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Will residents tend to feel safer with new lighting?

Analysis of The Suzy Lamplugh / Neighbourhood Watch survey of Perceived Safety

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Introduction

The Suzy Lamplugh Trust and Neighbourhood Watch are two not-for-profit organisations concerned with crime and safety. In 2013 they issued a report¹ summarising an online survey of road lighting and perceived safety carried out in response to anecdotal reports in some areas of street lights being turned off or dimmed. One reason why this survey is of interest is because responses were obtained from 15,786 people, a large sample for safety surveys. A broad range of people responded to the survey. Geographically, it included respondents from the Thames Valley area (24%), North Yorkshire (12%), Cambridgeshire (9%), Nottinghamshire (7%) and Dorset (6%). Respondents were almost equally divided between male and female. The age distribution included 22% aged 35-50 years, 53% aged 51-70 and 19% aged over 70 years. This article presents an independent further analysis of some questions to add to discussions of road lighting for pedestrians and perceived safety.

A general impression of the safety benefit of road lighting

Q11: How safe do you feel when walking in a well-lit neighbourhood?

Q12: How safe do you feel when walking in an unlit or badly-lit neighbourhood?

Two questions sought opinions of perceived safety in neighbourhoods with good lighting (Q11) or neighbourhoods that are unlit or badly lit (Q12), although without definition of what should be considered as good or bad lighting. What these responses show is not how people feel in a well-lit or poorly lit area but how they think they will feel. There were four responses available: very safe, fairly safe, a bit unsafe, and very unsafe. The results are shown in **Figure 1**. It can

¹ Neighbourhood Watch and the Suzy Lamplugh Trust. *Street Lighting & Perceptions Of Safety Survey: Results And Analysis*. November 2013.
<http://www.suzylamplugh.org/wpcms/wp-content/uploads/Perceptions-of-Safety-survey-FINAL.pdf>

be seen that there is a tendency to associate lighting quality with a feeling of safety. Respondents indicated that in a well-lit area they will tend to feel at least fairly safe, while in a badly-lit area they will tend to feel at least a bit unsafe. There were however some people (25%) who responded that they would still feel fairly safe in a badly lit area.

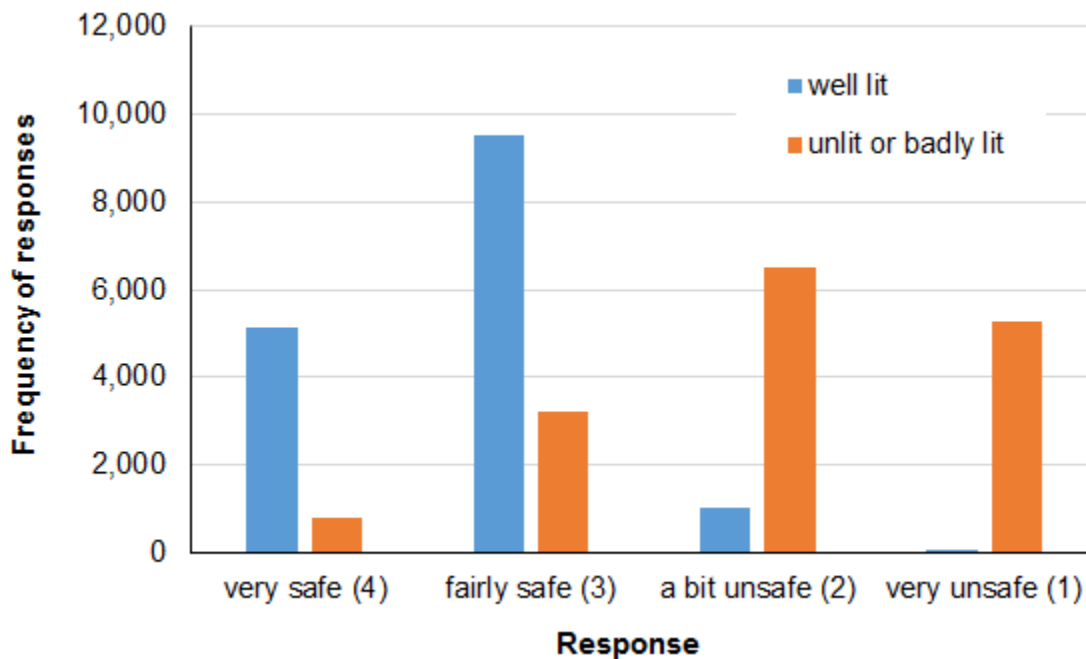


Figure 1. Frequency for reporting levels of safety in well-lit (Q11) and unlit or badly-lit areas (Q12).

An alternative approach to analysing the trends shown in Figure 1 is to assume a numeric score for each rating item (i.e. very safe=4, fairly safe=3, a bit unsafe=2, and very unsafe=1) and then calculate for each person the difference between the well-lit and badly-lit scores. What this does is shows the benefit (i.e. the improved perception) of upgrading lighting from badly-lit to well-lit – a greater difference indicates a greater improvement in perceived safety. These results are shown in Figure 2.

A difference of 3 indicates a badly-lit environment considered to be unsafe would be considered very safe if well-lit. Few people (6%) suggested such a dramatic change. This is less than the proportion of people (16%) who thought that improved lighting would lead to no change in safety, although the majority of these respondents (2223 out of 2453) already considered their safety to be at least fairly safe, so improved lighting would not be expected to have significant further benefit.

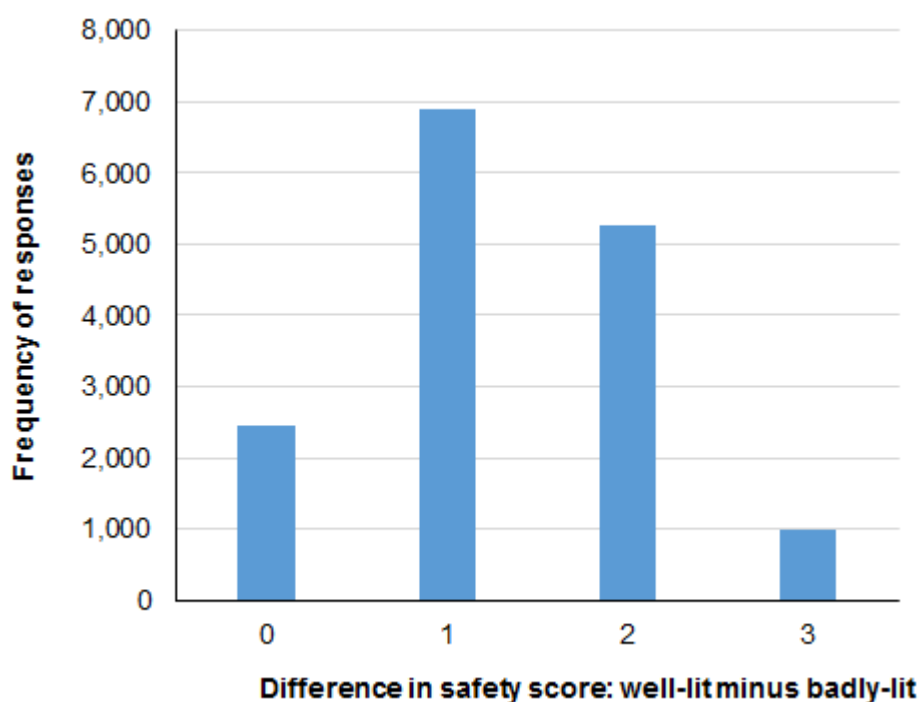


Figure 2. Frequency of responses indicating a given difference in safety rating for well-lit and badly-lit areas. This is calculated as Q11 – Q12.

A difference of 2 in **Figure 2** suggests a well-lit area would improve from being considered unsafe to being considered safe, and this was the opinion of 34%. The highest frequency (44%) was for a difference of 1 rating point, indicating a small increase in safety associated with better lighting.

In summary, 94% of respondents indicated that well-lit lighting would improve their feeling of safety by at least one grade in the rating scale. For the 40% of respondents with a difference of 2 or 3, this is sufficient to ensure a response in the safe side of the rating scale. If the desire of a local authority is that residents feel their neighbourhood is safe, perhaps to encourage more outdoor activity after dark, then these data suggest that good lighting can work. A subsequent problem, however, is to define what a well-lit area is, and in a manner that does not simply resort to an ever increasing rise in illuminances.

For the 6% of respondents who did not indicate that well-lit lighting would make them feel safer than a badly lit environment, 91% (of these 6%) gave a rating of safe or fairly safe for both the well-lit and badly-lit scenarios: these people may truly believe that light has no effect, they may live in a well-lit area and this not understand the problems of a poorly-lit area, or they may have incorrectly/inconsistently completed the questionnaire.

Impression of safety in own neighbourhood

Two questions concern ratings of safety in daytime and at night in respondents' own neighbourhoods:

Q4: Do you feel safe when out and about in your neighbourhood during the day?

Q6: Do you feel safe when out and about in your neighbourhood between 9:30 pm and 5:30 am?

Figure 3 shows that the majority of people reported feeling safe most of the time or all of the time in day (98.6%) and also at night (83.6%). The day ratings suggest that the environments concerned are generally considered to be safe. The reduction in the number of people tending to feel safe at night may be a result of several factors, including the lower light level (road lighting rather than daylight), that there are fewer people around at night who might be of assistance, or it may be that a lower night score was the assumed expected response.

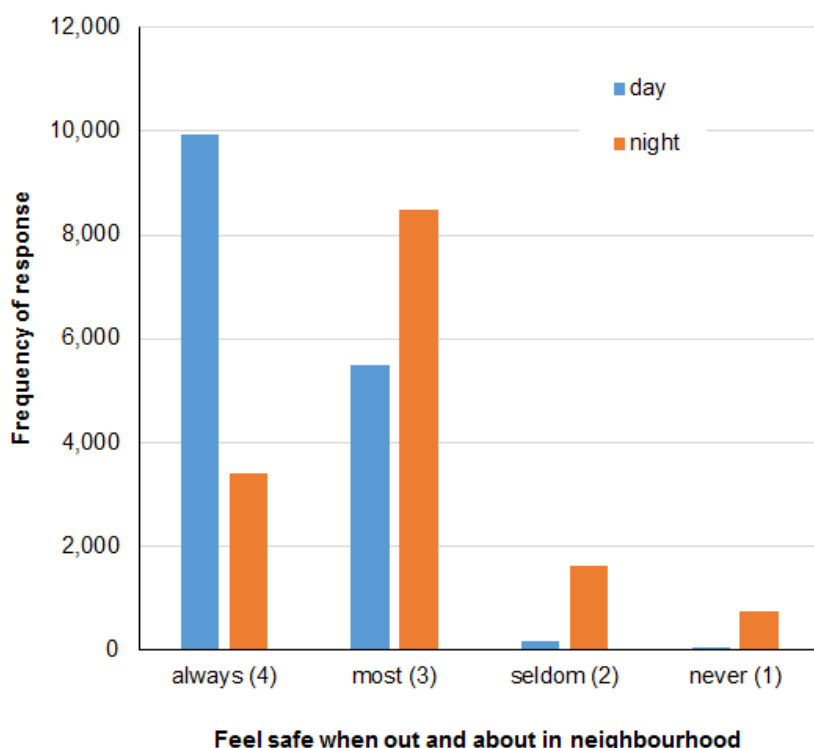


Figure 3. Responses to questions “Do you feel safe when out and about in your neighbourhood ...” during the day (Q4) and at night (Q6).

An alternative approach to analysing these data is to analyse the difference between the day and night ratings of safety. A greater difference here indicates a greater decrease in perceived safety at night compared with day. **Figure 4** ('overall' data) shows that for the majority (92%) this difference was either zero or one; in other words, that they tended to have the same or only slightly lower feeling of safety at night as in daytime.

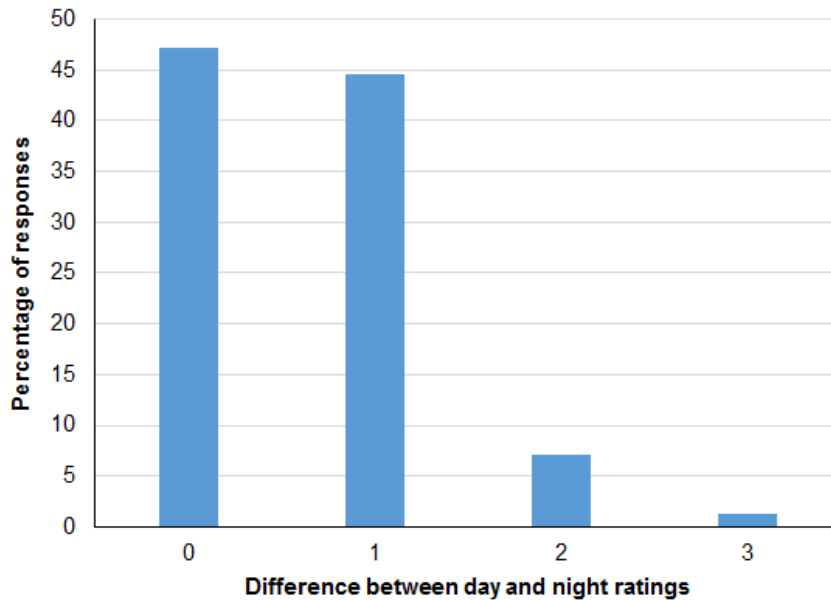


Figure 4. Difference between day (Q4) and night (Q6) ratings of safety.

Three questions focussed on the local context.

Q5: Are you ever out on the street in your neighbourhood at any time between 9:30 pm and 5:30 am?

Q7: Do you have street lighting in your neighbourhood?

Q8: Are street lights switched off or dimmed at any time between 9:30 pm and 5:30 am where you live?

It might be expected that people who did not go out at night, or in whose vicinity there was no street lighting or where there was part-night switch-off might express a lower level of safety. Analysis of responses to Q6 did not express any such effect to be significant. **Figure 5**, shows for example, the night safety responses of those people with either little or common tendency to go out at night.

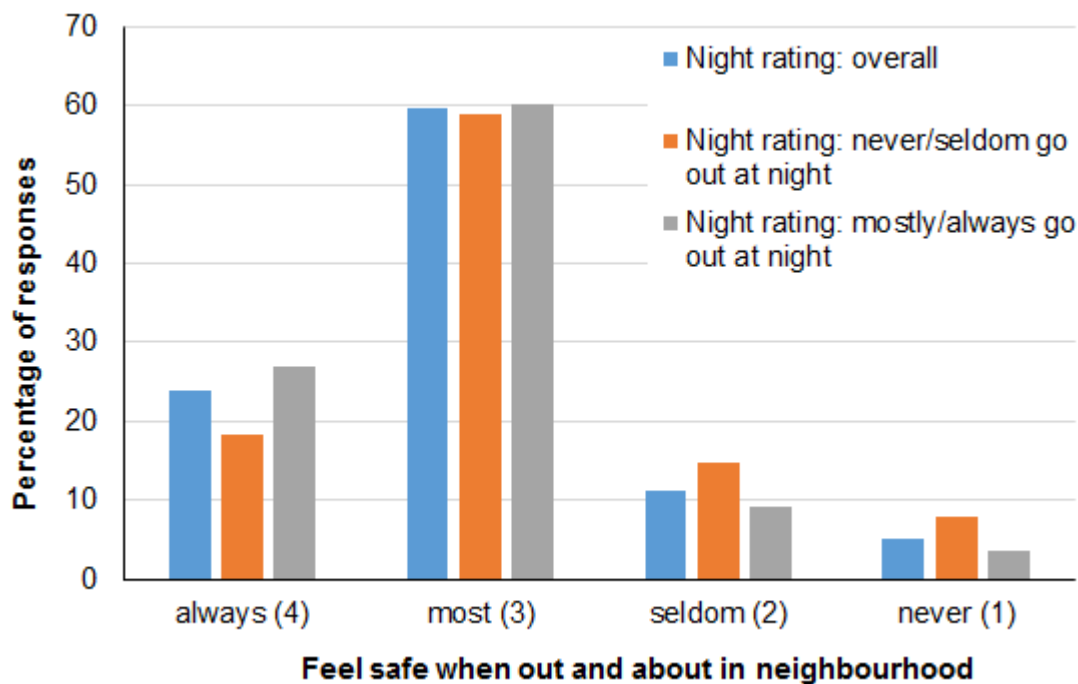


Figure 5. Percentage of ratings of safety at night for those people who reported that the never/seldom go out at night and those who most/always go out at night.

Are changes noticed?

Q9: Have you noticed any changes to the street lighting in your neighbourhood within the last 3 years?

Q10: If you answered yes to question 9, since you noticed these changes do you feel (safer/no change/less safe)?

Of the 15786 respondents, 5929 said they had noticed a change, 8558 said they had not, and 1299 said they were not sure. Here we have only their recollection of change, there are no data available as to whether there were any recent changes, and if so, the nature of changes.

Of the 5929 respondents who had noticed a change, 421 (7%) responded that they now felt safer. Their reasons for this included that the new lighting was brighter; was less bright (associated with alleged benefits for light pollution, health and energy consumption); and was whiter. In contrast, 2772 (48%) respondents stated they were less safe after the change, and some of their comments are shown in [Table 1](#). The remaining 2639 respondents (45%) reported that their level of safety was about the same.

The reasons given for feeling less safe tend to show that people do not like change, in particular if it is perceived (albeit incorrectly **in some cases**) as a negative change. Two things are worth noting amongst these responses. First, comments raised about part-night lighting may have been prompted by the previous reading of Q8 in the questionnaire. Second, that reasons categorised in Table 1 as changes in control or changes having direct personal affect were not associated with an increase in perceived safety. If these changes are made, it may lead to a negative reaction but will not lead to a positive reaction.

Table 1. Reasons given for feeling less safe in response to an apparent recent change in road lighting.

Change in control	<ul style="list-style-type: none"> • Switch to part night • Switch off at night • They are switched off during the night - when they are needed for security reasons
Change in type of lighting	<ul style="list-style-type: none"> • New lights • Amber lights changed to white LED • New lights are not as bright i.e don't illuminate as big an area. I suspect they are energy saving lights • New low level lights which seem to cover a smaller area. The old lights had a wider cover as they were higher up. We now have a number of blind spots • They have changed the type of lighting it does not seem quite so good; • LED lights in certain areas
Change having direct personal affect	<ul style="list-style-type: none"> • Lamp post removed from front of house • A street lamp outside my house was removed and replaced with a tree • Roads near us do not have street lighting. I am not happy about this • Some lights removed • We don't have enough lights in XXXX street • Bulbs not being replaced, many street lights out of action

Conclusions

The first part of this analysis reveals a tendency to associate the perceived quality of road lighting with perceived safety – people think they will feel safer in an area that they consider to be well-lit rather than badly-lit or unlit. But, for a person who already feels safe, improved lighting has little benefit. The final part demonstrates, however, that making changes to lighting can lead to a reduced feeling of safety. In other words, if a change is made this does not guarantee a positive outcome for perceived safety. This can leave local authorities in a quandary. A lighting change might be implemented, with the expectation that people will feel safer with better lighting, but a change in lighting, regardless of the type of change, is likely to cause dissatisfaction to some.

One limitation of this survey is that respondents were targeted from neighbourhood watch groups. Because their neighbourhoods are subject to neighbourhood watch they may be considered safer areas which may introduce a bias into the responses. This can be seen in the ratings of local safety (Figure 3) and that these ratings were not significantly affected by either tendency to go out at night, by presence/absence of street lighting in area, or by part-night dimming or switch off.

This work contributes to ongoing reviews of lighting for pedestrians within the ILP and CIE. A summary of recent research of lighting for pedestrians can be found at these two links:

- <http://lightingresearch.group.shef.ac.uk/MERLIN-summary.pdf>
- <https://www.theilp.org.uk/news/understanding-lighting-for-pedestrians/>

Acknowledgement

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