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## IMPULSIVE BUYING ON SOCIAL MEDIA PLATFORMS: A BIBLIOMETRIC REVIEW

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### **Abstract**

Online impulse buying behaviour is one of the most important areas of research in social commerce setup. Web 2.0 has revolutionised the concept of online commerce through social networking sites and so the impulsive buying patterns. Given the importance of the area, our paper is dedicated to find out the recent development in this area of research. Bibliometric analysis coupled with network analysis is used to review the literature from 2003-2021. A total of 120 articles have been reviewed and analysed using Biblioshiny of R Studio package and VOSviewer software. Best documents, most used references, popular keywords most influential author, most contributing affiliations, countries, and word growth trend have been presented through bibliometric analysis. Also, with the help of network analysis, citations, co-citations, co-authorship, and bibliographic coupling is conducted to identify the research streams/clusters and collaborations among authors/organisation. The research limitations and future research direction have been enumerated and presented for further expansion.

**Keywords:** Social commerce, Social media platform, impulsive buying, Impulse purchase, Online impulse buying behaviour, bibliometric analysis.

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### **1. Introduction**

It is evident from the earlier research that impulse buying constitutes the 60% of total sales revenue (Amos et al., 2013), showing the importance of impulsive behaviour of purchase, further it has been found by (Verhagen & Van Dolen, 2011) that impulse buying accounts for 40% of total online sales. The online impulse buying behaviour depends on certain cues like the website quality, ambience & graphics of the webpage, ease of making purchase, few click payment possibility, broader selection, reviews and comments (Hande et al., 2015; Loureiro & Amorim, 2017; Mariani & Visani, 2019). Moreover, the online stores are offering

merchandise at low cost because of its large scale operations (Grandon & Pearson, 2004). The consumers may get compelled with all these factors to buy impulsively provided with adequate circumstances on the web stores. The phenomenon of Impulsive buying can be described as sudden urge to buy a product or services without any prior plan, its instantaneous in nature and consumer gets immediate gratification as well (Aruna & Santhi, 2015; Ceballos, 2012; Haridasan & Fernando, 2019).

The marketers need to understand the unique need and wants of consumers to make attractive offers to attract them and influence them for online shopping on impulse. The retailers are getting a broad range of benefits with their presence on the web, they can find new customers, they can penetrate amongst any geographical area and they can strengthen relationship between products and customers.

Social media has revolutionised the marketing landscape, during last decade it has seen tremendous growth in terms of users and transactions. The buying process and consumption pattern of the consumers has changed, so as the marketers and their marketing strategies (Nuseir, 2020; Ukpabi & Karjaluo, 2017). Social media is considered as more secure for privacy as compared to any other online format; it gives tremendous opportunity for personalisation with each customer. Marketers are trying to design their marketing strategies & activities in a way that they can use successfully to persuade the consumers for impulse purchase through social media platforms (Chang et al., 2016; David & Whittam, 2008). Online impulsive buying behaviour is sudden decision making to purchase a product or service in online set up, here consumers navigate through a website and get engaged into shopping, the marketers are creating intimating and engaging web page which can result in impulse purchase (Fan & Zhang, 2015; J. Lin & Chuan, 2013; S. W. Lin & Lo, 2016).

Social commerce is the combination of e-commerce and social media, the marketers are exploiting social platforms by putting their advertisements, exciting sales promotional offers to attract prospective customers to follow their e-commerce link and get them engaged in purchasing in general and impulse purchasing in particular (David & Whittam, 2008; Liu & Sutanto, 2011; Ukpabi & Karjaluo, 2017).

Scholars have done great work to study the various angles of social commerce and impulse purchase behaviour, they have found relationships, proposed models, enumerated cues like uses, celebrity endorsement, para social interactions etc. that retailers can use successfully for their marketing strategy (Akram, Hui, et al., 2019; Leong et al., 2018; Shim & Altmann,

2016; Zafar et al., 2020). Few of the scholars made efforts to collect, analyse and present recent development and future research directions in the subject area by carrying out systematic literature review (Abdelsalam et al., 2020; John et al., 2019; H. Wang, 2015).

None of the study found so far which is focussing on finding out the bibliographic information like best intellectual contributions, best contributing university & country, most used keywords, local & global citations, co-citations of references etc.

Keeping in mind the importance of this field of study and the gap in the available literature, this paper intends to comprehensively review and extensively explore the developments in this area of research that will help to push the current efforts into a new stage of development. Reviewing existing literature and carefully mining the gap in the published work, most of the studies including review articles are based on presenting the methodology employed, theoretical modelling etc.

The meta-literature review adopted in this study is different from research studies conducted in past. In current study, literatures from 2003 to 2020 have been analysed using state of the art sophisticated quantitative approach of bibliometric citation analysis. Then, citation, co-citation, and co-authorship analysis are carried out using VOSviewer software. Through this approach of methodology, this article intends to answer three major research questions:

- (1) What are the influential aspects of impulse buying on social media platforms literature?
- (2) What are the key research streams in of impulse buying on social media platforms literature?
- (3) What are the potential future research questions to explore?

The study has multiple findings. The intellectual contributions in social commerce and impulse buying behaviour, the most used keywords for impulse purchase on social commerce platforms, the most influential and cited sources, the source growth rate and annual production in this area are presented.

The rest of the paper organised as follows. Section 2 describes the methodology, section 3 addresses bibliometric analysis, section 4 shows the network and visualisation analysis. Discussion is made in section 5. Finally, section 6 deals with growth of research streams and section 7 & 8 deals with limitations and future research directions, conclusion respectively.

## **2. Research Methodology and Initial Characteristics of the Data**

In this study, focus is to show the progress in online impulse buying on social media platform research. Which are the most recognisable areas of research, and what should be the future field of research. To carry out literature review of online impulse buying on social media platform, Bibliometric analysis with data visualization techniques is used. Meta-literature analysis is termed as re-analysis of secondary data for answering the original research questions (Glass, 1976). It constitutes various type of analysis, employing a bibliometric citation analysis technique for carrying out a meta-literature review analysis is a fast growing technique (Zamore et al., 2018). Current study and meta-literature review is entirely different from the widely used statistical meta-analysis, it consists of bibliometric citation and content analysis of online impulse buying on social media platform (Handayani et al., 2018; Khan et al., 2020; Zhu et al., 2020). Quantitative meta-review of literature is conducted in this study. The various steps used for systematic sampling as per the research objectives are depicted in fig 1.



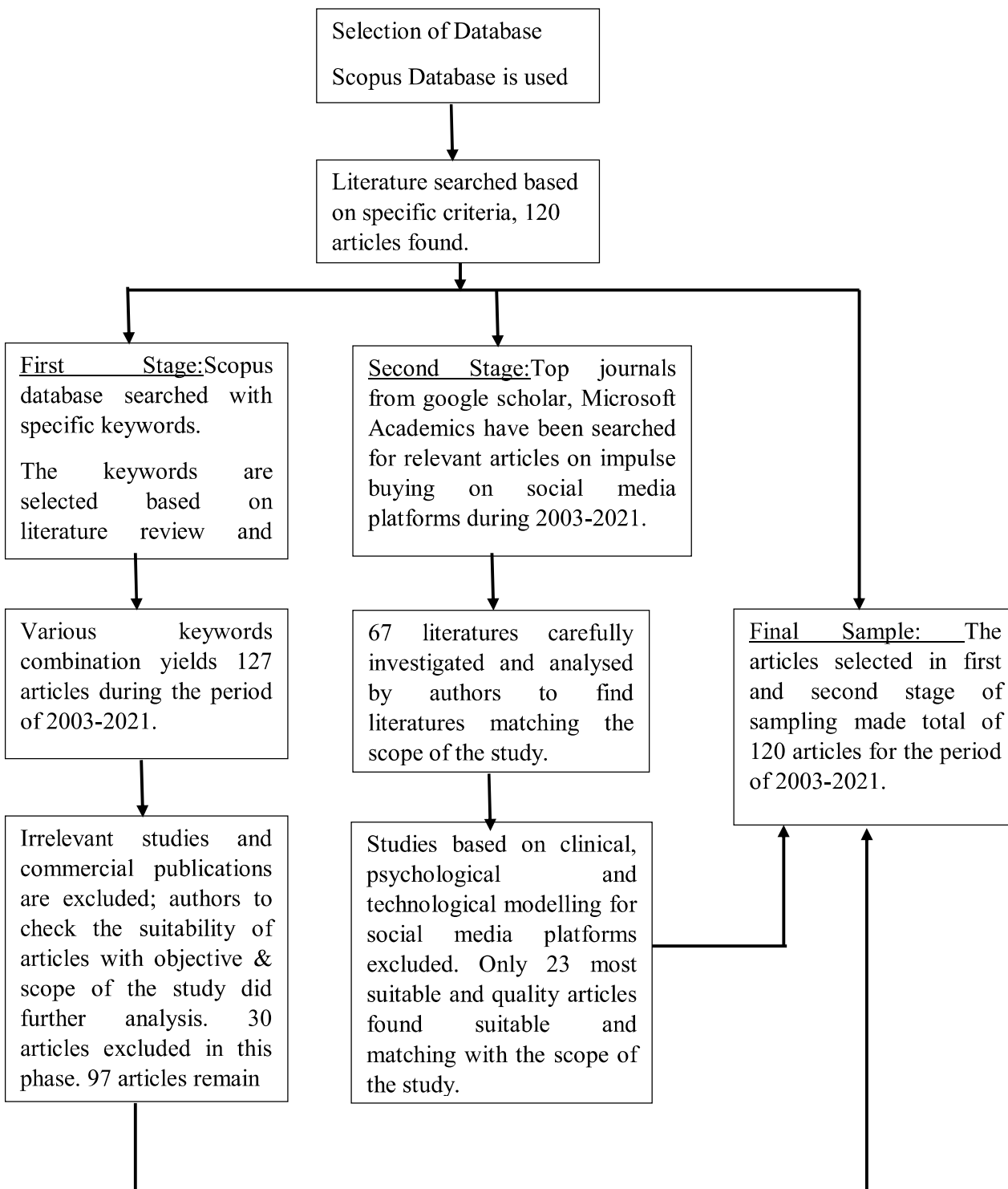


Fig 1: Methodological Approach.

Our sampling procedure is based on three stages (fig 1); selection of the sample/literature based on systematic approach to achieve the objectives of the study. The first stage was selection of database and searching of articles based on specific criteria. Scopus database is selected because it is a big database consisting huge number of articles and most of the quality journals are indexed therein. For bibliometric analysis, Scopus database is used by other scholars including (M. H.-C. Ho et al., 2017; Palomo et al., 2017; Sweileh, 2018).

Then, the articles using the most suitable keywords are searched to explore the most possible range of articles (the keyword combinations are described in section 3.1). At the second stage, the indexing engines like google scholar, Microsoft academics are explored for quality journals and relevant articles. The selection criteria of articles are based on the following:

- a) Online impulse buying on social media platform should be the part of the content of the study and
- b) The research paper shall consider and address the phenomenon of impulse buying on social media platform substantially.

For searching the literature on Scopus database, various combination of keywords such as social commerce, mobile commerce, facebook commerce, social media platforms and online impulse buying behaviour are used.

### 2.1 Initial Keywords Search Result

With the above keywords and considering time span of 2003-2020, 127 publications found containing research articles, review papers, book chapters, and newspaper articles. The commercial publications in magazine and other formats as they are not regarded as scientific production are excluded. The resulted data then exported in .CSV format to obtain all the important fields like title of the manuscript, author's name, affiliations, keywords, abstract and references. .CSV format is compatible with various statistical packages software applications for analysis. The data then further investigated and refined by the researchers to check the related keywords, titles etc. to match the scope of the study. Some of the studies are found not very much related, their scope of studies is either psychological or clinical research, some of the studies are from pure technological modelling of social media-based application design and development etc. Finally, 97 articles are selected out of 127 in this phase.

## 2.2 Further Literature Search and Final Sampling

For broadening our search of data and getting more relevant articles, science direct, google scholars, research gate and Microsoft academics databases are searched for quality articles on this subject and found another 23 articles matching with the requirements of current study. These articles are exported in excel, bibtex and RIS, then initial result of 97 articles are merged with 23 articles found in broader search, all the needed modification are done to suit the data format and it is then saved in .csv format. Final compilation yields our final sample of 120 literature during 2003 to 2021, which will be used for further analysis.

## 2.3 Data Cleaning and Preparation for Analysis

The data quality in bibliometric research is of enormous importance and needed to be assured for better representation of findings. When searching data from different databases it becomes often problematic because of synonyms, misspellings, different formats and processing errors. A proper formatting and cleaning of data is required for using data in biblioshiny and VOSviewer. Some of the extracted data formats such as bibtex is not a standardized format, and it is some time being modified when created from varied sources. Bibtex file is prepared in the specified format exactly with the fields (authors' name, affiliations, references, etc.), which are mandatory for Scopus database and accepted by Bibliometrix/biblioshiny.

VOSviewer thesaurus is used to merge different variants of a literature title, author(s) name, affiliations, country, or a cited reference. A VOSviewer thesaurus file helps in indicating that different names in fact refer to the same researcher (Ding & Yang, 2020).

## 2.4 Sample Characteristics

A total of 120 articles are being considered which has been collected from 80 sources (journals, book chapters, conference paper etc.) and authored by 362 researchers, there are 3.02 authors per documents and 0.331 authors per documents. 241 keywords plus and 295 author's keywords have been used, the average citation per documents is 8.217 and average citations per year per doc is 1.969. 4256 is the number of references that have been used in 120 articles.

Fig 2 shows the trend in the publication of this area, this specific area of research is developing well from last one decade, there was very few articles available before 2010, after

2010 there was steady increase till 2017, but there was an exponential increase in the publication of the literature after 2018 onward. Till 2017 only 40% of the paper was written and published, while the rest 60% has been published in a time span of just 3 years. So, it can be seen that it is one of the most promising area of research because it is in its growth and expansion stage.

Figure 2: Annual Scientific Production

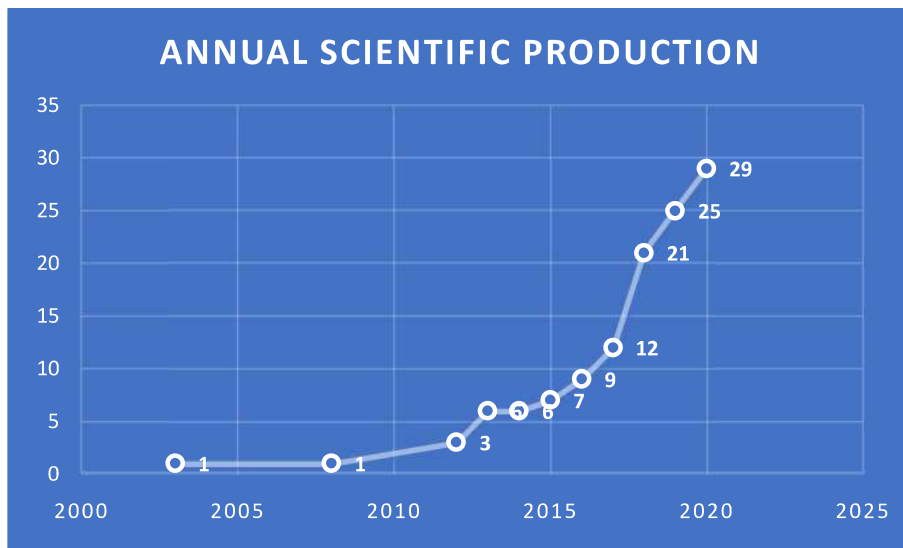


Table 1: Top 10 journals publishing in the area of impulse buying on social media platforms

Sources	Articles
International Journal of Information Management	8
Internet Research	5
Computers in Human Behavior	4
International Journal of Scientific and Technology Research	4
IEEE Access	3
Journal of Electronic Commerce in Organizations	3
Journal of Retailing and Consumer Services	3
PACIS	3
Proceedings of the 23rd Pacific Asia Conference on Information Systems: Secure ICT Platform for The 4th Industrial Revolution PACIS 2019	3
Sustainability (Switzerland)	3

Top 10 journals have published 39 articles out of 120 articles which is 32.5% of total paper published in this area. It can be seen from table 1 that international journal of information management is the top contributing journal followed by internet research. The other journals have contributed 3 articles each. The journals with less than 3 articles have not been included in table 1.

### 2.5 Data Analysis

The analysis of data has been done in two separate parts; first, bibliometric analysis and then network analysis is conducted. Section 4 will be presented with bibliometric analysis and section 5 will be dedicated to network analysis, respectively.

## 3. Bibliometric Analysis

The data is analysed using bibliometric analysis that is one of the most suitable tool for gaining insight about the literature, it gives output in graphics as well as tabular formats that can further analysed to deduce logic and reach at inferences (Danvila-Del-Valle et al., 2019; Ellegaard & Wallin, 2015; Gaviria-Marin et al., 2019; Y.-S. Ho & Chiu, 2007; *Software Tools for Conducting Bibliometric Analysis in Science: An up-to-Date Review - Dialnet*, n.d.; Xie et al., 2020).

Biblioshiny application from R Studio package is used, which is launched at URL <http://127.0.0.1:7811/>. R studio is a sophisticated statistical package which allows comprehensive data preparations and analysis. Biblioshiny provides tremendous flexibility and possibility of viewing data from various aspects, it is a useful web interface which provides analytics on graphical plots for three levels of data author, source, and documents. It also helps in the analysis of conceptual structures, intellectual and social structures (Moral-Muñoz et al., 2020; Xie et al., 2020).

### 3.1 Most Prolific Author

Biblioshiny is a wonderful package for extracting information and presenting in a comprehensive manner. The software feature under authors title is used where the total contribution, local citations, global citations, and overall impact can be analysed.

Table 2: Top 20 most cited authors with their reputation indices

Author	h_index	g_index	m_index	TC	NP	PY_start
ZHENG X	4	4	0.8	158	4	2016
PARK EJ	1	1	0.111	142	1	2012
KIM EY	1	1	0.111	142	1	2012
FUNCHES VM	1	1	0.111	142	1	2012
FOXX W	1	1	0.111	142	1	2012
ZHAO D	1	1	0.2	104	1	2016
XIANG L	1	1	0.2	104	1	2016
LEE MKO	1	1	0.2	104	1	2016
WIDJAJA AE	1	1	0.2	90	1	2016
SU B-C	1	1	0.2	90	1	2016
KENESON WC	1	1	0.143	90	1	2014
HOLMES GR	1	1	0.143	90	1	2014
CHEN JV	1	1	0.2	90	1	2016
AMOS C	1	1	0.143	90	1	2014
LEONG L-Y	3	3	0.75	73	3	2017
JAAFAR NI	3	3	0.75	73	3	2017
LEE ZWY	1	1	0.25	67	1	2017
CHEUNG CMK	1	1	0.25	67	1	2017
CHAN TKH	1	1	0.25	67	1	2017
SHEN KN	1	1	0.111	59	1	2012

Note: **h-index** is defined as the maximum value of h such that the given author/journal has published h papers that have each been cited at least h times; **g-index** is calculated based on the distribution of citations received by a given researcher's publications, such that given a set of articles ranked in decreasing order of the number of citations that they received; **m-index** is defined as  $h/n$ , where n is the number of years since the first published paper of the scientist; also called m-quotient. TC stands for total citations, NP: Number of papers; PY\_Start: Production year started.

Zheng X tops the list of most cited author having 4 papers and best h and i indices (Table 2), followed by PARK EJ, KIM EY, FUNCHES VM, FOX W all of them received 142 publications each and placed at second rank while ZHAO D, XIANG L, LEE MKO are having third position with 102 total citations. It is very interesting to note that some of the authors are having fair number of citations, but their indexes are very poor, so for evaluating overall impact of the authors indices like h, g and m must be considered.

Table 3 depicts that INTERNATIONAL JOURNAL OF INFORMATION MANAGEMENT is having 104 citations and 20.8 citations per year is dominating the list of most cited source while DECISION SUPPORT SYSTEMS with 90 citations & 18 citations per year and with 78 total citations & 26 citations per year COMPUTERS IN HUMAN BEHAVIOR are placed at second and third position, respectively.

Table 3: Top cited authors with their source; TC: Total citations; TCpY: Total citations per year

<b>Author</b>	<b>Source</b>	<b>TC</b>	<b>TCpY</b>
ZHENG X	International Journal of Information Management	104	20.8
CHEN	Decision Support Systems	90	18
JAAFAR NI	Computers in Human Behavior	39	13
LEONG L-Y	Computers in Human Behavior	39	13
CHEN	Telematics and Informatics	35	11.667
JAAFAR NI	Internet Research	31	7.75
LEONG L-Y	Internet Research	31	7.75
CHEN	Information and Management	22	11
AKRAM U	Sustainability (Switzerland)	20	6.667
GONG X	International Journal of Information Management	18	9
GONG X	International Journal of Information Management	18	9
GONG X	International Journal of Information Management	18	9
MEN J	International Journal of Information Management	18	9
MEN J	International Journal of Information Management	18	9
MEN J	International Journal of Information Management	18	9
ZHENG X	International Journal of Information Management	18	9
ZHANG	Internet Research	14	4.667
ZHANG	Proceedings - Pacific Asia Conference on Information	13	1.857



	Systems, PACIS 2014		
LIN	Behaviour and Information Technology	12	2.4
LIU	Computers in Human Behavior	9	4.5

### 3.2 Most Influential Affiliation

With Biblioshiny the most contributing organisations are extracted as shown in table 4. The University of Science and Technology of China has contributed 16 articles and dominated the list, while Beijing University of Posts and Telecommunications placed at second position with 12 publications and South-western University of Finance and Economics china ranked third with 10 contributions. Chinese universities are the most contributing one and all of top three ranked university are from china.

China is most dense in the world map given below in fig 3; the other countries are also depicted in the map. The deepness of the colour signifies the intensity of the contribution. The geographical points shows that the research on impulse buying through social media platforms has attracted scholars and countries.

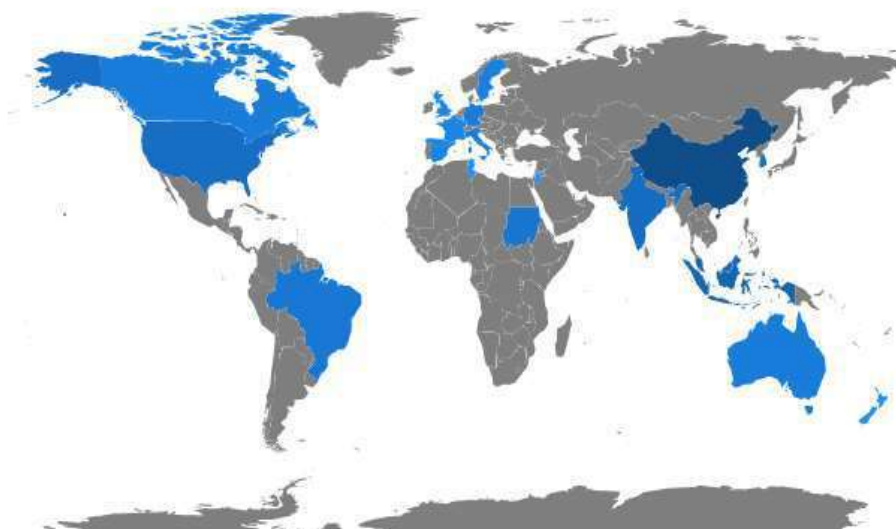
Table 4: Top contributing University/affiliations

<b>Affiliations</b>	<b>Articles</b>
University of Science and Technology of China	16
Beijing University of Posts and Telecommunications	12
Southwestern University of Finance and Economics	10
University of Malaya	9
Universiti Teknologi Malaysia	8
Dalian University of Technology	6
Business School of Sichuan University	4
National Cheng Kung University	4
School of Economics and Management	4
University of Parma	4
Central Queensland University	3
College of Business	3
Huazhong University of Science and Technology	3
Jinan University	3

Nanjing Normal University	3
University of Borås	3
Zhongnan University of Economics and Law	3
Al Ain University of Science and Technology	2
Hong Kong Baptist University	2
Jangan University	2

Figure 3: The geographical representation of the top contributing universities

## Country Scientific Production



### 3.3 Most Influential Document and References

The documents, which does have maximum global citations are extracted by using Biblioshiny. A list of top 20 documents for global citations are presented in table 5.

The research paper written by PARK EJ et.al in Journal of Business Research has got maximum global citations of 142 with 15.778 total citations per year (Table 5). With 104 total citations and 20.8 annual total citations, the paper authored by Xiang L et.al published in the International Journal of Information Management ranked second in the list. The paper published in Decision Support System authored by Chen JV ranked 3<sup>rd</sup> with a total citation of 90 and 18 total citations annually. It is interesting to note that the paper having maximum

global citation is not having the maximum annual total citations; the same is true in case of other documents also.

Table 5: List of top 20 global cited documents their annual total citations

<b>Paper</b>	<b>Total Citations</b>	<b>TC per Year</b>
Park EJ, 2012, Journal of Business Research	142	15.778
Xiang L, 2016, International Journal of Information Management	104	20.8
Chen JV, 2016, Decision Support System	90	18
Amos C, 2014, Journal of Retail and Consumer Services	90	12.857
Chan TKH, 2017, Information and Management	67	16.75
Shen KN, 2012, Internet Research	59	6.556
Huang L-T, 2016, Journal of Business Research	45	9
Leong L-Y, 2018, Computers in Human Behaviour	39	13
Chen C-C, 2018, Telematics and Informatics	35	11.667
Leong L-Y, 2017, Internet Research	31	7.75
Sharma P, 2014, Journal of Academy of Marketing Science	27	3.857
Chen Y, 2019, Information and Management	22	11
Akram U, 2018, Sustainability	20	6.667
Zheng X, 2019, International Journal of Information Management	18	9
Zheng X, 2019, International Journal of Information Management -A	18	9
Zheng X, 2019, International Journal of Information Management -A-B	18	9
Hing N, 2018, Journal of Behavioural Addictions	17	5.667
Zhang KZK, 2018, Internet Research	14	4.667
Zhang KZK, 2014, Proceedings of Pacific Asia Conference on Information System (Pacis)	13	1.857
Lin S-W, 2016, Behaviour and Information Technology	12	2.4

Table 6 shows the most cited local references, local citation of references means that how many of the paper from the current data set has cited each other. Looking carefully, it could be discovered that most of the references are for online impulse buying behaviour and its various aspects, references related to social media is limited and it shows that there is not

much work available to review and gain insight about impulse buying through social media platform.

Beatty, S.e., Ferrell, m.e., Impulse buying: modelling its precursors (1998), journal of retailing, 74 (2), pp. 169-191 tops the list for maximum local citations. While Rook, D.W., The buying impulse (1987), journal of consumer research, 14 (2), pp. 189-199 and Parboteeah, D.V., Valacich, J.S., Wells, J.D., The influence of website characteristics on a consumer's urge to buy impulsively (2009), Information systems research, 20 (1), pp. 60-78 placed at second and third positions, respectively.

Table 6: List of top 20 local cited reference

<b>Cited References</b>	<b>Citations</b>
Beatty, S.E., Ferrell, M.E., Impulse buying: modeling its precursors (1998), Journal of Retailing, 74 (2), pp. 169-191	27
Rook, D.W., The buying impulse (1987) Journal of Consumer Research, 14 (2), pp. 189-199	24
Parboteeah, D.V., Valacich, J.S., Wells, J.D., The influence of website characteristics on a consumer's urge to buy impulsively (2009), Information Systems Research, 20 (1), pp. 60-78	19
Floh, A., Madlberger, M., The role of atmospheric cues in online impulse-buying behavior (2013), Electronic Commerce Research and Applications, 12 (6), pp. 425-439	17
Fornell, C., Larcker, D.F., Evaluating structural equation models with unobservable variables and measurement error (1981), Journal of Marketing Research, 18 (1), pp. 39-50	15
Liu, Y., Li, H., Hu, F., Website attributes in urging online impulse purchase: an empirical investigation on consumer perceptions (2013), Decision Support Systems, 55 (3), pp. 829-837	15
Rook, D.W., Fisher, R.J., Normative influences on impulsive buying behavior (1995), Journal of Consumer Research, 22 (3), pp. 305-313	15
Verhagen, T., Van Dolen, W., The influence of online store beliefs on consumer online impulse buying: a model and empirical application (2011), Information & Management, 48 (8), pp. 320-327	15
Luo, X., How does shopping with others influence impulsive purchasing? (2005), Journal of Consumer Psychology, 15 (4), pp. 288-294	12
Huang, L.T., Flow and social capital theory in online impulse buying (2016), Journal of Business Research, 69 (6), pp. 2277-2283	10
Weinberg, P., Gottwald, W., Impulsive consumer buying as a result of emotions (1982), Journal of Business Research, 10 (1), pp. 43-57	10
Park, E.J., Kim, E.Y., Funches, V.M., Foxx, W., Apparel product attributes, web browsing, and e-impulse buying on shopping websites (2012), Journal of Business Research, 65 (11), pp. 1583-1589	9
Shen, K.N., Khalifa, M., System design effects on online impulse buying (2012), Internet Research, 22 (4), pp. 396-425	9

Amos, C., Holmes, G.R., Keneson, W.C., A meta-analysis of consumer impulse buying (2014), <i>Journal of Retailing and Consumer Services</i> , 21 (2), pp. 86-97	8
Chen, J.V., Su, B.C., Widjaja, A.E., FacebookC2C social commerce: a study of online impulse buying (2016), <i>Decision Support Systems</i> , 83, pp. 57-69	8
Dawson, S., Kim, M., External and internal trigger cues of impulse buying online (2009), <i>Direct Marketing: An International Journal</i> , 3 (1), pp. 20-34	8
Hausman, A., A multi-method investigation of consumer motivations in impulse buying behaviour (2000), <i>Journal of Consumer Marketing</i> , 17 (5), pp. 403-426	8
Koufaris, M., Applying the technology acceptance model and flow theory to online consumer behavior (2002), <i>Information Systems Research</i> , 13 (2), pp. 205-223	8
Park, J., Lennon, S.J., Psychological and environmental antecedents of impulse buying tendency in the multichannel shopping context (2006), <i>Journal of Consumer Marketing</i> , 23 (2), pp. 56-66	8
Pöyry, E., Parvinen, P., Malmivaara, T., Can we get from liking to buying? Behavioral differences in hedonic and utilitarian Facebook usage (2013), <i>Electronic Commerce Research and Applications</i> , 12 (4), pp. 224-235	8

### 3.4 Most Used/Popular Keywords

The most used keywords and phrases in title and authors keyword are extracted using Biblioshiny analysis. The list of both frequently used keywords in title and by the authors are compiled and listed in table 7. Figure 4 shows the word cloud of the keywords, the size of the words signifies the frequency of that keyword, large size means most frequently used and small size means very less used. Social commerce has been used most as it is the largest word in the cloud, other words which dominated the cloud are impulse purchase, mobile commerce and impulse buying behaviour respectively.

Our consideration set of 120 articles have generated a total of 657 keywords, out of which authors keywords are 295 and title keywords are 362. It can also be seen that there is a similarity in both keywords up to maximum extent. Impulse buying, social media, mobile and social commerce words have appeared at top in both cases as these terms were our search terms as well. F-commerce or Facebook commerce, Instagram marketing is a newly developed keyword which signifies the importance of this media for pursuing consumer to purchase impulsively. These terms are getting attention of the scholars.

Table 7: The most frequent used keywords in title and author's keywords

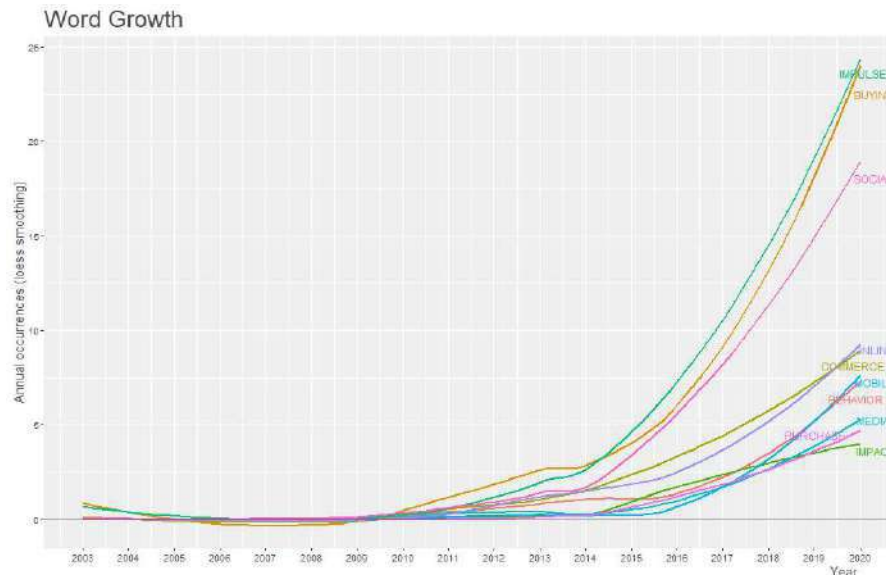
<b>Title Keywords</b>		<b>Author's Keywords</b>	
Words	Occurrences	Words	Occurrences
impulse	88	impulse buying	36
buying	82	social commerce	10
social	68	social media	9
commerce	36	impulse purchase	7
online	32	buying behaviour	5
behavior	22	mobile commerce	5
mobile	18	observational learning	5
impact	17	f-commerce	4
media	16	impulse buying behavior	4
purchase	15	impulse buying tendency	4
shopping	15	online impulse buying	4
consumers	14	discount	3
effects	13	e-commerce	3
study	13	exterior design	3
impulsive	12	impulse purchases	3
factors	11	impulsiveness	3
influence	11	lifestyle	3
role	11	live platform	3
Instagram	10	marketplace	3
understanding	10	mobile	3

Figure 4: Word cloud



The word impulse and buying are still growing at a fair pace fig 5, the social got peaked from the year 2016 onwards before it was not having much visibility in the literature. The terms

Figure 5: Word growth



like online, mobile and commerce are too increasing at a fast pace. It shows that there are lot of scope in these areas to study and discover knowledge that can help us in understanding the phenomenon of impulsive buying over social media platforms.

#### 4. Network Analysis

Network analysis is used to establish graphical relationship between literatures based on citations, co-citations, co-authorship, shared keywords etc. The visualisation of data is done



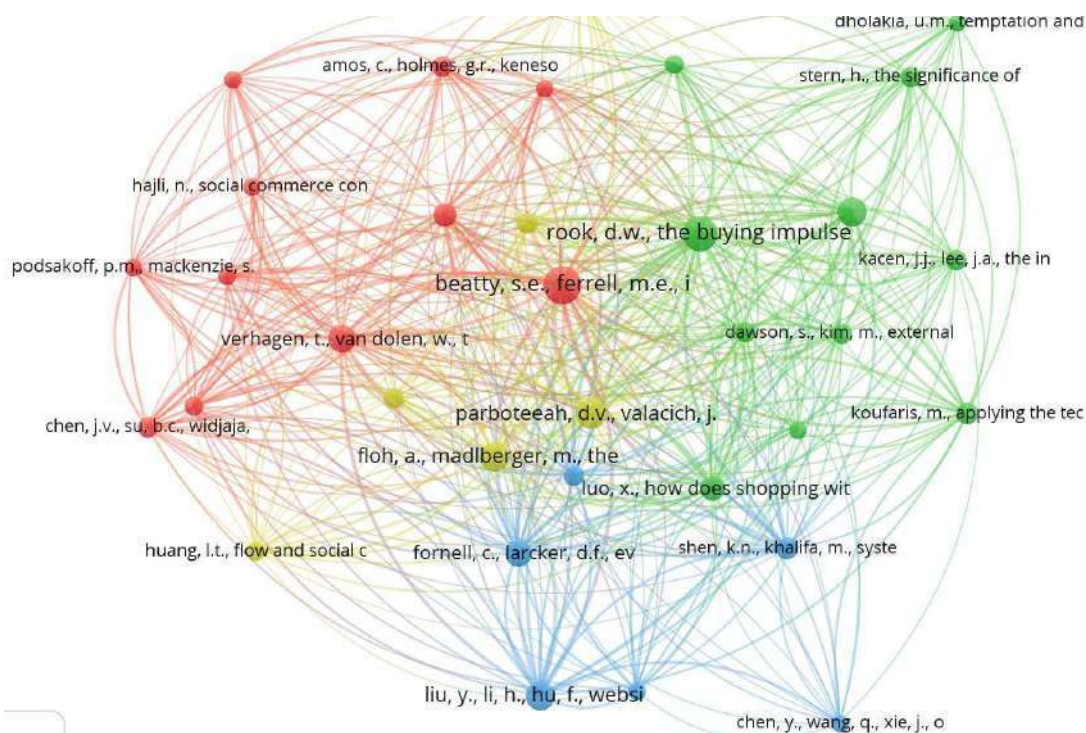


#### 4.2 Co-citation Analysis

Co-citation analysis is a measure of similarities relationship among documents, It refers to the frequency of two documents which cited together by third document (Gaviria-Marin et al., 2019; Zhang et al., 2015). VOSviewer is used to analyse co-citations, it is different from the simple counting of the citations, this software tools identifies clusters or research area in the form of connected network (Gaviria-Marin et al., 2019; Y.-S. Ho & Chiu, 2007).

For calculation of co-citation, minimum number of citations of a cited reference is considered as 5, out of 4285 references only 34 references met the criteria of minimum citation. The total strength of the co-citation link with other cited reference will be calculated. The cited reference with the greatest link strength will be selected in the network.

Figure 7: Co-citation cluster for literature on impulsive buying through social media



Association method of normalisation are used by keeping attraction at 2 and repulsion at 1 (authors calculation). The network (fig 7) consists of 4 clusters, 474 links and 1277 total link strength. The clusters 1-4 are distributed with 11, 11, 6, 6 items respectively. The distance between two references approximately indicates the relatedness of the references in terms of co-citation. So, closer the references, the stronger the relatedness, the lines also indicate the strength of relationship of co-citations. The clusters are specifying the sub areas of research

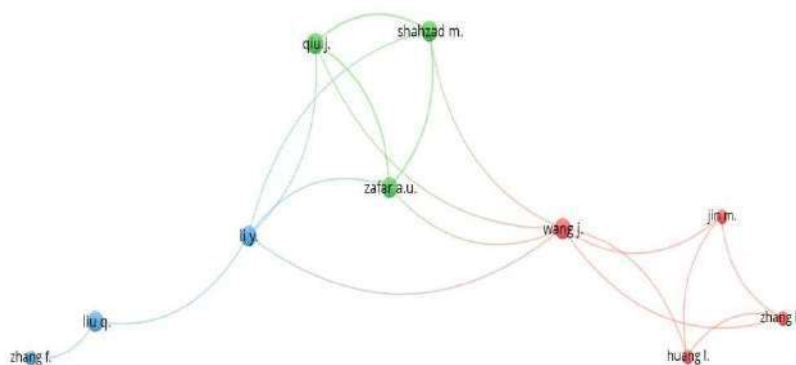
under impulsive buying on social media platforms, all three clusters are containing significant items on impulsive buying and social platform.

#### 4.3 Co-authorship Analysis

Co-authorship analysis is used to identify the scholars/researchers who have involved in a certain research work, it is more than just citing or being cited relationship, it involves greater collaborations and exchange of idea (Huang & Chang, n.d. 2011). VOSviewer produce a network of authors, which represents the co-operation pattern of the co-authorship in terms of author, organisations, and countries.

For this minimum number of documents of an author is kept as 1 and minimum number of citations 5, out of 205, 56 authors meet this criterion. VOSviewer output (see fig 8) has classified these authors into three clusters and 10 linked authors. These clusters have 18 links and a total link strength of 21.

Figure 8: Network of Co-authorship in impulsive buying on social media



This analysis is helping in exploring this area in more details to find out the potential avenues for collaborations and co-operations with active researchers round the globe. It also clearly depicts that research in impulsive buying on social media platforms are newly developed and there are opportunities for future research.

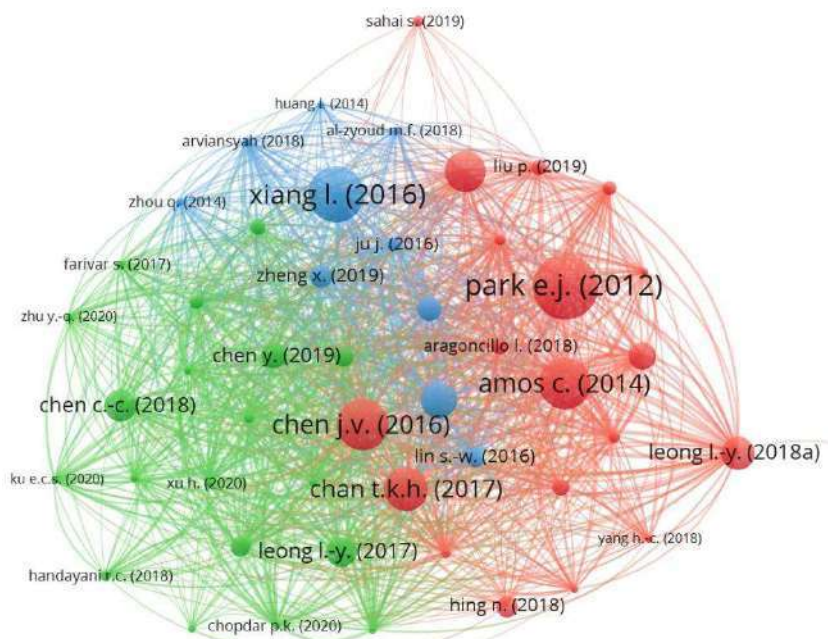
#### 4.4 Bibliographic Coupling Analysis

It is another method of co-citation analysis which helps in gaining inferences about the literature similarities, two documents can be said to be bibliographically coupled if both of them have used one or more documents in common, it is a probable measure of indication that two works have been done in the similar area of study (Boyack & Klavans, 2010; Zhao

& Strotmann, 2001). This coupling can be done for documents, sources, authors, organisations, and company.

Bibliographic coupling of documents are determined by keeping minimum criteria as at least one citations of each documents. A set of 49 documents have been selected as per the pre-defined cut off. The VOSviewer output network is classified into 3 clusters having total link strength of 5122 and 1011 links. The distribution of selected documents in first, second and third clusters are 20, 19 and 10 respectively. It helps in understanding the previous work done in the field of impulsive buying and social media.

Figure 9: Bibliographic Coupling of documents



## 5. Discussion

Online impulse buying has encouraged shoppers to transact impulsively due to convenience and personal privacy, online impulse buying is crucial for the retailers because it substantially add to the total online revenue (Y. Wang et al., 2015). Online impulse buying is the tendency to purchase products or services without any prior planning, they did not consider the traditional purchase decision and buying process, in the case of the Facebook users follow certain indicators like tags, comments that is being posted by some other users (Nuseir, 2020).

## 5.1 Technology and Online Impulse Buying Behaviour

Technological factors, which affect online impulse buying behaviour, are very important to consider at the time of designing of e-commerce platform. The advent of web 2.0, affordability of internet and flexibility of uses has given a great acceleration to the online shopping and impulse buying (Liu & Sutanto, 2011).

From technological prospective, online impulse shopping behaviour is derived by the certain cues like assortment of items (Mathai & Shanthaamani, 2016), broad selection (Prastia, 2013), payment methods (Sundharavadivel & Dharani, 2017), opportunity to interact with fellow shopper (Abdelsalam et al., 2020; Baker et al., 2016; Bu et al., 2020), reading reviews and comments of past buyers (Balasudarsun et al., 2018; Mariani & Visani, 2019; Rodriguez-Diaz & Espino-Rodriguez, 2018), visual merchandising (Gudonavičienė & Alijošienė, 2015; Jamal & Lodhi, 2015; Roy, 2016), ease of navigation (Dominguez Vila et al., 2020; S. W. Lin & Lo, 2016) and overall website quality (Aysuna Turkyilmaz et al., 2015; C. Der Chen et al., 2019; Loureiro & Amorim, 2017; Vojvodić et al., 2018; Wells et al., 2011). The success of online impulse buying depends on the above factors and needed to be designed and implemented properly for favourable results.

### 1.1 Demographics and Online Impulse Buying Behaviour

Other factors such as demographic variables like age, gender, income level, marital status and occupation (Chaudhuri, 2015; Ghani & Jan, 2011; Yadav & Mishra, 2017), personality (Mittal et al., 2016; Tariq et al., 2019), culture (Ali & Sudan, 2018; Han & Kim, 2018; Mittal et al., 2016a) etc. also effects the intention to buy impulsively. The marketers need to carefully consider demographic factors at the time of designing strategies for inducing consumer to buy impulsively via social media.

## 5.2 Social Commerce and Online Impulse Buying Behaviour

Social commerce is relatively a new concept and is a subset of online commerce or e-commerce, it allows users to create their contents and to retailers to reach wider market segment by integrating social interactions among users (Hajli Nick.hajli@newcastle.ac.uk, 2015). The popularity of social media networks and communities are the main reason behind the development of this area of research (Y. Chen & Zhang, 2015), people can share their thoughts, photographs, audio and video in their groups which in turn will be received by others in the group and may influence impulse purchase intentions based on the opinion and



experiences of others (Hou et al., 2019; Nilashi et al., 2018). Social commerce is the use of social platforms like Facebook, twitter, Instagram, WeChat etc. to attract customers and make them get connected with their e-commerce websites and pursuing them for impulse purchase (Hajli Nick, 2015; Khan et al., 2020). The companies are using social platforms to get connected with their prospective customers with high quality relationship using personal & customised communication to increase sales revenue and win their loyalty for the company (Hajli, 2015). Social media platforms are resulted from the evolution of web 2.0, which allows consumers to search, recommend, like, share, rate, comment and purchase product online (Hajli, 2015). A new form of social platform that emerged due to web 2.0 is the platforms which deals in images, people can share pics of products, specific segments like women are using these kind of platforms for sharing soft goods like fashion and lifestyle, examples are Instagram, pintrest and polyvore (Lang et al., 2016).

The benefits of using social commerce for the organisation is that the consumers are interacting with each other on virtual platforms and writing their comments & review which help other to get connected with the company (Hajli, 2014).

Mobile commerce or m-commerce has been adopted well by the consumers, the specialised applications and services are playing instrumental role in influencing online purchases and e-commerce settings (Wu & Ye, 2013). Facebook users are using the platform for continuous transactions among each other, they are putting advertisements, writing comments, having conversation and even trading items amongst (J. V. Chen et al., 2016).

A new commerce has come into picture called f-commerce that is a combination of e-commerce & Facebook, it is getting widely accepted with the development of web 2.0 and enhanced user friendliness of social platforms (Khan et al., 2020). The term e-commerce is now being slowly replaced by social commerce, the development of social commerce or s-commerce allowed people to have easy and adequate information that they can use for deciding to buy a product or service (Akram et al., 2018).

Therefore, the social media strategies should be designed by considering all the above facets to reach, attract, engage and make the customers to buy on impulse using social media platforms.

### 5.3 Research Streams for Online Impulse Buying on Social Media

The annual growth of various research stream is helpful in understanding the future research directions. The keywords identified from the output of the VOSviewer software are used for exploring research streams. The result reveals that word “mobile commerce”, “f-commerce”, “social commerce”, and “live platforms” are appeared dominantly in addition to the words like online impulse buying, impulse tendency etc. It also confirms the selection of keyword syntax that is used for literature search on impulse buying on social media platforms. The result also shows that the top three positions of streams based on development of literature are: (i) online impulse buying on social commerce, (ii) impulse buying on mobile commerce, (iii) f-commerce and impulse buying. It is important to note that impulse buying on social platforms literature is at developing stage and these should be focused to understand underlying phenomenon. Finally, there is intensive need to explore more academically and practically about impulse buying on social platforms. These revenue generating impulse purchases on social platforms have tremendous potential of global growth.

#### **6. Research Limitations and Future Research Direction**

The major limitation in this study was the availability of adequate number of articles in the area of impulsive buying on social media platforms. In spite of searching Scopus database with almost all possible keywords, very few articles are found. Bibliometric analysis may not be the representative of the area of study if sufficient number of articles are not available. In this study, 120 articles are selected, which are based on social media and impulse buying behaviour research. It is assumed that the quality performance of an article is based on the frequency of citations. There might be some paper of good quality work left because it may not have citations.

The bibliometric analysis and network analysis have enabled us to identify certain gaps which in turn help us to articulate future research directions.

With the various analysis, it is found that social media platforms are vital for any business who have their presence in online business. Social media platforms are very effective in persuading customers to get indulged into impulsive buying. The future studies should be focussed on finding the behavioural aspect of consumers when they use social media platform and eventually following the weblink of online sellers.



Impulsiveness is defined as unplanned & sudden urge to buy a product or service, so it is important to explore the factors which motivates consumers to access the social pages of companies and navigate to their e-commerce website which may result in impulse purchases.

The technological aspects must also be investigated to equip the social platforms with best of the art customer experience applications which will help customers to get interested, engaged, and transact impulsively.

The current research in Facebook commerce or f-commerce is relatively in its infant stage with few theoretical models, it needed to be thoroughly researched and developed, to understand the factors, which influence potential customers to buy impulsively.

The impact of celebrity endorsement and other branding & promotional techniques have not been investigated much; future research can be done to understand this phenomenon in the case of impulse buying on social commerce.

## **7. Conclusion**

This study is the first bibliometric analysis in impulse buying behaviour on social commerce during 2003 to 2020. Scopus database and other academic search engines are used to collect our sample of 120 articles. The trend of publications and initial data statistics were presented to have an overall idea about the study. Bibliometric analysis is used to find best documents, most used references, popular keywords most influential author, most contributing affiliations, countries, and word growth trend. With the help of network analysis, citations, co-citations, co-authorship, and bibliographic coupling is performed to identify the research streams/clusters and collaborations among authors/organisation. By examining the growth of each keywords it is found that certain words like social commerce, social platform still have not been studied more from impulsive buying perspective. These research streams should be investigated (i) online impulse buying on social commerce, (ii) impulse buying on mobile commerce, (iii) f-commerce and impulse buying further for better understanding and application.

Few limitations of the current study, the future research questions & directions to be followed by future scholars are presented. This paper is also useful for the retailers and managers to understand the importance of social commerce and include it as an integral part of their overall marketing channel. This paper will help them to identify underlying factors, design

strategies and implement them for better online sales revenue through social media platforms impulsively.

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