



Heterogeneity in interpersonal violence outcome research: An investigation and discussion of clinical and research implications[☆]



J.C. Hockenhuill^{a,*}, M.G. Cherry^b, R. Whittington^c, R.C. Dickson^a, M. Leitner^d, W. Barr^c, J. McGuire^b

^a Liverpool Reviews and Implementation Group, University of Liverpool, Whelan Building, Brownlow Hill, Liverpool L69 3GB, UK

^b Division of Clinical Psychology, University of Liverpool, Whelan Building, Brownlow Hill, Liverpool L69 3GB, UK

^c Health and Community Care Research Unit, University of Liverpool, Eleanor Rathbone Building, Bedford Street South, Liverpool L69 7ZA, UK

^d ER & IC, Medical Division, Macclesfield, Cheshire, UK

ARTICLE INFO

Article history:

Received 21 August 2013

Received in revised form 10 January 2015

Accepted 27 February 2015

Available online 7 March 2015

Keywords:

Systematic review

Intervention

Violence

Homogeneity

Meta-analysis

ABSTRACT

The term 'interpersonal violence' is used to refer to a wide range of violent acts, including intimate partner violence, child abuse and stranger assaults. Two extensive reviews of interventions to reduce or prevent interpersonal violence published between 1950 and 2008 identified a large literature base reflecting the extensive collective effort of violence researchers over the past 50 years. However, neither review was able to meaningfully synthesize sub-group data due to the high degree of heterogeneity present. This paper interrogates this apparent contradiction by examining three examples of predefined sub-group analyses from these reviews. None of the chosen examples produced groups of studies with adequate homogeneity for meaningful meta-analysis and synthesis, indicating that the violence research literature, while extensive, is currently too heterogeneous to be used to inform policy related to the most appropriate interventions suitable for evidence-based practice. If the literature cannot become more focused via a major topic prioritization exercise, an alternative solution to this problem may be to adopt a realist synthesis approach to determine what works, for whom, and in what context.

© 2015 Elsevier Ltd. All rights reserved.

Contents

1. Background	18
2. Methods	20
3. Results	20
3.1. Example 1: Randomized controlled trials evaluating atypical antipsychotics to reduce violence in individuals on the schizophrenic spectrum (outcome measured using scale measures)	20
3.2. Example 2: Quasi-experimental studies evaluating cognitive behavioral therapy compared with treatment as usual to reduce violence in sex offenders (outcome measured using reconviction or reoffending rates)	21
3.3. Example 3: Randomized controlled trials evaluating the use of cognitive behavioral therapy compared with no treatment to reduce violence in domestic violence perpetrators (outcome measured using criminal statistics)	22
4. Discussion, limitations and conclusion	23
4.1. Discussion	23
4.2. Limitations	24
4.3. Conclusions	24
Acknowledgments	24
References	24

[☆] Paper based on a presentation at the 7th European Congress on Violence in Psychiatry, Prague, Czech Republic, October 2011.

* Corresponding author at: Liverpool Reviews and Implementation Group, Room 2.07, Whelan Building, The University of Liverpool, The Quadrangle, Brownlow Hill, Liverpool L69 3GE, UK. Tel.: +44 151 7955441.

E-mail address: julieth@liverpool.ac.uk (J.C. Hockenhuill).

1. Background

Violence is a global issue and raises ongoing public, political, and professional concern due to its significant impact on health and wellbeing in all societies. The World Health Organization's (WHO) (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002) definition of violence

includes threats, intimidation and physical, sexual, and psychological abuse, as well as acts of self-harm and suicidal behavior. Interpersonal violence (i.e., intimate partner violence, child abuse, and stranger assaults) is thought to account for more than 486,000 deaths per year worldwide (World Health Organisation, 2013), and these are only a fraction of all assaults that occur.

Due to the ongoing concern over violence and its effects on individuals and society, the reduction and prevention of violence have been extensively researched over the past 50 years, which has led to the development and implementation of a broad range of interventions. This research has done much to improve our understanding of violence. However, it has also led to a diverse literature, reflective of the many different manifestations of violence, the different populations in which violence occurs, and the methods adopted to evaluate the efficacy of interventions to reduce violence or associated outcomes.

Such a diverse and extensive literature can be bewildering and can obscure the effectiveness of particular interventions to decrease violent behavior in specific situations. When practitioners are choosing which intervention to employ it is important that they consider using an evidence-based practice approach. However, such an evidence base can only be confidently constructed through consistent replication of positive findings of particular interventions with specific populations. This replication and consolidation is the hallmark of science and, without it, it is difficult to draw meaningful conclusions about the generalizability of findings beyond the particular study being reported.

Evidence-based practice is seen as a way of providing health care and other public services that is guided by a thoughtful integration of the best available scientific knowledge with clinical expertise. This approach allows the practitioner to critically assess research data, clinical guidelines, and other information resources in order to correctly identify the clinical problem, apply the most high-quality intervention, and re-evaluate the outcome for future improvement (U.S. National Library of Medicine, 2009). However, given an extensive and often complex literature, practitioners rarely have the resources to collate all evidence but rather turn to reviews of research studies for guidance. Systematic review with, where possible, aggregation of data from a range of comparable studies through meta-analysis, is accepted as the approach necessary to establish what constitutes 'the best available scientific knowledge' on effectiveness at any particular time.

The synthesis of data through meta-analysis increases the strength of evidence and allows for researchers to test whether the findings of individual studies are robust. This is particularly true where either the numbers of participants in individual studies is small, and/or where a smaller intervention effect size is expected and may require large samples to be detectable. For data synthesis to be meaningful, studies need to be as homogenous (composed of similar or identical parts or elements) as possible otherwise any significant effects identified may be due to factors other than the treatment being tested. The level of homogeneity/heterogeneity between studies can be quantified using either the Q statistic (which assesses presence of heterogeneity) or I^2 statistic (which measures the extent of heterogeneity).

It must be noted that systematic review and meta-analysis, while considered the most robust way to synthesize data, is not the only recognized method to synthesize the findings of individual intervention studies in a way which enables meaning to be drawn. For example, realist synthesis aims to review the evidence for complex interventions and identifies the context and mechanisms by which a particular outcome can be achieved. Rather than adopt a rigid and systematic approach to identifying all literature relating to a certain topic or intervention, researchers conducting realist synthesis adopt a more iterative approach. They aim to explore *how* complex programs or interventions work, or *why* they fail, in certain circumstances or with certain population groups. In contrast to RCTs, whose purpose is to test for cause–effect relationships, realist synthesis adopts the premise that in order to infer a causal outcome between two events or processes (such as a CBT-based intervention to reduce violence, and subsequent reoffending rates), the

mechanism that connects them and the context in which this mechanism occurs must also be understood. However, in the field of violence research, realist synthesis has largely been overlooked, with researchers tending to synthesize studies using more 'traditional' approaches. Indeed, a large number of systematic reviews and meta-analyses have been conducted over the past decade to summarize and integrate the findings from the literature. However, in line with the traditional requirement of a systematic review to include comparable studies, these reviews tend to focus on a specific intervention (e.g., second generation antipsychotics (Bhana, Foster, Olney, & Plosker, 2001)) and/or a specific outcome (e.g., re-offending (Schmucker & Losel, 2008)) in various singular populations (e.g., people with learning disability (Hassiotis & Hall, 2004)).

It is worth noting that many of these previous focused reviews were unable to meaningfully synthesize the results of relevant randomized controlled trials (RCTs; considered 'gold standard' evidence) due to high levels of heterogeneity between them (Brooks-Gordon, Bilby, & Wells, 2006; Duncan, Nicol, Ager, & Dalgleish, 2006; Hassiotis & Hall, 2004; Huf, Alexander, & Allen, 2004; Smedslund, Dalsbo, Steiro, Winsvold, & Clench-Aas, 2007). For example, Schmucker and Losel (2008), in their systematic review of controlled outcome evaluations of psychosocial and organic sexual offender treatments, found "*too few randomized trials on sexual offender treatment with too heterogeneous modes of treatment as to carry out a differentiated analysis*" (Schmucker & Losel, 2008) p16. In order to meaningfully synthesize study results, Schmucker and Losel (2008) had to include data from both randomized and non-randomized studies and adjust for heterogeneity by using moderator analyses, thus indicating the difficulties in meaningfully synthesizing data in the field of violence research.

A recent review conducted by the Liverpool Violence Group (LiVio) (Leitner, Barr, McGuire, Jones, & Whittington, 2006) adopted a more comprehensive approach by applying systematic review methods to synthesize the results of research on all interventions published up to 2004 and relating to a broad range of violence-related outcomes amongst a wide mental health and criminal justice population. While this contravened the traditional focused review approach noted above and had significant resource implications, it was felt to be desirable as a way of capturing the full range of relevant work and helping to heal the split between the parallel clinical and criminological literatures. Hollin (2008) and others have argued that these literatures are fragmented and should be reintegrated where possible to the mutual benefit of practitioners and researchers in both settings. The review included 410 studies, of which 301 presented statistical analyses and were the main focus for data analysis. However, when data were limited to the best standard of evidence (RCTs), meta-analyses were not possible due to the level of heterogeneity in the reporting of findings, methodological approaches, interventions, comparators, populations, and settings. Based on the findings of the review, recommendations were made to researchers to encourage future work to be planned in such a way as to increase the degree of conceptual and methodological rigor and the potential for replication (Leitner et al., 2006).

A subsequent update of this review, covering publications from 2002 to 2008, has now been completed (Hockenull et al., 2012; Leitner et al., 2006), using the same search strategy and databases as Leitner et al. (2006) wherever possible. The update identified 195 studies of interventions meeting the inclusion criteria, of which 40 were RCTs. As with the original review, these studies covered a wide range of populations, interventions and designs. An initial meta-analysis of all 40 identified RCTs showed a significant treatment odds ratio effect of 0.35 (95% CI 0.26, 0.49) (random effect model in which the odds ratio (OR) <1 favors treatment over control) (Hockenull et al., 2012). Many researchers would view this finding as relatively robust. However, the heterogeneity in the sample ($I^2 = 86\%$) was extremely large, and subsequent meta-analyses of RCT sub-groups (i.e., by population, comparator, etc.) demonstrated that this variance was not a function simply of either intervention or outcome type, with most sub-group analyses still

Download English Version:

<https://daneshyari.com/en/article/94496>

Download Persian Version:

<https://daneshyari.com/article/94496>

[Daneshyari.com](https://daneshyari.com)