Short-term functions and long-term consequences of checking behavior as a transdiagnostic phenomenon: protocol for a systematic review

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ABSTRACT

Introduction Checking behaviour (CB) occurs in various mental health problems. Cognitive-behavioural models for these mental disorders share similar theoretical assumptions. Thus, they postulate a negative reinforcing effect of CB by reducing negative affect (ie, anxiety) and a maintenance of the pathology due to a lack of reality testing of concerns. This paper details methods for a systematic review that will be conducted to synthesise empirical evidence testing these theoretical assumptions across obsessive–compulsive, generalised anxiety, eating, body dysmorphic and illness anxiety disorder. The results are expected to foster our understanding of the mechanisms of action underlying CB, which is of high clinical relevance. Depending on whether or not the findings confirm the model assumptions regarding CB, the focus of treatments would need to be intensified or modified.

Methods and analysis We will search PsycINFO, PubMed, PSYNDEx and Scopus for studies investigating the emotional state in which CB is being used as well as the immediate and longer-term effects of CB on cognitive and emotional measures in clinical and analogue samples. The selection process, data extraction and quality assessment of included studies will be performed by two independent reviewers. In the case of inconsistencies, a third reviewer will be involved. Study results will be reported in a narrative synthesis.

Ethics and dissemination Ethics approval will not be required as this is a protocol for systematic review. The results are mainly disseminated through peer-reviewed publications.

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INTRODUCTION

Rationale

Safety behaviour represents a core feature of various mental disorders\(^1\)\(^2\) and is defined as ‘actions taken to prevent, avoid or escape a feared outcome’.\(^3\) In the narrower sense, this includes behaviours such as taking sedatives, not going to certain places without another person or always carrying a bottle of water. Furthermore, it comprises avoidance behaviours and checking behaviour (CB), which manifests in different ways depending on the respective disorder. The earliest descriptions of the latter can be found regarding obsessive–compulsive disorders (OCD).\(^4\)\(^5\)

In OCD, CB is the most common compulsion\(^6\) and manifests, for example, as controlling the absence of potential sources of danger in one’s surroundings (eg, stove turned off to prevent fire, windows or doors locked to prevent burglary) or repetitive requests for reassurance from others.\(^7\)\(^8\) Closely related to this, CB in generalised anxiety disorder (GAD) is also described,\(^9\)\(^10\) but mainly in terms of interpersonal checking (ie, seeking reassurance from others, eg, before making decisions, when engaging in activities or asking a loved one if he or she is upset).\(^11\)\(^12\) While in OCD and GAD, checking primarily refers to objects, environment, relationships and achievement, in other disorders, the main focus of CB is one’s own body. Disorders with body-related CB include eating disorders (EDs),\(^13\) body dysmorphic disorder (BDD)\(^14\) and illness anxiety disorder (IAD).\(^15\) In EDs, that is, anorexia nervosa, bulimia nervosa and binge-eating disorder, CB expresses itself as inspecting one’s own body in terms of its weight or shape, and manifests in behaviours such as repeated weighing, measuring the circumference of body parts,
inspecting one’s body or individual body parts in the mirror, seeking reassurance about one’s appearance and comparing it to others. CB in BDD is described as inspecting one’s perceived defect by looking at it in the mirror or other reflective surfaces (eg, shop windows, car mirrors) in a ritualistic way, taking photos, comparing it with other people (in real life, media, photos of oneself in the past), checking its size or contour by touching it with one’s fingers, and asking others for reassurance (eg, whether the perceived flaw has become worse or is adequately camouflaged). Whereas, checking for reassurance (eg, whether the perceived flaw has become more apparent) is addressed in the current study but a better understanding of the mechanisms of action underlying CB may also have implications for the prevention of mental disorders (eg, if the proposed long-term negative effect of CB on psychopathology can be supported by empirical evidence, prevention programmes addressing the reduction of checking in healthy individuals or at-risk groups could be developed).

**Objectives**

As such, our systematic review intends to synthesise existing evidence for the three postulates regarding CB across the mental disorders OCD, GAD, EDs, BDD and IAD. The current study protocol outlines the methods of our investigation and is based on the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) checklist (online additional file 1). The following research questions will be addressed: (1) Which (emotional) states are people in when engaging in CB? (2) What effect does CB have on emotional, cognitive and disorder-specific outcomes in the short term (ie, directly following CB)? (3) What effect does CB have on emotional, cognitive and disorder-specific outcomes in the short term (ie, after a repeated number of checking episodes)?

**METHODS**

Our review has been registered with PROSPERO. The planned data selection process runs from January to May 2022.
Inclusion and exclusion criteria

The inclusion and exclusion criteria are shown in table 1.

Information sources

The following electronic databases will be searched: PsycINFO, PubMed, PSYNDEX and Scopus. Furthermore, we will screen the bibliographies of relevant articles for additional studies. Additionally, research registries (ClinicalTrials.gov, PROSPERO and the International Clinical Trials Registry Platform of the WHO) will be searched for eligible unpublished studies. The search process will be presented in a PRISMA flow diagram (online additional file 2). It shows whether an article stems from the electronic databases or from further literature research.

Search strategy

During the design of the search strategy, library staff were on hand to advise us. To generate search terms, we screened reviews and primary studies as well as the respective keywords (using the “Thesaurus of Psychological Index Terms” and “Medical Subject Headings”). The search terms available for selection were presented to and discussed by a group of experienced clinical researchers. Finally, relevant keywords and, if necessary due to lack of indexing, free text words were selected for each disorder. Since CBs have not yet been keyworded, their search was limited to free text words. To reduce irrelevant hits, only studies that included checking terms in the title or abstract were searched. To be implemented in the scientific databases, the disorder-related search terms were combined using the Boolean operator “AND” with the free text words for Checking. The only filter set is that the search should be limited to studies with human participants. The full search strategy for one database is displayed as additional file (online additional file 3). This will be adapted for each database according to the respective guidelines.

Study records

Selection process

In a first step, two independent reviewers will screen the titles and abstracts yielded by the search after removal of duplicates. We will then obtain the full text for potentially eligible studies. If the full text is not available, for example, through institutional membership, we will contact the authors to request access. By screening the full text in a second step, the two reviewers will assess for inclusion in the review based on the criteria outlined before. We will note the reason for exclusion of any study and present the selection process in the PRISMA flow diagram (online additional file 2). In the case of discrepancies between the two reviewers in either step, a third reviewer will be consulted. None of the reviewers will be blind to the journal titles or to the study authors or institutions.

Data extraction

For all included studies, data will be extracted by two independent raters using a data collection form developed for this review (online additional file 4). Both reviewers will pilot this in advance with five studies and make adjustments prior to the extraction of data if necessary. We plan to extract the following information and data from each study: (1) basic characteristics of the study; authors, title, publication year, country; (2) sample: sample size, average age, gender, type of sample (clinical vs analogue), diagnosis and criteria for diagnosis (clinical samples) or type of symptoms in analogue samples, comorbidities; (3) setting (eg, online survey, laboratory experiment); (4) type of CB investigated; (5) assessment time points; (6) instruments for the assessment of outcomes and type of outcomes investigated; and (7) study results with regard to the research questions.

Data synthesis

Selected studies will first be assigned according to the disorder or psychopathology they investigated. Within these five groups, studies will additionally be categorised according to which research question they address. Due to the expected low number of eligible studies, we will carry out a narrative synthesis and compile a table outlining characteristics and findings of every study.

Risk of bias

We will assess the risk of bias within randomised trials using the Cochrane Collaboration tool for assessing risk of bias and within non-randomised studies with the Risk Of Bias In Non-randomized Studies of Interventions tool. The strength of evidence collected from each study in the review will be assessed using the Grading of Recommendations Assessment, Development and Evaluation system. The evaluation process will be conducted by two
independent reviewers. If necessary, a third reviewer will resolve disagreements.

Patients and public involvement
Patients and the public will not be directly involved in the design, interpretation or dissemination of the results.

Ethics and dissemination
This systematic review will be based on previously published data, so there will be no requirement for ethical approval. The results of the review will be submitted for publication in a peer-reviewed psychological journal. In addition, the results will be disseminated in various media such as symposia, congresses and seminars.

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