

IN THE DARK: CHILD AND ADOLESCENT USE OF THE DARK WEB - A SYSTEMATIC REVIEW

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INTRODUCTION

The internet has irrevocably altered the daily lives of young people (<18 years old). Those born after 1995 are amongst the first generation to have their development dominated by the internet (1).

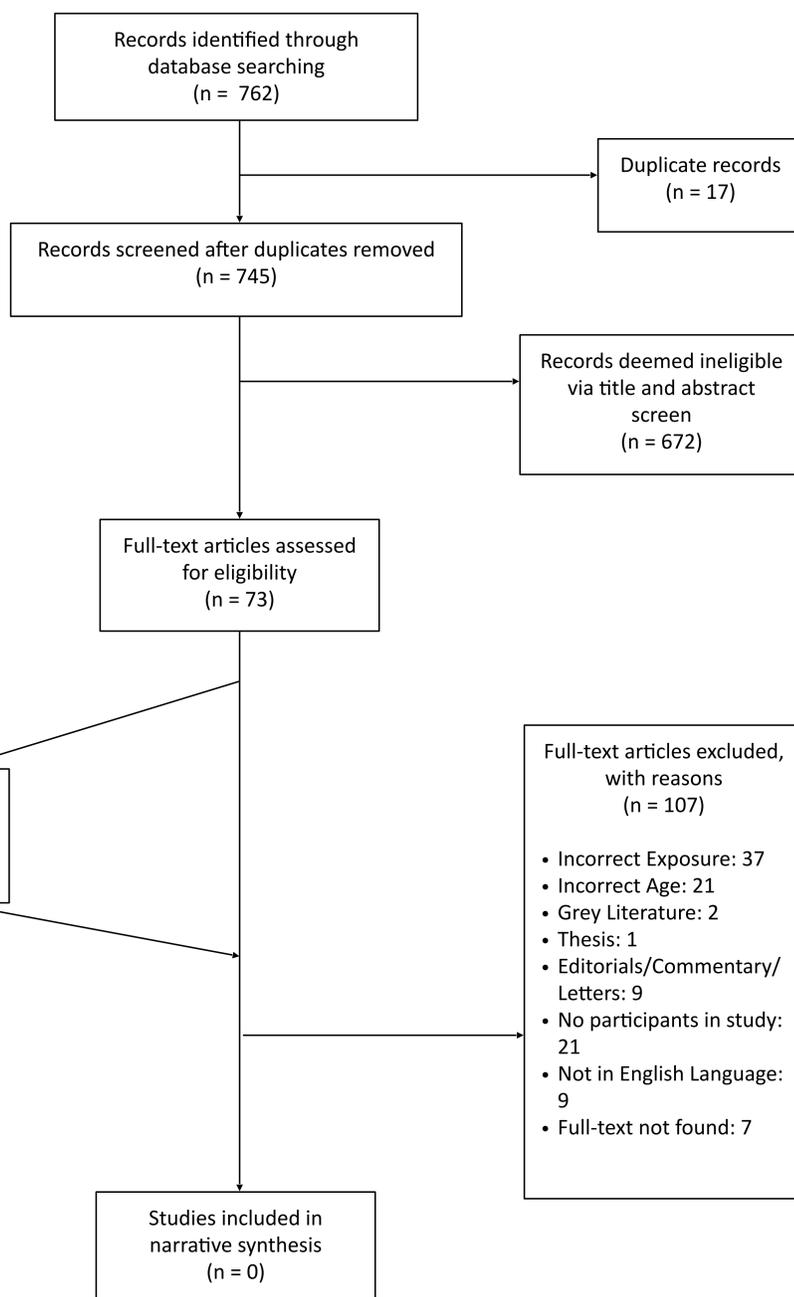
The dark web has received a wave of media coverage (2) over the past decade due to the illicit and dangerous content (3), which can be found. The dark web comprises of a series of non-indexed websites that cannot be accessed through traditional methods of internet searching. Websites are intentionally hidden, often requiring easily obtainable tools – such as The Onion Router (TOR) – to access them. The level of encryption and anonymity afforded to users allows for a digital space that has the propensity to place vulnerable populations at risk. Despite the media coverage it has received, the dark web appears to remain an unknown quantity within much of the academic literature examining the impact of the internet on the health of young people.

LITERATURE SEARCH

An electronic literature search was conducted on 5 electronic databases using a pre-defined strategy: MEDLINE, PsycINFO, EMBASE, Scopus and Web of Science. Backwards and forwards citation searching was also conducted. This systematic review was reported according to PRISMA guidelines. The protocol for this systematic review is registered on PROSPERO (ID CRD42020224502)

English-language publications up until 16th December 2020 (with no earlier time-point limit) were included. Peer-reviewed observational studies, qualitative studies and case reports, where the full-text was available, were included. Studies were included where participants were under the age of 18 at the point of enrolment. Studies were also included if there was a clear subset of participants under the age of 18 at the point of enrolment, alongside populations over the age of 18.

Our primary outcome of interest was mental health outcomes, defined as an improvement or exacerbation of symptoms of mental illness, substance misuse or addiction. We were also interested in the extent, nature and purpose of the use of the dark web by children and adolescents.



RESULTS AND DISCUSSION

The database search identified 762 references. Duplicates were removed to leave 745 references. Following the title and abstract screen, 672 references were excluded. 34 articles were identified using backwards and forward citation searching. From the full texts reviewed (73 from database; 34 from citation searching), no articles (n = 0) were found to be eligible for inclusion within the review.

To our knowledge, this is the first study of its kind specifically reviewing the current knowledge on dark web use by child and adolescent populations and its impact.

There are fleeting allusions to the dark web and its mental health implications within some of the academic literature. From the limited literature available, **three** main themes on young people's use of the dark web and its possible clinical implications began to emerge:

1. Safeguarding and Promoting Well-being

Use of the dark web could expose populations to: violent or disturbing content, online grooming, suicide material, child pornography and to market places, which sell illicit substances, psychotropic medication and weapons (3-6). Harmful content, such as those listed above, can possibly be damaging to a young person's well-being (7).

In keeping with professional principles, there is the necessity to safeguard young people from the risks posed by the dark web.

2. Assessment of Risk to Self

It has been shown that whilst there is proportionately less suicide content on the dark web compared to the surface web, suicide content on the dark web has been found to be predominantly pro-suicide (4, 8, 9).

Motivation to use the dark web to research suicide methods has also been highlighted as a key avenue of interest for researchers (4). One can argue that by utilising the dark web to research suicide materials, a young person is showing both acts of potential planning and circumvention of detection (due to anonymity granted), which will likely increase risk of completed suicide. Consequently, this could have significant implications in the practice of risk formulation and management for mental health practitioners.

3. Substance Misuse and Psychopharmacology

The dark web has been noted as being influential in the development of anonymous, online drug markets (5).

It is currently impossible to conclusively comment on whether use of the dark web by young people increases the risk of substance misuse and addiction. The evidence within the academic literature proves also to be somewhat conflicting. Child and adolescent populations may find the intricacies of the dark web laborious and turn to encrypted applications on smartphones to buy and sell illicit substances (10).

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