

Behavioural addictions research past & present: A bibliographic review

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Abstract

"... there is no basis for linking the word 'addiction' to drug habits. Nor is there a basis for assuming that the most severe addictions necessarily involve drugs."

B.K. Alexander & R. F. Schweighofer (1988)

Introduction

The phrase “behavioural addiction” first appears in ...’s seminal 1990 editorial and the series of commentaries that followed (). However, the notion that someone can be addicted to “activities” (e.g., Alexander & Schweighofer, 1988), not substances, predates these articles by at least several decades. Parallels between compulsive gambling and substance addictions can be found in articles from. (). References to work (1), love , and exercise (2) addictions or dependencies also predate the first mention of “behavioural addictions”.

Responding to...’s 1990 editorial, Jaffe [1990; (3)] argued the term “addiction” was already being used too liberally—it was being applied to many non-drug-related behaviours and there was a risk of “*trivializing dependence*”. These concerns appear to have done little to stem addiction’s expanding definition. Since 1990, an increasingly greater number of repetitive or compulsive behaviour patterns have been proffered as addictions. These include... and even fortune telling (4,5).

Fears that the term *addiction* will lose its seriousness or weight remain heightened today (6). These may be justified—individuals who experience addictions to opioid-based drugs or alcohol can suffer serious, life-threatening harm and withdrawal episodes. Assigning the same label to describe their experience and someone who has a largely inconsequential difficulty controlling their spending or screen use could indeed trivialise the condition. Yet, there is increasing evidence that people are compulsively engaging with behaviours like gambling (), gaming (), smartphone use (), and exercise () in a way that resembles substance addictions. Parallels have been observed in the symptoms (), antecedents and correlates (), and underlying neurobiology of drug and non-drug addictions (see ...).

Buoyed by this evidence, clinicians and researchers have lobbied for increased recognition of behavioural addictions as official mental health diagnoses. Success in this endeavour was most notable in 2013 when the American Psychological Association included *Gambling Disorder* as a behavioural addiction in the fifth edition of the Diagnostic & Statistical Manual of Mental Disorders (DSM-5) under the rubric of (7). More recently in 2018, *Gaming Disorder* was added to the 11th edition of the International Classification of Diseases (8).

While adding Gambling Disorder to the DSM-5 appears to have been widely accepted as a positive step, the addition of Gaming Disorder to the ICD-11 has been met with contention. Among the many issues raised include limited evidence of clinical impairment resulting solely

from gaming in the absence of other co-morbid psychological disorders and the simple transposition of diagnostic criteria for substance use disorders which may pathologise the normal behaviour and experiences of gamers (e.g., craving and tolerance, while diagnostic of a problem in a substance use setting, may be unproblematic for gaming)(9). The appropriateness of the *addiction* label for other behavioural patterns (e.g. compulsive shopping & pornography use) has been similarly questioned, with evidence that these may be shorter in duration (10) and lower in severity (NOT SURE ABOUT THIS- DO SOME RESEARCH) when compared to gambling disorder and substance addictions.

Overall, fears that non-pathological behaviour patterns are being labelled as “addictions” remain high (11). Despite this, there has been no attempt to systematically investigate this trend and “take stock” of research in the behavioural addictions field. The number of novel addictions formally investigated remains unclear. As does the extent to which each purported addiction has been studied relative to the more established gambling and gaming disorders. These gaps in understanding preclude empirically informed debate regarding the field’s current state and trajectory. The aims of this bibliometric review were, therefore, to:

- [1] identify the total number of different behavioural patterns formally studied as behavioural addictions in peer-reviewed articles
- [2] determine the number of such articles focused on each proposed addiction and the characteristics of these articles (e.g., years of publications, geographic location of authors)
- [3] determine the relative strength of evidence for each behavioural addiction.

Methods

PRISMA

CONFIRM ELIGIBILITY CRITERIA THEN DECIDE WHETHER TO INCLUDE:

Adolescent sexual abuse: clinical discussion of a community treatment response.

A novel, exploratory approach was to identify relevant behavioural addictions and related articles. As such, pre-registration of the methods was not deemed appropriate or possible.

A key epistemological principle underlying the methods was the deliberate avoidance of evaluative judgment regarding the validity of an article’s classification of a behavioral pattern as an addiction or dependence. That is, any article that referred to a behavioral pattern (e.g., excessive tanning) as an addiction was included in the review without scrutinizing or challenging the appropriateness of the addiction label applied by the authors. This approach ensured a comprehensive examination of the relevant literature that was unbiased by the reviewer’s judgement.

Search & selection process

The review was divided into two phases. The first aimed to identify all potential behavioural addictions that *may* have been formally studied in peer-reviewed articles. This was achieved via internet-based searches of terms such as “new behavioural addiction” and “novel behavioural addictions”, as well as scans of academic blogs (e.g., <https://drmarkgriffiths.wordpress.com/>). Terms for these novel addictions were collated and combined with diagnostic terms for more established behavioural addictions. For example, *Gambling Disorder* from the DSMs-5 (7), *Pathological Gambling* from DSM-IV, and *Gaming Disorder* from ICD-11 (8).

In Phase 2, the terms derived from the first phase were used in searches of the PubMed database. PubMed was selected for two reasons. First, it indexes more than 30,000 different journals/outlets, including most that publish behavioural addiction research (e.g., *Addiction*, *Journal of Behavioural Addictions*, *Addictive Behaviours*). Second, search results and article data can be automatically downloaded using the **rentrez** R package, allowing for efficient extraction of data on a large scale—in this case, all articles ever published on behavioural addictions in the database.

Search strings for each behavioural addiction were first trialled and refined using the PubMed “Advanced search” function online. Once a string was finalised, all results returned using it were screened for relevance at title and abstract level. Broad, inclusive eligibility criteria were used to maximise the discoverability and inclusion of relevant literature. To be included, an article was required to only meet the following criteria:

- , even if the article questions the appropriateness of labeling the behavioural pattern as an addiction.

The title and PMID (PubMed ID) of irrelevant articles were noted and later removed (see Data extraction section below).

Data extraction

used **rentrez** to pull the results from searches.

individually screening the results for duplicates or irrelevant articles (e.g., errata).

Data analysis

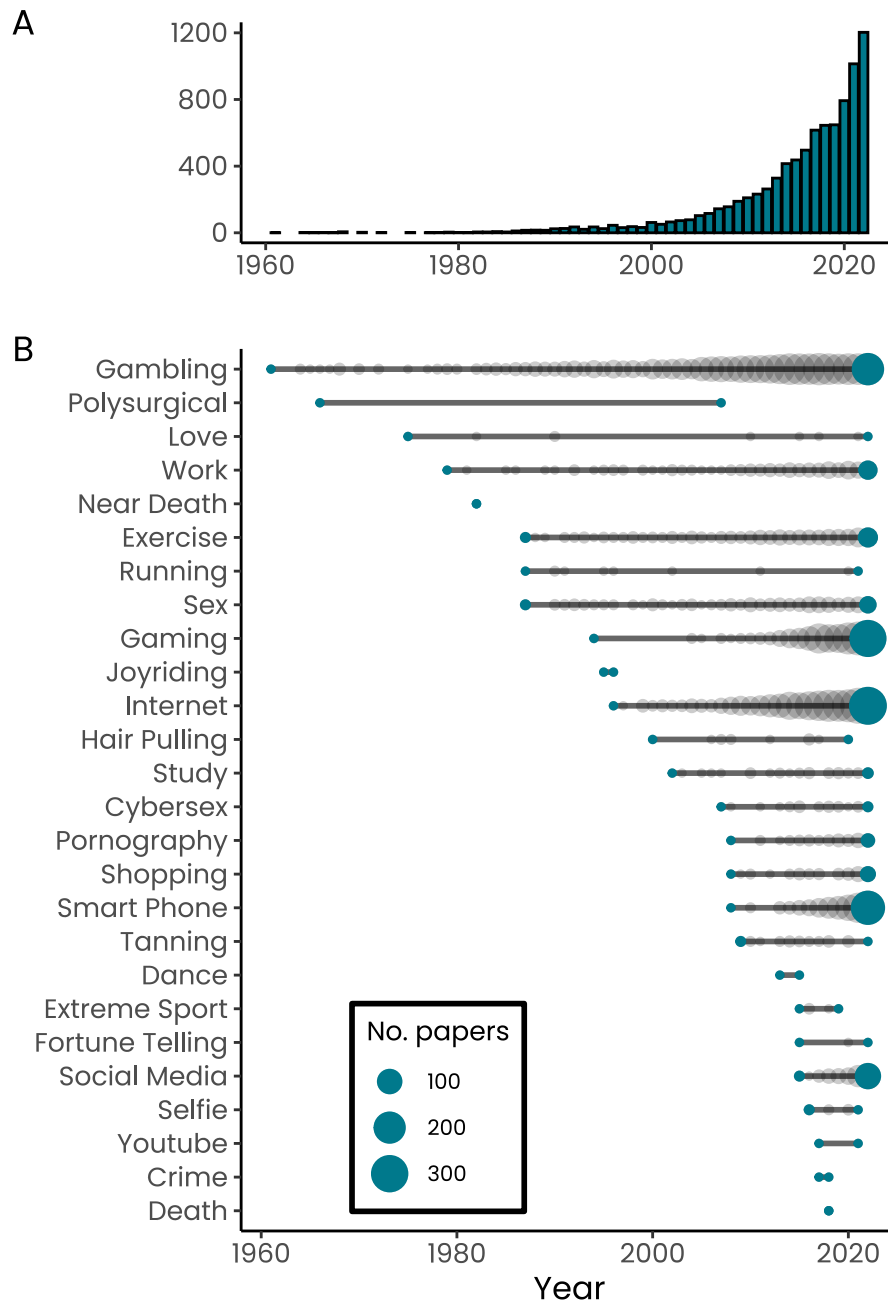
Number of behavioural addiction articles on PubMed

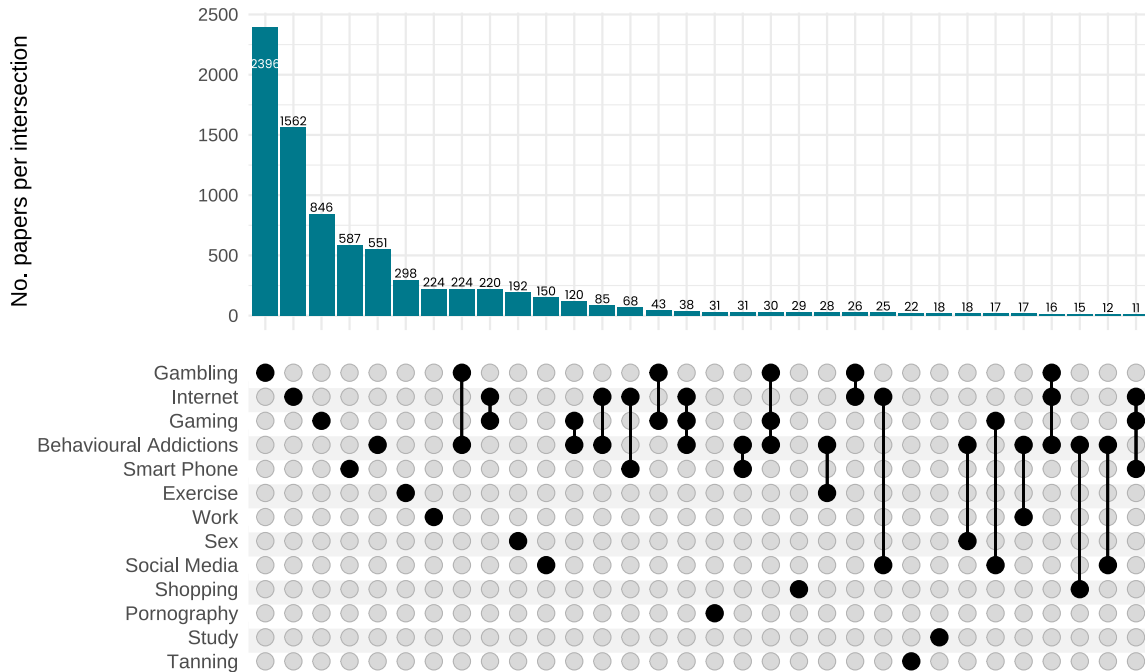
Up to end of 2022

Behavioural addiction	N	%
Gambling	3372	32.45
Internet	2154	20.73
Gaming	1401	13.48
Behavioural Addictions	1320	12.70
Smart Phone	753	7.25
Exercise	351	3.38
Work	262	2.52
Sex	255	2.45
Social Media	245	2.36
Shopping	67	0.64
Pornography	61	0.59
Study	33	0.32
Tanning	29	0.28
Cybersex	26	0.25
Hair Pulling	13	0.13
Running	10	0.10
Love	9	0.09
Selfie	8	0.08
Extreme Sport	6	0.06
Fortune Telling	3	0.03
Youtube	2	0.02
Crime	2	0.02

Dance	2	0.02
Joyriding	2	0.02
Polysurgical	2	0.02
Death	1	0.01
Near Death	1	0.01

Results





Discussion

Findings show that, since 1961, the formal study of behavioural addictions expanded from one (gambling) to at least 25 different behaviours. Notably, this form of expansion is not unique to the addiction field. “Psychiatrization” and “concept creep” have been used to describe the seemingly ever-widening definitions of mental health disorders, abuse, and trauma, as well as the “medicalisation” of these in the form of over-diagnosis and treatment (12,13). According to Haslam, concept creep can occur both vertically (wherein the meaning or boundaries of a concept become loosened and allow for less severe or milder forms) and horizontally (wherein the concept expands to capture qualitatively new forms or is applied in new contexts). Evidence of the latter is clearly seen in the present study and throughout the history of the addictions field. Using semantic analysis of over 800,000 journal abstracts in the psychology field published since 1930, Haslam et al. (14) were able to show that the term addiction was most closely related to substance use concepts (e.g., “drug”, “narcotic”) in the 1980s and transitioned to become more associated with behavioural concepts by the 2010s (e.g., “gaming”, “internet”).

"I found myself saying to our driver: 'Green, did you know that I am an addict'? He is of the old school so that he did not turn his head. 'No, sir, I did not know that'. 'I am addicted to at least one good experment a day—sometimes I can arrange it by telephone. When I cannot, the world goes out of focus, becomes unreal'. Possibly somewhat dissapointed, but cearly relieved: 'I see, sir'."

E. H. Land in *Addiction as Necessity and Opportunity* (1971).

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