberpsychology (Table.5).

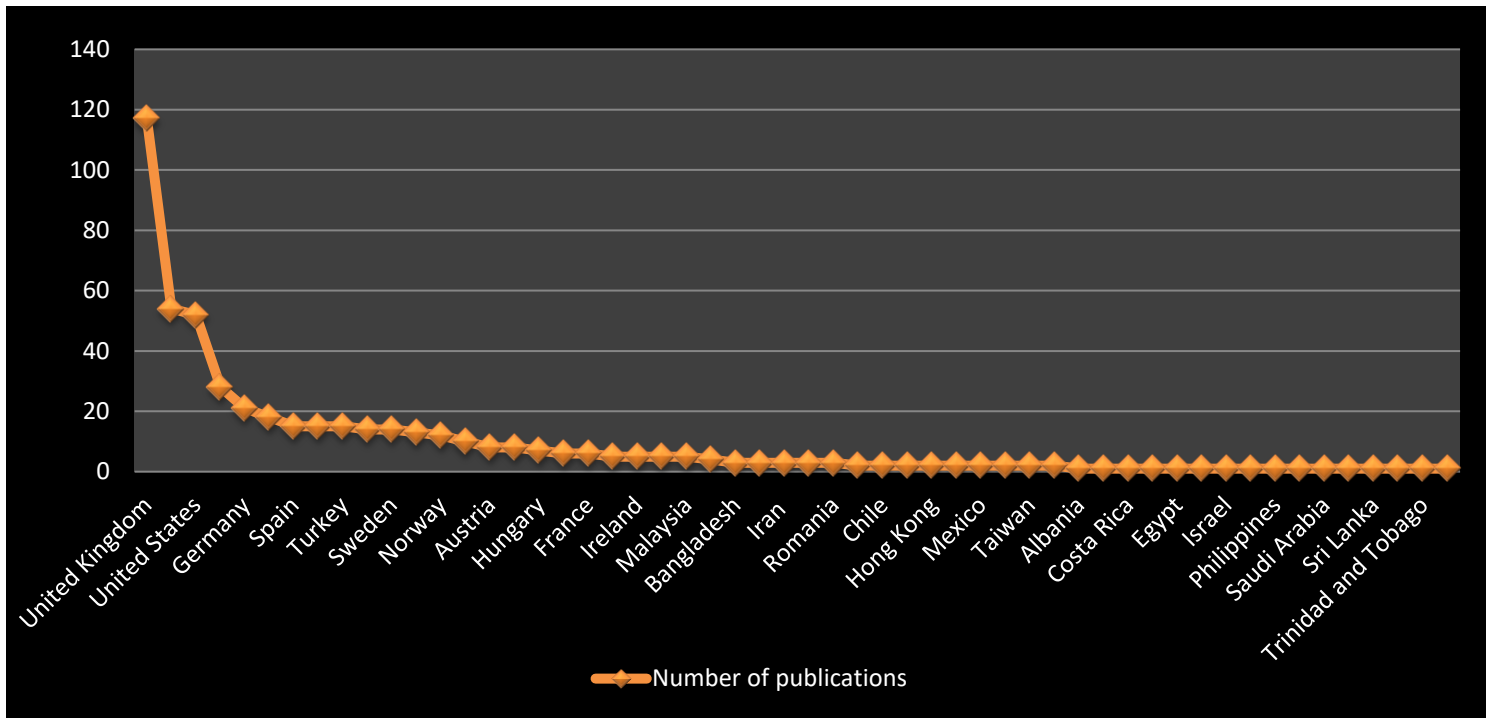
Table.5: Publication on Cyberpsychology from 2012 to 15, August 2019 (Country wise)

Countries	Number of publications
United Kingdom	117
Netherlands	54
United States	52
Australia	28
Germany	21
China	18
Spain	15

Switzerland	15
Turkey	15
Canada	14
Sweden	14
Italy	13
Norway	12
Finland	10
Austria	08
South Korea	08
Hungary	07
Belgium	06
France	06
Greece	05
Ireland	05
Japan	05
Malaysia	05
Portugal	04
Bangladesh	03
India	03
Iran	03
Poland	03
Romania	03
Brazil	02
Chile	02
Denmark	02
Hong Kong	02
Indonesia	02
Mexico	02

New Zealand	02
Taiwan	02
Vietnam	02
Albania	01
Angola	01
Costa Rica	01
Czech Republic	01
Egypt	01
Estonia	01
Israel	01
Nigeria	01
Philippines	01
Qatar	01
Saudi Arabia	01
Singapore	01
Sri Lanka	01
State of Palestine	01
Trinidad and Tobago	01
Tunisia	01

**Graph.2: Publication on Cyberpsychology from 2012 to 15, August 2019
(Country wise)**



After the final, review the all selected articles, clearly shown that the quantity of current research conduct in the field of Psychology in recent years. However, the majority of studies developed in various subject domains like Medical and Public Health (132 numbers of publications), Public Health (107) and the Psychiatry (86). Eventually, rest of publications is observable in mainly almost all major subject of universe of knowledge such as Psychology, General (79), Community and Environmental Psychology (78), Health Psychology (68), Psychology (66) and some subjects other than Psychology and Medical like Social Sciences (21), and Sociology (37). It is interesting to note that the Psychology and Medical Science are in the lead of recent research of Cyberpsychology.

**Table.6: Publication on Cyberpsychology from 2012 to 15, August 2019
(Subject domain wise)**

Subject Domain	Number of publications
Medicine & Public Health	132
Public Health	107
Psychiatry	86
Psychology, general	79
Community and Environmental Psychology	78
Health Psychology	68
Psychology	66
Rehabilitation	58
Sociology, general	37
Social Sciences, general	36
Medicine/Public Health, general	30
Computer Science	28
Child and School Psychology	27
Cognitive Psychology	23
Quality of Life Research	22
Social Sciences	21
Neurosciences	20
Science, Humanities and Social Sciences, multidisciplinary	20
Science, multidisciplinary	20
Biostatistics	17
Environmental Health	17
Epidemiology	17
Vaccine	17
Business and Management	16
Business and Management, general	15
Clinical Psychology	15
Management of Computing and Information Systems	15
Educational Technology	13
Personality and Social Psychology	13
Health Informatics	12
IT in Business	11
Neurology	11
Computer Appl. in Social and Behavioural Sciences	10
Computers and Education	10

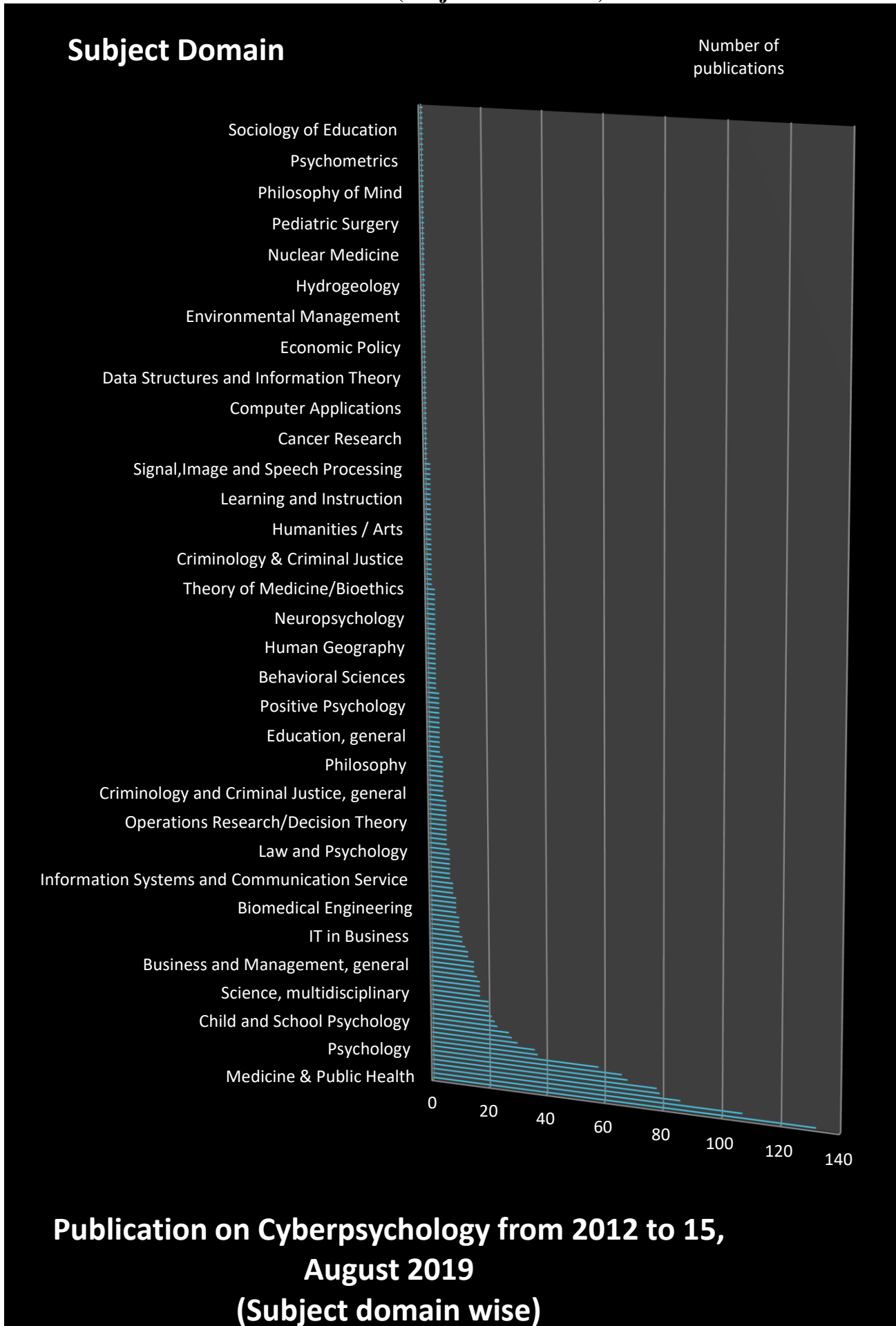
Economics, general	10
User Interfaces and Human-Computer Interaction	10
Biomedical Engineering	9
Education	9
Higher Education	9
Pediatrics	9
Biomedicine	8
Computer Science, general	8
Information Systems and Communication Service	8
Environment, general	7
Ethics	7
History of Psychology	7
Information Systems Applications (including the Internet)	7
Information Systems Applications (excluding Internet)	7
Law and Psychology	7
Psychology Research	7
Characterization and Evaluation of Materials	6
Chemistry	6
Health Promotion and Disease Prevention	6
Life Sciences, general	6
Operations Research/Decision Theory	6
Psychotherapy	6
Rehabilitation Medicine	6
Statistics for Life Sciences, Medicine, Health Sciences	6
Statistics for Social Science, Behavioural Science, Education, Public Policy, and Law	6
Textile Engineering	6
Criminology and Criminal Justice, general	5
Developmental Psychology	5
e-Commerce/e-business	5
Health Administration	5
Innovation/Technology Management	5
Library Science	5
Philosophy	5
Philosophy, general	5
Systems Theory, Control	5
Artificial Intelligence (incl. Robotics)	4
Biomedicine, general	4
Economics general	4
Education, general	4
Engineering	4

Experimental Psychology	4
Management	4
Marketing	4
Oncology	4
Positive Psychology	4
Simulation and Modelling	4
Social Work and Community Development	4
Systems and Data Security	4
Aging	3
Anthropology	3
Behavioural Sciences	3
Biological Psychology	3
Criminology and Criminal Justice	3
Educational Psychology	3
Gender Studies	3
Geriatrics/Gerontology	3
Human Geography	3
Interaction Design	3
Internal Medicine	3
Maternal and Child Health	3
Medical Education	3
Social Sciences, Methodology	3
Neuropsychology	3
Primary Care Medicine	3
Sexual Behaviour	3
Signal, Image and Speech Processing	3
Social Policy	3
Statistics for Social Sciences, Humanities, Law	3
Theory of Medicine/Bioethics	3
Behavioural Therapy	2
Biomedicine general	2
Business Ethics	2
Computing Methodologies	2
Control, Robotics, Mechatronics	2
Criminology & Criminal Justice	2
Early Childhood Education	2
Earth Sciences	2
General Practice / Family Medicine	2
Gynecology	2
Human Physiology	2
Humanities / Arts	2
Humanities, general	2
Image Processing and Computer Vision	2
Imaging / Radiology	2
Information Storage and Retrieval	2
Landscape/Regional and Urban Planning	2

Learning and Instruction	2
Microeconomics	2
Natural Hazards	2
Orthopedics	2
Philosophy of the Social Sciences	2
Regional and Cultural Studies	2
Signal, Image and Speech Processing	2
Social Work	2
Accounting/Auditing	1
Biometrics	1
Business Information Systems	1
Business Strategy/Leadership	1
Cancer Research	1
Cardiac Imaging	1
Civil Engineering	1
Climate Change	1
Communications Engineering, Networks	1
Computation by Abstract Devices	1
Computer Applications	1
Computer Communication Networks	1
Computer Graphics	1
Computer Systems Organization and Communication Networks	1
Corporate Finance	1
Cross-Cultural Psychology	1
Data Structures and Information Theory	1
Data Structures, Cryptology and Information Theory	1
Dentistry	1
Document Preparation and Text Processing	1
Earth Sciences, general	1
Economic Geography	1
Economic Policy	1
Economics / Management Science	1
Educational Philosophy	1
Engineering Economics, Organization, Logistics, Marketing	1
Engineering, general	1
Entrepreneurship	1
Environmental Management	1
Geophysics/Geodesy	1
Geotechnical Engineering & Applied Earth Sciences	1
Head and Neck Surgery	1
Health Policy	1
Health Services Research	1

Hydrogeology	1
Immunology	1
Industrial and Organizational Psychology	1
International and Comparative Education	1
Minimally Invasive Surgery	1
Multimedia Information Systems	1
Nuclear Medicine	1
Nursing Management/Nursing Research	1
Oral and Maxillofacial Surgery	1
Otorhinolaryngology	1
Pattern Recognition	1
Pedagogic Psychology	1
Paediatrics Surgery	1
Performing Arts	1
Personal Computing	1
Pharmacology/Toxicology	1
Pharmacotherapy	1
Phenomenology	1
Philosophy of Mind	1
Philosophy of Science	1
Philosophy of Technology	1
Political Science	1
Population Economics	1
Psychological Methods/Evaluation	1
Psychometrics	1
Psychosomatic Medicine	1
Psychotherapy and Counselling	1
Regional/Spatial Science	1
Reproductive Medicine	1
Rheumatology	1
Sociology of Education	1
Statistical Theory and Methods	1
Surgical Oncology	1
Sustainable Development	1
Technology and Digital Education	1

**Graph.3: Publication on Cyberpsychology from 2012 to 15, August 2019
(Subject domain wise)**



Conclusion

Cyberpsychology is an emerging branch of applied psychology and clinical psychology has become very important, playing a relevant role in all subject domains. Final reviews of the literature of Cyberpsychology published under the year of 2012 to 15, August 2019 concluded that the emerging subject domain Cyberpsychology now widely acknowledge by researchers. Progressively, more researchers related to health, medical and psychological sector aim to projected Cyberpsychology as an emerging subject. By selecting the appropriate papers on Google scholar to understand and analyze the multidisciplinary aspects of 'Cyberpsychology' research, conducting a content analysis to appropriate identify relevant concepts, and conceptual themes. In few years back, we witnessed a rapid rise of computing and mobile technology, influencing human behaviour change, with common labels like digital addiction, digital anxiety, or negative effects of used of technologies, focused on the purpose of clinical psychology, and having a psychological and behavioural impact, detrimental for the technologies users . This includes a wide scope of knowledge area for health and wellbeing promotion. The growing number of empirical research on Cyberpsychology basically, about users change behavior originated a proliferation of academic journals to disclose such research efforts (including the areas of human-computer interaction, cyber behavior, Virtual interiors, e-therapy, digital addiction, technostress, cyborgs, cybertherapy, cyberbullying and digital closet, etc.).

This led some researchers to study how this recent and relevant research in the field of Cyberpsychology has been addressed in specific domains. The purpose of this study was to explore recent research, emerging relevant themes and concepts in Cyberpsychology focused current trends, considering papers published by Google Scholar in a period of approx. six years (from 2012 to 15 August 2019). Our findings confirm Cyberpsychology as an important topic or subject domain, both for researcher and for medical professionals, that is much related to other sectors, like human-computer interaction, cyber behavior, Virtual interiors, e-therapy, digital addiction, technostress, cyborgs, cybertherapy, cyberbullying, and digital closet. Thatswhy, we strongly recommended that the two emerging sectors digital anxiety and digital addiction which are completely arisen due to excessive use of digital communications and devices that must be included as a new sub-field or branch under the Cyberpsychology.

Finally, this study would help in the creation of subject domains, find out recent trends, and research in Cyberpsychology.

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