Media Portrayals and Public Health Implications for Suicide and Other Behaviors

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Accounts of contagion in suicide abound. For example, Émile Durkheim’s 1897 book Suicide: A Study in Sociology documents multiple striking incidents. We might wonder then whether such contagion extends also to the portrayal of suicide in the media. The evidence is mixed.2,3 A recent meta-analysis by Ferguson concluded that “evidence is not able to support the contention that fictional depictions of suicide lead to suicide contagion in viewers.”2(p7-8)

In this issue of JAMA Psychiatry, Niederkrotenthaler et al3 provide strong evidence from a time series analysis that the Netflix series 13 Reasons Why, which portrayed the suicide of a 17-year-old girl, led to an approximately 13% increase in suicides for youth aged 10 to 19 years in the 3 months that followed its release; they estimated approximately 94 excess suicides in those months owing to the series. No similar percentage increase was seen in any other age group. The time-series analysis of Niederkrotenthaler et al3 allowed for control of both temporal trends and seasonal patterns in suicide rates. One cannot draw definitive causal conclusions from such data, but that no similar increase was seen in suicide rates other than for the age group to which the media portrayal pertained provides some further compelling evidence that the excess suicides may indeed have been owing to the series. This seems to have been an example in which contagion or imitation of suicide may have been at play.

In fact, the results of the meta-analysis by Ferguson2 are rather more nuanced than they at first seem. The conclusion of the meta-analysis was based principally around the pooled meta-analytic estimate of an $r$ of 0.06 (95% CI, −0.038 to 0.105; $P = .10$). In fact, however, there was substantial heterogeneity across the estimates in the meta-analysis. There may be some settings in which media portrayal of suicide does have real contagion, and other settings in which there is no such contagion or such portrayal is even protective. In the previous meta-analysis by Ferguson,2 this seems to have been the case. Meta-analytic estimates4 suggest that in 64% of settings (95% CI, 45%-83%), the media portrayal of suicide increased subsequent suicide rates, and in 42% of settings (95% CI, 23%-61%), such portrayal increased suicide by a magnitude of more than 0.10; however, in 18% of settings (95% CI, 3%-33%), the portrayal had protective effects against suicide of magnitude, with an $r$ of at least −0.10. A pooled effect that is not statistically significant can disguise a combination of important, null, and even protective effects,4 as seems to have been the case here. There is thus in fact relatively strong evidence that portrayal of suicide leads to higher suicide incidence in at least some settings. As the evidence of Niederkrotenthaler et al3 indicates, the release of 13 Reasons Why may constitute one such setting. When heterogeneity exists, the important question becomes whether we can discern in which settings media portrayal leads to harmful effects, is neutral, or is protective.

The effect estimates here are not huge. A correlation of 0.06 or even 0.10 is not all that substantial; likewise, even in the Niederkrotenthaler et al study,3 the estimated increase in suicide for youth aged 10 to 19 years was only 13% (95% CI, 6%-21%). However, even modest effect sizes, when outreach is broad and outcomes are translated to a population level, can have a very substantial influence on population health. In the case of Niederkrotenthaler et al,3 the effect estimate translated into 94 suicides among youth aged 10 to 19 years potentially caused by the series. One would not want to dismiss 94 adolescents taking their own lives as irrelevant on account of a small effect size. Again, a small effect size with broad dissemination (eg, more than 11 million tweets pertaining to 13 Reasons Why) can be highly detrimental to society.

A similar phenomenon is arguably at play with violent video games. Meta-analyses have been split as to the statistical significance of the pooled point estimate.5 However, these pooled point estimates disguise the substantial heterogeneity across studies. Several meta-analyses conflicting in statistical significance in fact agree that (1) in most settings, violent video games are associated with higher aggressive behaviors toward others, but also that (2) in most cases, these effects are relatively small.5 However, here, too, small effect sizes, given the prevalence of violent video games, may lead to substantial negative outcomes at the societal level. Here, too, it may be of interest to examine whether the sources of heterogeneity can be identified and whether certain types of video game violence do not subsequently lead to aggressive behaviors.

We want to highlight 2 distinct issues: first, heterogeneity across settings suggests the importance of uncovering those contexts in which media portrayals are harmful, neutral, or even protective; and second, very broad outreach, even with small effect sizes, can give rise to large population-level harms. As further examples of this second issue, meta-analyses have indicated a mild association between the viewing of smoking in movies and actual teen smoking behavior ($r = 0.076$ [95% CI, 0.036-0.113]; $P < .001$) and mild associations between viewing sex-associated media and sexual behaviors ($r = 0.082$ [95% CI, 0.05-0.113]; $P < .001$), such as early sexual initiation. Once again, the effect sizes are modest, but
considering the broad outreach of tobacco-associated and sex-associated media and movies, the population health implications could be substantial. Of course, meta-analyses do not necessarily indicate the quality of the studies,2,6,7 and careful evaluation of evidence requires considerations of the strengths and weaknesses of design and measurement. However, a small effect size alone does not mean irrelevance. On the contrary, phenomena with small effect sizes that have large outreach have broad public health influence.

Such outcomes can be magnified further when contagion is at play, so that the action or outcome of one person affects those of others.8 As yet another example of such contagion, there is evidence that the content of media has become increasingly negative and polarizing; since the human brain is more attentive to potentially dangerous events, media sources with more negative material have more viewers, which incentivizes negative reporting.8,9 There is also evidence that witnessing a negative event or violence renders one more attentive to potentially dangerous events, media sources increasing negativity and polarizing; since the human brain is more attentive to potentially dangerous events, media sources with more negative material have more viewers, which incentivizes negative reporting.8,9 There is also evidence that witnessing a negative event or violence renders one more likely to act negatively toward others, but experiencing a positive event renders one more likely to subsequently act altruistically.5,8,10,11 Finally, there is evidence that altruistic behaviors are subject to contagion, extending noticeably up to 3 degrees of separation.10 While the effect size of negative, divisive, or polarizing media reporting or social media posts may be very small at the individual level, the capacity to both reach large numbers of people and spread massively through a social network (ie, by sharing and reposting) may result in consequences that, at the population level, bring about considerable harm in human interaction and health. Reporting of negative events certainly has an important role, but greater effort could perhaps also be made to balance negative reports with those on what is good in a community. A small change in reporting practices could have substantial benefits. Likewise, media portrayal of resilience, rather than suicide, may help those struggling.

We are not advocating here for strict censoring or restrictions on freedom of speech, but we do think that the evidence concerning the outcomes associated with media portrayals should be made clear and that media producers should at least be aware of it when making decisions. In a virtuous society, individuals would freely choose what is good. There can, however, be complex trade-offs. For example, Niederkrotenhaler et al3 noted some evidence that 13 Reasons Why led to subsequent declines in bullying. Nevertheless, when the outcome concerns something as grave as suicide, additional caution may indeed be advisable.

ARTICLE INFORMATION

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