Street lighting

Increasing the levels of lighting on the street or in other public spaces.

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Effect scale	Quality of evidence				
	Effect Impact on crime	Mechanism How it works	Moderator Where it works	Implementation How to do it	Economic cost
Overall reduction	■■■■ Very strong	■■■□ Strong	■■□□ Moderate	No information	

Focus of the intervention

Improved street lighting is a form of situational crime prevention that involves increasing the levels of illumination on the street or in other public spaces.

It is intended to serve many purposes, including accident prevention, marketing and the reduction of crime. This review covers crime reduction only.

This narrative is primarily based on one systematic review covering 13 studies.

Effect – how effective is it?

Overall, the evidence suggests that the intervention can reduce crime.

Across the 13 studies reviewed, both violent and property crime was reduced by an average of 21% in areas with improved street lighting compared to areas without.

There were no studies for which a statistically significant backfire effect (where crime increased) was reported.

How strong is the evidence?

?The review was sufficiently systematic that most forms of bias that could influence the study conclusions can be ruled out.

However, it is worth noting that the comparison areas used to estimate the impact of improved street lighting in the primary evaluations were sometimes adjacent to the areas in which street lighting was improved.

The authors of the review note that this could have affected the estimates of the impact of intervention. For example, there may have been a displacement effect or a diffusion of benefits.?

Mechanism – how does it work?

The review provides a description of some of the possible mechanisms through which street lighting might reduce crime, and the testable predictions generated from them.

Specifically, improved street lighting might reduce crime through the following mechanisms.

- Increasing visibility and the number of people that use the street. This could lead to increased or more effective natural surveillance that may ?deter crime. If this mechanism worked as anticipated in the studies included in the review, then you would expect the effects of street lighting to be greatest during the hours of darkness. However, in the case of the four studies that only examined the impact of improved street lighting on levels of crime at night, there was no evidence of an impact on crime. In contrast, the nine studies that examined changes in levels of crime during the day and night found a statistically significant impact on crime in the areas with improved street lighting, which suggests an alternative mechanism may be in place (see next bullet).
- Demonstrating investment in the neighbourhood. This has the potential to improve community conditions that could plausibly lead to residents caring more about their neighbourhood and consequently being more likely to take actions that might reduce?? crime in them. The finding that improved street lighting did not have an impact on crime solely after dark is consistent with

this explanation.

However, further systematic evidence is required to demonstrate that improved street lighting does influence community pride in a neighbourhood, which in turn? stimulates resident activity or investment in their neighbourhood.

The review authors provided some evidence consistent with this explanation, but only for the UK studies conducted in Dudley and Stoke-on-Trent.

In Dudley for example, evidence suggested that improved lighting contributed to an increase in residents' quality of life. It also appeared to encourage them to obtain substantial government funding to pay for further improvements in their neighbourhood.??

Moderators – in which contexts does it work best?

The review discusses the possibility that reductions are likely to be greater if the existing lighting is poor and if the improvement in lighting is considerable.

The review authors conducted a basic analysis that compared outcomes in all reviewed studies from the UK and USA, by crime type and for crimes that occurred at night or throughout the day and night.

Using study data where available, for every 100 crimes they report the below when compared to similar comparison areas.

Country? effects

In the UK, an average of 38 fewer crimes were observed in areas with improved street lighting (based on five studies).

In the USA, an average of seven fewer crimes were observed in areas with improved street lighting (based on eight studies).

By crime type

For property crime, an average of 17 fewer crimes were observed in areas with improved street lighting (based on nine studies).

For violent crime, a?n average of nine fewer crimes were observed in areas with improved street lighting (based on nine studies).??

Time of day

Looking at crime committed over 24 hours (day and night), an average of 30 fewer crimes were observed in areas with improved street ligh?ting (based on nine studies).?

For night-time crime only, no fewer crimes were ob???served in areas with improved street lighting (based on four studies, all conducted in the USA).

Implementation – what can be said about implementing this initiative?

The review provides little information on how to implement street lighting improvements, although the authors suggest that a ‘marked improvement’ in lighting conditions is important.??

Economic considerations – how much might it cost?

The review does not mention costs or benefits and no formal economic analysis is provided.

However, the authors note that in the Dudley and Stoke-on-Trent (UK) studies, conducted by Painter and Farrington (2001), 'the financial savings from reduced crimes greatly exceeded the financial costs of the improved street lighting installed'.

A formal economic analysis is required to assess the costs of improved lighting more generally. However, it should be kept in mind that costs will depend upon the types of lighting chosen, electricity prices and repair and maintenance costs – all of which can vary over time.

General considerations

- As the? review states, improved street lighting is more likely to have an effect where lighting is initially poor. ?

- If impr?oved street lighting impacts upon crime by influencing community pride, it may be most effective in stable but underinvested communities.

- Although none of the 13 studies included in the systematic review found a statistically significant backfire effect, it is possible that incre?ased visibility through improved street lighting could increase crime by enabling offenders to make better judgments of the vulnerability and attractiveness of potential targets.

- In the overall review, it was not possible to examine geographic displacement or the diffusion of benefits to nearby locations. However, in one study the findings suggested that crime was statistically significantly red??uced in the areas nearby.

- The studies in this review did not consider the impact on crime of recent changes in lighting technology, such as the introduction of LED lamps, or changes in lighting schedules such as part-night lighting.

- Improvements in stre??et lighting levels can be criticised for adversely affecting light pollution, sleep (including of animals) and energy efficiency.

- Improved lighting levels m??ight be necessary to the effective deployment of other crime prevention initiatives such as CCTV.

None of the UK studies covered in the review separated daytime crime from night-time crime in assessing effect. It is therefore not possible to conclude whethe?r or not it was street lighting improvements that reduced crime, or whether these improvements facilitated other mechanisms such as community cohesion (as is suggested by the four US studies).

Summary

Overall, the evidence suggests that improved street lighting can reduce crime.

Crime (violent and property) reduced by an average of 21% in treatment areas where street lighting was increased, relative to comparison areas without increased street lighting.

Exactly how this effect is achieved remains currently unknown.

Reviews

Review one

Reference

- Welsh, B., and Farrington, D.F. (2008). **Effects of Improved Street Lighting on Crime. Campbell Collaboration Systematic Review**. Campbell Collaboration: Norway.

Summary prepared by

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