

Mapping the Borderline Personality Disorder: A Bibliometric Analysis

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Abstract

Bibliometric analysis is instrumental in analysing and documenting the publication trends of a particular variable over time. In the framework of Bibliometric analysis, this study investigates the trends of borderline personality disorder (BPD). Data were retrieved from the Scopus database between 2010 and 2020. Further, the study was delimited to psychology, social sciences, and arts and humanities subjects only. Publications produced in English were considered for the study. In the backdrop of the selection scheme, a total of 1453 publications were extracted from the database. It is evident from the analysis that there is a significant difference between the number of citations with respect to year of publishing and type of publication. Review papers score a greater number of citations. Both national and international collaborations should be supported to produce quality publications.

Keywords: *bibliometric, BPD, citations, publication trends, research collaboration.*

Introduction

With an intent to classify a group of patients who were neither psychotic nor psychoneurotic, Otto Kernberg propounded the term 'Borderline Personality Disorder' (BPD) in 1975 (National Collaborating Centre for Mental Health (UK), 2009). Pervasive and lifelong, the disorder not only has a direct bearing on the interpersonal relationships and mood, but it also affects the behaviour of

the patients. BPD is classified as a personality disorder in cluster “B” and is characterised by emotional dysregulation, instability of the subject in interpersonal relationships, and marked impulsiveness. It is often associated with traumatic events (abuse) suffered in childhood (Perrotta, 2020).

It is a severe psychiatric disorder characterised by affective instability, impulsive behaviours, and chronic suicidality (American Psychiatric Association (APA), 2013). BPD is an illness marked by an ongoing pattern of varying moods, self-image, and behaviour which often results in impulsive actions and problems in relationships. These people may experience intense episodes of anger, depression, and anxiety that can last from a few hours to days. As per the experts, BPD is usually long-term, pervasive, and has patterns of inflexibility.

Needless to say that people suffering from BPD often struggle with an unstable self-identify and self-image. However, not only this, but such people also have difficulty regulating their emotions, impulsive and self-sabotaging behaviour (Tanasugarn, 2020).

Often diagnostically comorbid with depression and anxiety, eating disorder (bulimia), post-traumatic stress disorder (PTSD), substance misuse and bipolar disorder, such people experience delusions as well as visual and auditory hallucinations, which may further lead to emotional instability (Links et al., 1989).

Despite an incessant evolution of literature with time, woefully, causes of BPD mostly remain elusive. Ostensibly, environmental and genetic factors are also vital in predisposing patients to BPD symptoms (Calvo et al., 2020; Carpenter et al., 2013; Reichborn-Kjennerud et al., 2013).

Literature also manifests that most BPD patients are more vulnerable to acts of violence, including rape and so on (Bressert, 2020). Albeit, with copious literature, it is quite conspicuous that BPD is a well-studied area of research.

In the backdrop of the unavailability of the Bibliometric review of the disorder, the current study spells out the status of existing literature on BPD in the mentioned methodological approach.

Research Methodology

In the methodological underpinning of Bibliometric review, metadata is extracted from SCOPUS to map the literature of BPD between 2010 and 2020. Following an established set of systematic schemes and procedures in the framework of Bibliometric analysis, a total of 1453 research articles were extracted from the Scopus database, which remains the prime generator for the scholarship on the issue undertaken (Figure 1).

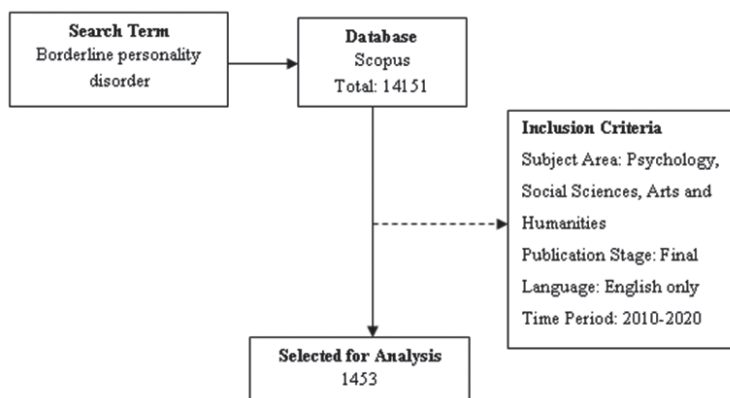


Figure 1. Betrays the methodological approach employed in the study

Search strategies

The keyword “borderline personality disorder” was used to extract relevant publications from the database. The searches were conducted in the last week of November 2020.

On the account of the double data extraction method, two coders independently extracted data from the website. It was resolved to check the discrepancies through discussion and consultation with a third coder.

While initially, the search was carried out to have a peek into the literature on BPD worldwide, the subsequent step focused on retrieving the literature produced only in India.

The search resulted in the retrieval of 1453 documents encompassing the whole world, in which nine articles could be traced from India.

The metadata was extracted on the variables including; the title of the paper, year of publication, the journal, the number of citations, organisation, country, and keywords.

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TITLE(Borderline Personality Disorder) AND PUBYEAR > 2009 AND PUBYEAR <
2021 AND ( LIMIT-TO ( SUBJAREA,"PSYC") OR LIMIT-TO ( SUBJAREA,"ARTS")
OR LIMIT-TO ( SUBJAREA,"SOCI" ) ) AND ( LIMIT-TO ( PUBSTAGE,"final" ) )
AND ( LIMIT-TO ( LANGUAGE,"English" ) )
  
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Data Extraction

The primary criterion for inclusion was the appearance of the keyword “borderline personality disorder” in the title of the articles. The data were extracted directly from the entire text of the publications, including title, corresponding author, affiliation, nationality, and journal’s title.

Results

Characteristics of the publications

Table 1 betrays that majority of the documents were published as articles 1202 (82.7%), which were followed by reviews 104 (7.2%), books 88 (6.1%), letters 22 (1.5%), notes 17 (1.2%), conference papers 06 (0.4%), editorials 05 (0.3%), and short communications 02 (0.1%). Hence, it is evident from the analysis that articles were significantly higher in number than other genres.

Table 1 manifests year-wise publications on borderline personality disorder from 2010-2020. It is revealed that publications peaked in 2018 (12%). This was followed by 2015 (11.8%), 2014 (10.6%), 2020 (10.1%), 2016 (09.7%), 2017 (09.5%), 2019 (09.2%), 2013 (08.5%), 2012 (08.3%), 2011 (05.2%), and 2010 (04.9%).

Table 1. Publication trend

Year	Article	Book	Conference	Editorial	Erratum	Letter	Note	Re-view	Short	Total	Percentage
2010	68	1	0	0	0	0	0	2	0	71	04.9%
2011	66	3	2	0	0	2	0	4	0	77	05.2%
2012	98	7	0	0	0	3	3	10	0	121	08.3%
2013	105	10	0	1	0	4	0	3	0	123	08.5%
2014	108	25	0	1	1	1	2	16	0	154	10.6%
2015	125	19	1	1	2	4	8	12	0	172	11.8%
2016	122	4	1	1	0	0	1	12	0	141	09.7%
2017	123	1	0	0	1	3	0	10	0	138	09.5%
2018	137	11	0	1	3	1	1	19	2	175	12.0%
2019	119	6	0	0	0	2	1	6	0	134	09.2%
2020	131	1	2	0	0	2	1	10	0	147	10.1%
Total	1202	88	6	5	7	22	17	104	2	1453	100%
Percentage	82.7%	6.1%	0.4%	0.3%	0.5%	1.5%	1.2%	7.2%	0.1%	100%	

International Collaboration

The articles were coded based on their appearance as collaborative efforts between different countries worldwide, as exhibited in Figure 2. The data betrays that the United States leads with the highest number of publications and collaborations, including 625 papers and 10037 citations.

Figures 2 and 3 depict the graphical presentation of the number of publications and collaboration across countries.

Publications and citations by author

Highly cited publications are very different from regularly cited publications. Mostly, these publications are authored by a large number of contributors with both national and international collaborations. Collaboration across the discipline tends to publish fewer but highly cited papers. Leahey et al. (2017) demonstrate that interdisciplinary research benefits researchers to improve their visibility in the scientific community. Although the number of papers published is less but these papers are highly cited, and these researchers find higher variations in citations. Researchers studied the patterns of researcher collaborations within the country (Knop et al., 2019). They found that a shared cultural background, language, and discipline promote the collaboration of authors. As depicted in table 2, all the highly cited publications related to BPD have more than three authors, and all are collaborative works. The table enumerates the top 10 highly cited publications on BPD. It was found that meta-analytical studies receive more citations than reviews and standard articles. All three types of documents exhibit a similar pattern in terms of institutional collaboration, while reviews and meta-analytical studies had a similar number of authors per document. However, reviews had a greater number of references and pages than meta-analytical studies (Barrios et al., 2013).

As is evident from the data, all these publications hail from developed countries with more than one author and collaboration. The analysis reveals that the most cited publication (Gunderson et al., 2011) has 13 contributors affiliated to various institutes. Figure 4 depicts the author-wise collaboration of work.

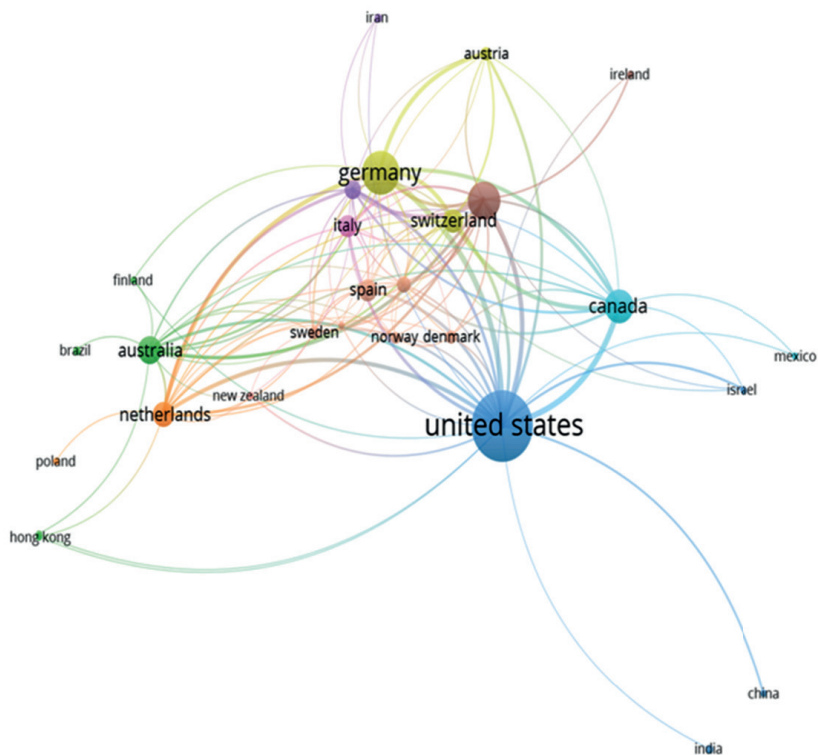


Figure 2. Collaboration among country wise

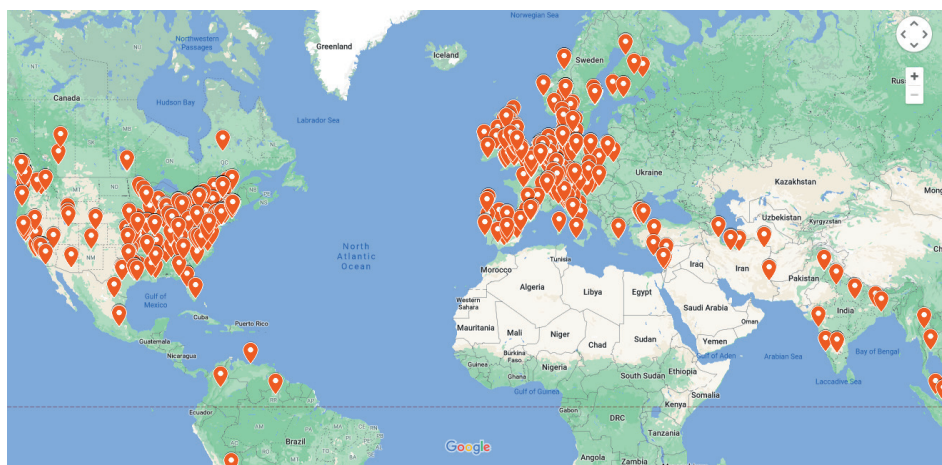


Figure 3. Number of publications country wise

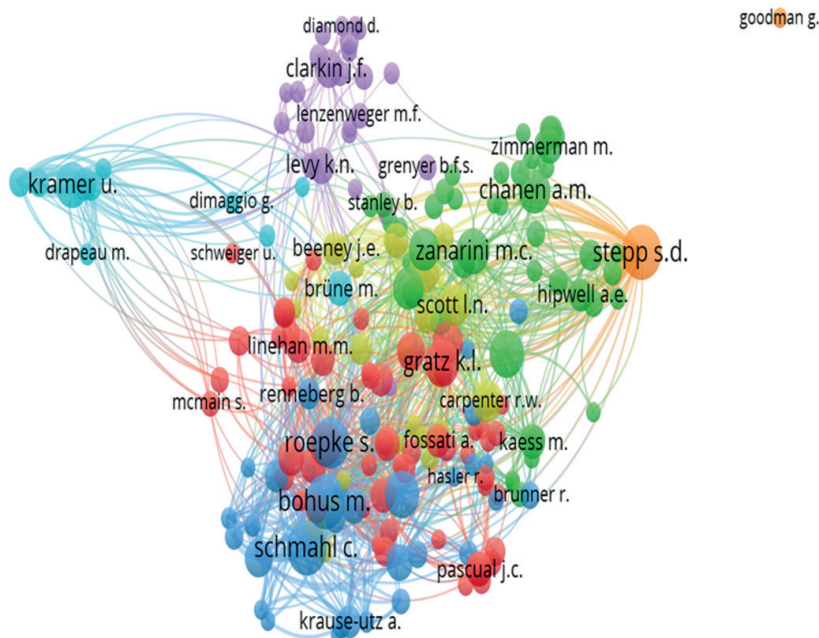


Figure 4. Author wise collaboration

Table 2. Top 15 highly cited articles

S.	Title	Authors (N)	Cit	Country	PT
1	Ten-year course of borderline personality disorder: Psychopathology and function from the collaborative longitudinal personality disorders study	Gunderson et al. 2011 (13)	414	US	Article
2	Oxytocin can hinder trust and cooperation in borderline personality disorder	Bartz et al. 2011 (8)	268	US	Article
3	Searching for a Vulnerable Dark Triad: Comparing Factor Psychopathy, Vulnerable Narcissism and Borderline Personality Disorder	Miller et al. 2010 (6)	242	US	Article
4	Dialectical behaviour therapy for borderline personality disorder: A meta-analysis using mixed-effects modelling	Kliem et al. 2010 (3)	237	Germany	Article
5	DBT skills use as a mediator and outcome of treatment for BPD	Neacsiu et al. 2010 (3)	201	US	Article

S.	Title	Authors (N)	Cit	Country	PT
6	Characteristics of borderline personality disorder in a community sample: Comorbidity, treatment utilisation, and general functioning	Tomko et al. 2014 (4)	176	US	Article
7	Borderline personality disorder comorbidity: Relationship to the internalising-externalising structure of common mental disorders	Eaton et al. 2011 (7)	163	US	Article
8	Social cognition in borderline personality disorder: Evidence for disturbed recognition of the emotions, thoughts, and intentions of others	Preißler et al. 2010 (5)	160	Germany	Article
9	Emotion regulation as a transdiagnostic treatment construct across anxiety, depression, substance, eating and borderline personality disorders: A systematic	Sloan et al. 2017 (6)	157	Australia	Review
10	A Pilot Study of the DBT Coach: An Interactive Mobile Phone Application for Individuals with Borderline Personality Disorder and Substance Use Disorder	Rizvi et al. 2011 (5)	135	US	Article
11	Dialectical behaviour therapy for post-traumatic stress disorder after childhood sexual abuse in patients with and without ...r: A randomised controlled trial	Bohus et al. 2013 (8)	134	Germany	Article
12	A pilot randomised controlled trial of DBT with and without the DBT Prolonged Exposure protocol for suicidal and self-injuring women with BPD and PTSD	Harned et al. 2014 (3)	133	US	Article
13	Facial emotion recognition in borderline personality disorder	Daros et al. 2013 (7)	124	Canada	Article
14	Epistemic petrification and the restoration of epistemic trust: A new conceptualisation of BPD and its psychosocial treatment	Fonagy et al. 2015 (3)	123	United Kingdom	Article
15	Rejection sensitivity and borderline personality disorder	Staebler et al. 2011 (4)	118	Germany	Article

Cit: Citations; PT: Publication Type

Highest citations

Review papers are critical evaluations of literature that have already been published. These papers are cited more frequently than original research papers. Journals publishing review papers tend to have higher impact factors as review papers are valuable for new researchers owing to their critical and systematic assessment of the findings and approaches followed in the research area (Aksnes, 2003; Moed, 2010; Teixeira et al., 2013).

To examine the difference in the number of citations among various types of publications, Analysis of Variance is instrumental in studying the difference among the publications. It is revealed that a statistically significant difference exists among the publications on the total number of citations (Table 3).

Table 3. Analysis of Variance

		Sum of Squares	df	Mean Square	F	Sig.		
Between Groups		27920.19	3	9306.73	14.39	.000		
Within Groups		936956.14	1449	646.62				
Total		964876.33	1452					
<i>Post-hoc analysis – Citations among the type of publication</i>								
	N	Mean	SD		Article	Book	Others	Review
Article	1202	15.63	26.59	Mean difference	—	13.1	12.347	-6.81
				p-value	—	<.001	<.001	0.095
Book	88	2.56	4.50	Mean difference		—	-0.731	-19.89
				p-value		—	0.834	<.001
Others	59	3.29	5.55	Mean difference			—	-19.15
				p-value			—	<.001
Review	104	22.44	28.60	Mean difference				—
				p-value				—

The mean score of reviews is the highest followed by articles, books and others. Subsequently, Tukey's Post-hoc analysis was applied to a statistically significant ANOVA to further gauge the differences between the publications. It unveils that review papers were cited more significantly than others (Table 3). Therefore, it is conspicuous that the researchers prefer reading review papers to their counterparts.

Discussion

Considering various variables like the number of publications, author's collaboration, keywords, and highest cited articles, the present study is a Bibliometric review aimed to provide new insights into the current status of literature on BPD. It is a systematic analysis of the present corpus of literature aimed at adding to the existing body of knowledge.

For this purpose, the data retrieved from the Scopus database was analysed through the Statistics Package for Social Sciences (SPSS).

Owing to its relevance and scope, the data analysis betrays that *Journal of Personality Disorders* has published copious articles related to this topic. The thematic analysis further manifests that these articles were specifically focussed on areas including; psychopathology and personality disorder.

Collaborative work has been gaining increased attention in scientific research circles. Besides various other factors, the quality of an article may also be gauged from its citation index, as it is a matter of intersubjectivity that a highly cited publication is a clear indication of a quality publication.

In the larger context of collaborative work and citation index, the study found a relationship between the number of contributing authors and citations. It is revealed that the articles authored by more than three authors have contributed to the top 15 highly cited publications. In a larger context, if applied and tested on other themes and areas of research, these findings may also find consistency with the current theme undertaken.

Studies manifest that collaborative research produces greater epistemic authority than single researchers. The chances of citation are higher in collaborative work as compared to single-authored work (Beaver, 2004; Leahey et al., 2017).

The analysis finds that an article titled *Ten-year course of borderline personality disorder: Psychopathology and function from the collaborative longitudinal personality disorders study* authored by 13 contributing authors is the most cited publication on BPD during studies. These findings are consistent with Abramo & D'Angelo (2015), revealing a significant linear growth of citation with the number of co-authors.

It is noteworthy that the present study, in consonance with the literature, further verifies that there is a positive association between the number of authors and the number of citations. Therefore, it may not be inappropriate to suggest that the higher the number of authors of a publication, the higher will be the number of citations to this article.

In the larger context, inter-relationship between the number of citations, type of publication and year of publication is also evident from the study's findings. It is palpable that there is a significant difference between these three variables.

In terms of the number of citations and year, it is found that year 2010 records significantly higher citations as compared to the ensuing years.

When the findings were analysed in the light of the type of publication, it is conspicuous that the number of articles was significantly more than reviews, books, and other form of research writings. However, in the wake of the number of citations and type of publication, it is quite discernible that review papers, despite only a few in numbers, score significantly higher on citations than other forms of research writings. These findings are supported by (Miranda & Garcia-Carpintero, 2018), who found that, on average, review papers are cited three times more than original articles. Moreover, publishing a review impacts the citation output of the researcher.

Besides a few other major concerns, one of the primary reasons behind this finding may be that a good review paper eventually summarises the existing literature and provides the new researcher with a head start by pointing out the research gaps in the existing methodologies. This finding, when contextualised considering the available literature, reveals that current findings are quite in line with the thematic analysis of the other variables carried out previously.

It is to further state that author keyword analysis was also carried out in the present study using VOSviewer. Thus, 595 author keywords, further divided into 7 clusters, came to the fore.

As is evident from Figure 5, these clusters are classified in different colours. Therefore, cluster 1 (red) consist of 165 items, cluster 2 (green) consists of 150 items, cluster 3 (blue) consists of 123 items, cluster 4 (yellow) consists of 55 items, cluster 5 (purple) consists of 50 items, cluster 6 (aqua) consists of 30 items, and cluster 7 (orange) consists of 22 items.

The keywords used in these publications, as Figure 5 depicts, include: adolescents, adult, borderline state, BPD, comorbidity, dialectic behaviour therapy, emotion, emotional reactivity, female, healthy control, human, guilt, male, middle-aged, perception, post-traumatic stress disorder, psychology, psychological aspect, psychotherapy, suicide, therapy, and so on.

The authors have further carried out a qualitative content analysis of 15 selected articles among the already defined data to get a more in-depth understanding of themes covered in the publications. The articles were selected simply based on their rank and the number of citations. It would mean that the top 15 most cited articles were classified as the sample for the qualitative content analysis.

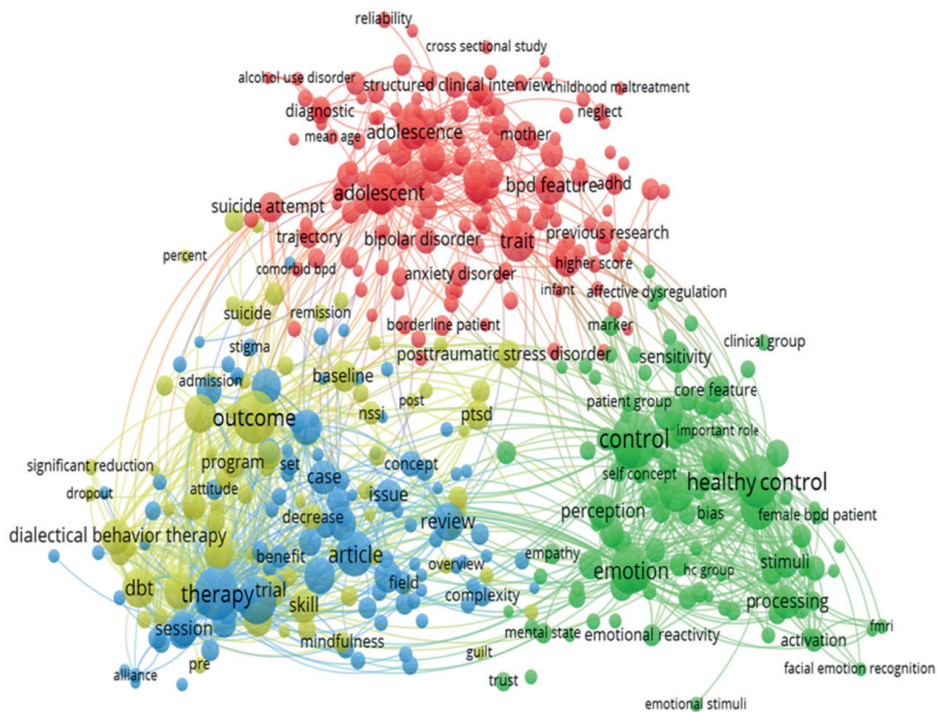


Figure 5. Co-word network of BPD

The content analysis reveals that the prime focus of the selected publications was on the characteristics and comorbidity of BPD, history of sexual abuse, rejection sensitivity, emotional regulation, social cognition, psychopathology, and dialectical behaviour therapy. In its broader context, this analysis would further help us understand the frame of reference and focus of researchers when it comes to research about BPD. With the analysis of themes of the publications, it is unveiled that the focus of the researchers lies on the psychopathologies associated with BPD.

The other major areas of concern for researchers also include; history of sexual abuse and substance abuse in the context of BPD. The comorbidities associated with other disorders like anxiety, PTSD, the major depressive disorder have been studied.

The content analysis also betrays that factors like social support, social cognition, which play a significant role in this disorder, have been undertaken for

exploration to study as mediators. A perusal of the studies makes it clear that dialectical behavioural therapy remained the main focus of most of the studies published during the undertaken period. The analysis brings to the fore different areas encompassing BPD in which scientific literature is being produced, despite that the causes of the disorder remain mostly unknown.

Conclusions

As is evident from the current analysis, despite the growing literature on BPD, the causes of the disorder remain mostly unknown. However, in the context of further exploration of the disorder for more specific conclusions regarding the root cause of the BPD, the study suggests that collaboration is key to understanding the basic tenants of the already available literature, hence augmenting its scientific validity. The study also explores various areas and sub-variables in which research is growing, thereby providing an important guideline for future researchers working on BPD.

Limitations of the study

- Owing to the fact that only one keyword, “borderline personality disorder”, was used to extract data from the Scopus database, there is a good chance that other articles related to this problem having other keywords may have been skipped.
- This study was limited to the Scopus database only. Thus, the authors did not include data from other databases like Web of Sciences, Emeralds, etc.
- This study was limited to the English language only, publications in other languages were not considered.

Ethical Approval

The study did not include any human subjects or human materials. Hence ethical approval of the study was thus not required based on guidance from the institutional review board.

Conflict of Interest

None

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