Early triage and early admission of guilt

Author

Andrew R W Jackson, Emeritus Professor

School of Law, Policing and Forensics, Staffordshire University,
College Road, University Quarter, Stoke-on-Trent, Staffordshire ST4 2DE

For enquiries about this Appendix, please contact Professor Claire Gwinnett via C.Gwinnett@staffs.ac.uk

1. Executive summary

1.1 Research question

Does early triage lead to early admission of guilt?

1.2 Findings

1.2.1 Key findings

When early triage is used under the circumstances of this study, a positive finding can be expected to be associated with an increased probability of an early interview. This is important because admission of guilt can only happen during an interview. This effect could be well explained if, in each case, early triage findings are used to help to decide whether to conduct an early interview. However, it is not possible to know from this study whether this explanation is correct and further work would be warranted to test this.

Amongst the data analysed, the introduction of early triage is associated with an increased rate of early interviews. However, this effect is not statistically significant once allowance has been made for the number of statistical tests carried out in this study. This means that further work would be needed to ascertain whether it is reasonable to assume that this association has not happened by chance alone.

There is no evidence to suggest that the introduction of early triage leads to an increased likelihood of the admission of guilt at early interview. Furthermore, there is not sufficient evidence to suggest that a positive early triage finding increases the probability of an admission of guilt during a subsequent early interview. However, the definitions of positive and negative early triage findings only concern whether, in any given case, evidence of criminality was found on one or more mobile phones, tablets or SIM cards. This means that any opportunities in which early triage found evidence of criminal activity solely on one or more digital devices that were not amongst those categories would be classified as producing a negative triage finding. If this occurred, it could mask any increased likelihood of the admission of guilt at early interview that might accompany the finding of evidence of criminality during early triage.

1.2.2 Further detail

The data shown in:

- Tables 1 and 2 and Figure 1 seem to show that positive early triage is associated with a higher likelihood of the early admission of guilt. The analysis presented in Section 6.1 allows the tentative conclusion that this is primarily, and possibly wholly, because, under the circumstances of this study, a positive early triage finding is very rarely followed by no early interview.

- Tables 3 and 4 and Figure 2 do *not* allow a conclusion to be drawn concerning whether an association exists between the occurrence of early triage and the occurrence of early interviews. However, there is a *hint* that the probability of early interview occurrence *might* be enhanced by the use of early triage. This could warrant further investigation. Please see Sections 6.2.1 and 6.4 for details.
- Tables 5 and 6 and Figure 3 provide no evidence to suggest that the introduction of early triage leads to admission of guilt during early interview. Please see Section 6.2.2 for details.
- Tables 7 and 8 and Figure 4 provide strong evidence to suggest that a positive early triage finding is more likely to be followed by an early interview than is a negative early triage finding. Please see Section 6.3.1 for details.
- Tables 9 and 10 and Figure 5 provide no evidence strong enough to suggest that a positive early triage finding is more likely to be followed by an admission of guilt at early interview than is a negative early triage finding. However, this conclusion could have been influenced by the limited definition of positive triage finding that, of necessity, has been used in this study. Please see Section 6.3.2 for details.

2. Preamble and definition of terms

In this study, early admission of guilt is taken to mean that, during an early interview, the suspect admits or partially admits the allegations, or admits to a lesser offence. In this report, the phrase early triage refers to triage that occurred during the scene attendance, or shortly afterwards, and before any early interview would have occurred. In this context, triage is the examination of information held on at least one digital device, by whatever means, for evidence of illegal activity, to attribute devices to suspects and to inform the decision as to whether the seizure of that device for further examination is justified. This examination may have been undertaken by a member of staff of Staffordshire Police's Digital Forensics Unit (DFU) or by a police officer or both.

A positive triage finding is one that provides evidence of criminality. In this study, the only positive early triage findings that were known about were those which arose from the early triage of mobile phones, tablets or SIM cards. For this reason, for this study, a positive early triage finding is defined as one that provides evidence of criminality from one or more such devices and a negative early triage finding is one that does not.

The data analysed is a subset of the complete Safenet dataset (please see Section 3 for details of why and how this subsetting was carried out). It contains 207 occasions when early triage could have been used to provide evidence that led to early admission of guilt as defined above. These occasions are referred to as opportunities in this document. Amongst those opportunities are 49 where there was no early triage, 33 where there was no early interview and 12 where there was neither early triage nor early interview.

In any given study, this one included, the data analysed is known as the sample and the number of data points in it is the sample size. The population is all of the data points, of the same type which make up the sample, that could possibly exist. In this study, the data points are the opportunities and the sample size equals the number of rows in the processed data.

The research question implies that there could be a causal link between early triage and early admission of guilt. The dataset is sufficient to look for evidence of relevant associations between variables that it contains and this has been done in this study. However, it cannot be used to infer

such a causal link from any associations found. This is because the presence or absence of early triage was not assigned at random amongst the opportunities. Instead, whether or not early triage was used was based on the availability of DFU personnel or, if those personnel were not available, whether one or more police officers carried out that triage. This leaves open the possibility of a common cause mechanism for any association present. In this context, the common cause would be any driver that applied to both the decision whether to carry out early triage and to the effect seen when early triage was used.

3. The data

3.1 The full Safenet dataset

The research question for this study (given in Section 1.1) is not one of the Questions posed (QP) as part of the Home Office research that commissioned the collection of the Safenet dataset. However, this study is able to use that dataset to address the research question given in Section 1.1. It uses the version of the Safenet dataset that is dated 14.05.2021.

In the Safenet dataset, each case is identified by a unique Anonymised Case Reference (ACR) and that dataset contains multiple rows for each case. For each case, there is one such row for each opportunity that digital forensics had to answer one of the QP. There are seven such questions and so there is at least one row per question posed per case. However, there are cases that offer multiple opportunities for answering one or more of these questions. This means that all cases have at least seven rows in the dataset.

3.2 The subset used

To avoid artificially inflating the sample size (i.e., the number of rows) and to ensure that neither the under- nor the over-representation of cases occurred, it was necessary to use a subset of the Safenet data in the study reported here. To achieve this subsetting, a copy of the Safenet dataset was made and the row order in that copy was randomised. Then all rows were removed that contained duplicate values of all of 'Anonymised Case Reference', 'Date and time of scene attendance', and 'Date and time of early interview'. The rows of the Safenet dataset that remain after such a process will vary depending on the order of rows that is produced by the randomisation process. However, each such variant is a valid sample. This is because the criterion used to define a positive early triage finding and that used to define an early admission of guilt are each the same for all rows in the Safenet dataset.

After that subsetting process, irrelevant data were dropped by, in sequence, removing rows:

- for which there is no record of either the early triage findings or whether early triage occurred (this removed 2 rows);
- that contained an early interview that occurred before the scene attendance (this removed 1 row).

Then, to omit data that might introduce bias, those 40 of the remaining rows for which it was shown during the investigation that the suspect had *not* committed a crime were removed.

This resulted in a sample that contained 207 rows and 201 cases. Each of those rows represents an opportunity that early triage had to provide evidence that led to early admission of guilt in an instance in which it is believed that a crime was committed. The size of that sample is the number of rows that it contains. This is equal to, or very close to, the total number of such opportunities in the Safenet dataset.

3.3 The variables used

3.3.1 'Early triage'

The Early triage variable is a factor (i.e., it contains categorical data) with three levels (i.e., it has three possible values). These levels are as defined below:

- 'Positive triage', meaning early triage occurred and *did* find evidence of crime on one or more mobile phones, tablets or SIM cards;
- 'Negative triage', meaning early triage occurred and did *not* find evidence of crime on one or more mobile phones, tablets or SIM cards;
- 'No triage', meaning early triage did not occur.

3.3.2 'Early interview'

The 'Early interview' variable is a factor with three levels. These are:

- 'Admission', meaning that, during early interview, the suspect *made* an early admission of guilt as defined in Section 2;
- 'Non-admission' meaning that, during early interview, the suspect did *not* make an early admission of guilt as defined in Section 2;
- 'No interview', meaning that there was no early interview and therefore the suspect had no opportunity to make an early admission of guilt as defined in Section 2.

3.3.3 'Early triage occurrence'

The 'Early triage occurrence' variable is a factor with two levels. These are:

- 'Triage occurred', meaning early triage happened;
- 'No triage', meaning early triage did not happen.

3.3.4 'Early triage finding'

The 'Early triage finding' variable is a factor with two levels. These are:

- 'Positive', meaning early triage happened and it *did* find evidence of crime on one or more mobile phones, tablets or SIM cards;
- 'Negative', meaning early triage happened and it did *not* find evidence of crime on one or more mobile phones, tablets or SIM cards.

3.3.5 'Early interview occurrence'

The 'Early interview occurrence' variable is a factor with two levels. These are:

- 'Interview occurred', meaning that an early interview *did* happen;
- 'No interview', meaning that an early interview did *not* happen.

3.3.6 'Early admission'

The 'Early admission' variable is a factor with two levels. These are:

- 'Admission', meaning that an early interview occurred, during which the suspect *made* an early admission of guilt as defined in Section 2;

- 'Non-admission', meaning that an early interview occurred, during which the suspect did *not* make an early admission of guilt as defined in Section 2.

4. Metrics

4.1 Fundamental metrics

Tables 1, 3, 5, 7 and 9 are contingency tables[1]. The base metric for each table is the grand total shown in the bottom right-hand corner and the other fundamental metrics are the counts contained in its cells.

4.2 Derived metrics

The derived metrics are the percentages that are shown in Tables 2, 4, 6, 8 and 10.

5. Statistical testing

The data analysed is a subset of all possible data of the type of interest that could be recorded. Such a subset is called a sample and all possible such data is known as the population.

The sample data shown in each of Sections 6.1, 6.2.1, 6.2.2, 6.3.1 and 6.3.2 were subject to a Pearson's chi-square contingency table test[2].

Pearson's chi-square contingency table test is applied to a sample as a test for association between two categorical variables. If there is an association at the population level, the values of one variable affect the values of the other. This test produces both a test statistic, symbolised χ^2 (i.e., chi-squared), and a p-value from the sample data. The latter is the probability of obtaining the value of χ^2 seen, or one more extreme, if there is, in fact, no effect in the population.

In statistical testing in general, and in the specific test referred to above, an effect seen in a sample is considered to be statistically significant if its p-value is less than a critical value, α. Commonly, and in this study, α is set to 0.05. If p were to equal 0.05, there would be a 5% probability (i.e., a 1 in 20 chance) of the effect seen in the sample happening if there was no effect in the population. This is known as the Type 1 error rate. Traditionally, and in this study, the discovery that an effect seen in a sample is statistically significant is used to suggest that an effect at the population level has been detected. In other words, statistical significance is used to suggest that the effect seen in the sample has not happened by chance.

In this study, multiple tests have been carried out on the same data to explore the same research question. Under these circumstances, care has to be taken to ensure that this does not inflate the Type 1 error rate[3]. To control this inflation — as detailed in Sections 6.1, 6.2.1, 6.2.2, 6.3.1, and 6.3.2 — the Bonferroni correction (Field et.al [2012] p914) has been applied to the p-values as appropriate.

Statistical significance is not a measure of how large an impact an effect will have in the real world. Given large enough samples, very small effects (those with very little real-world impact) can be found to be statistically significant. For each of the tests carried out in Sections 6.2.1, 6.2.2, 6.3.1 and

[1] See Stover (n.d.) for an introduction to contingency tables.
[2] The tests reported in Sections 6.2.1, 6.2.2, 6.3.1 and 6.3.2 were carried out with Yates' continuity correction. See Chapter 18 of Field et. al (2012) for details.
[3] For a useful article on this, see Jafari and Ansari-Pour (2019).

6.3.2, the effect size measure **w** is given. Cohen (1988) suggests that the values **w** = 0.1, 0.3 and 0.5 can be thought of as being small, medium and large effect sizes, respectively.

6. Results and evaluation

6.1 The overall effect of early triage

The contingency table shown in Table 1 was created by the cross-categorisation of the variables 'Early triage' and 'Early interview', which are as defined in Section 3.3. Table 2 shows the cell values of Table 1, each expressed as percentages of its row sum and Figure 1 shows those percentages in a graphical form.

Table 1 Counts of 'Early triage' (rows), grouped by 'Early interview' (columns)

	Admission	Non-admission	No interview	Sum
Positive triage	55	52	1	108
Negative triage	15	20	15	50
No triage	20	18	11	49
Sum	90	90	27	207

Table 2 Cell values of Table 1, each expressed as percentages of its row sum (individual percentages are rounded to the nearest 0.1 percentage point)

	Admission	Non-admission	No interview	Sum
Positive triage	50.9	48.1	0.9	100
Negative triage	30.0	40.0	30.0	100
No triage	40.8	36.7	22.4	100

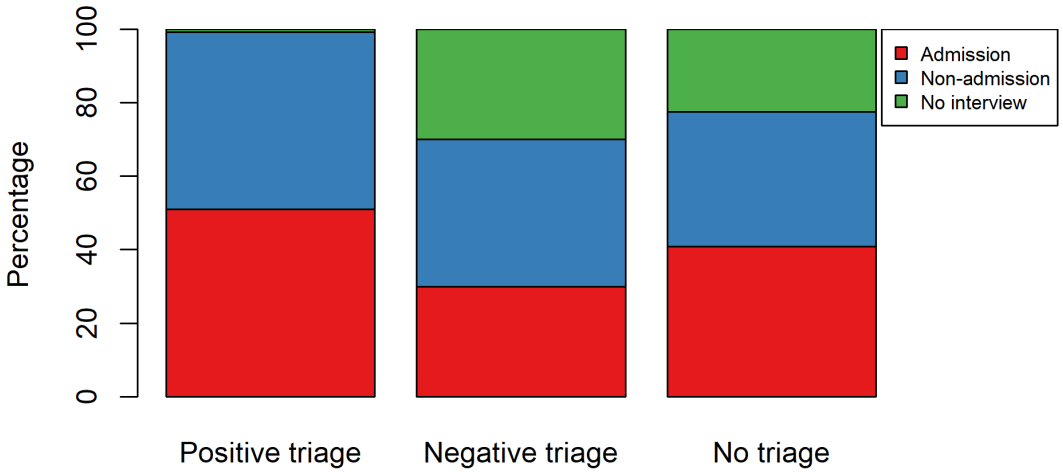

Figure 1 Cell values of Table 1, each expressed as percentages of its row sum

Chi-square testing of the data shown in Table 1 shows an effect that is highly statistically significant ($\chi^2 = 31.24$, p = 2.7×10^{-6}), suggesting that it did not happen by chance. However, this detection of a significant effect does not provide information concerning which of the nine cells of Table 1 are responsible for it. To find this information, follow-up testing was carried out to calculate the Bonferroni corrected p-value associated with each of those cells.

It is evident from Figure 1 that, in the sample, the overall proportion of opportunities that produced an early admission of guilt is noticeably larger amongst those with a positive early triage result than for those with either a negative early triage finding or in which early triage did not occur. In the sample, the percentage of *early interviews* that result in an early admission of guilt (as defined in Section 2) for 'Positive triage', 'Negative triage' and 'No triage' are calculated to be respectively 51.4%, 42.9% and 52.6%. For the reasons set out in Section 6.3.2, this does *not* supply sufficient evidence to suggest that the reason why a positive early triage finding is associated with an increased frequency of early admissions of guilt is because such a finding leads to a greater likelihood of the admission of guilt during an early interview.

Importantly, from Figure 1, it can also be observed that, in the sample, 'Positive triage' and 'Negative triage' are respectively associated with low and high incidences of 'No interview'. These observations are key because early admission of guilt can only happen in an early interview — if there is no early interview, there can be no early admission.

Crucially, the follow-up testing shows that these key observations are the only ones in the nine cells of Table 1 that are statistically significant. For 'Positive triage' the relevant p-values are 5.8×10^{-7} when corrected for the follow-up testing referred to above and 8.4×10^{-7} when corrected for all relevant tests that are reported in this document. For 'Negative triage', the corresponding figures are 3.9×10^{-4} and 5.7×10^{-4}. All four of these figures are << 0.05, indicating a statistically highly significant effect.

As described in Section 6.3.2, it is true that, amongst the data analysed, the frequency of admissions of guilt during early interview is higher when there was a positive early triage finding rather than a negative one. However, this effect is not statistically significant, meaning that it is plausible that it happened by chance alone. Although it must be noted that, as detailed in Section 6.3.2, this conclusion might be influenced by the necessarily limited definition of a positive early triage finding that is used in this study.

6.2 The effect of early triage occurrence

6.2.1 The effect of early triage occurrence on early interview occurrence

The contingency table shown in Table 3 was created by the cross-categorisation of the variables 'Early triage occurrence' and 'Early interview occurrence', which are as defined in Section 3.3. Table 4 shows the cell values of Table 3, each expressed as percentages of its row sum and Figure 2 shows those percentages in a graphical form.

Table 3 Counts of 'Early triage occurrence' (rows), grouped by 'Early interview occurrence' (columns)

	Interview occurred	No interview	Sum
Triage occurred	142	16	158
No triage	38	11	49
Sum	180	27	207

Table 4 Cell values of Table 3, each expressed as percentages of its row sum (individual percentages are rounded to the nearest 0.1 percentage point)

	Interview occurred	No interview	Sum
Triage occurred	89.9	10.1	100
No triage	77.6	22.4	100

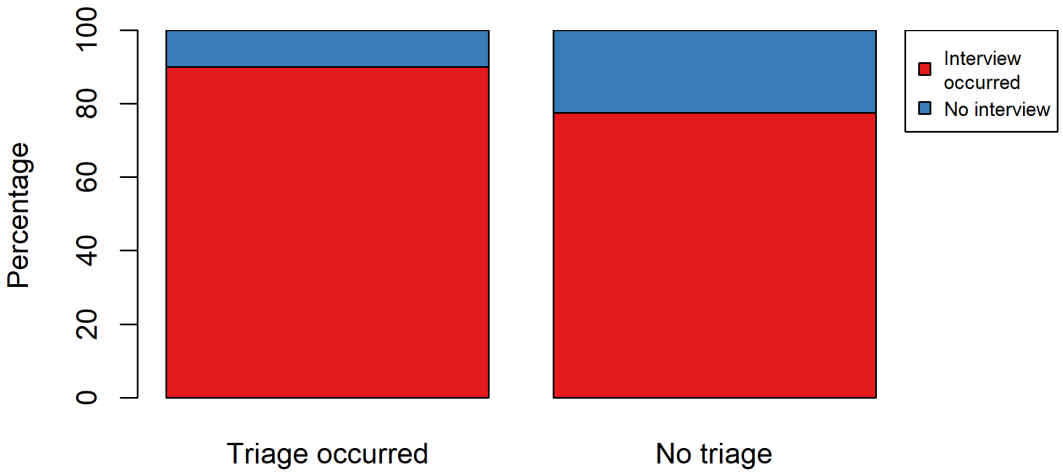

Figure 2 Cell values of Table 3, each expressed as percentages of its row sum

From the metrics given in Table 4, it can be seen that in the sample of 207 opportunities explored in this Section:

- an early interview occurred in 77.6% of those opportunities where early triage did not happen;
- this figure rose to 89.9% amongst the opportunities where early triage did occur.

This effect is in the small to medium size range (its **w**-value is 0.156). Pearson's chi-square testing reveals that, prior to Bonferroni correction, this effect is statistically significant at $\alpha = 0.05$, but only just ($\chi^2 = 3.98$, uncorrected-p = 0.046). After application of that correction, the effect is no longer statisitcally significant (Bonferroni-corrected-p = 0.6). This places the effect in what might be called the discussable zone. This offers a *hint* to suggest that, had more data been collected, it would have detected an effect of early triage occurrence on early interview occurrence.

Further scientific evidence could be collected to test this possibility. However, it would not be logical to simply add to the data already collected until significance is found. This is because this runs a very high risk of detecting an effect from the sample tested even if no effect exists in the population. Instead, a carefully designed study would have to be carried out to reliably test the possibility that this hint alludes to. Please see Section 6.4 for contextual information that could provide an operational rationale for undertaking such work.

6.2.2 The effect of early triage occurrence on early admission of guilt in those opportunities with an early interview.

The contingency table shown in Table 5 was created by the cross-categorisation of the variables 'Early triage occurrence' and 'Early admission', which are as defined in Section 3.3. Table 6 shows the cell values of Table 5, each expressed as percentages of its row sum and Figure 3 shows those percentages in a graphical form.

Table 5 Counts of 'Early triage occurrence' (rows), grouped by 'Early admission' (columns)

	Admission	Non-admission	Sum
Triage occurred	70	72	142
No triage	20	18	38
Sum	90	90	180

Table 6 Cell values of Table 5, each expressed as percentages of its row sum (individual percentages are rounded to the nearest 0.1 percentage point)

	Admission	Non-admission	Sum
Triage occurred	49.3	50.7	100
No triage	52.6	47.4	100

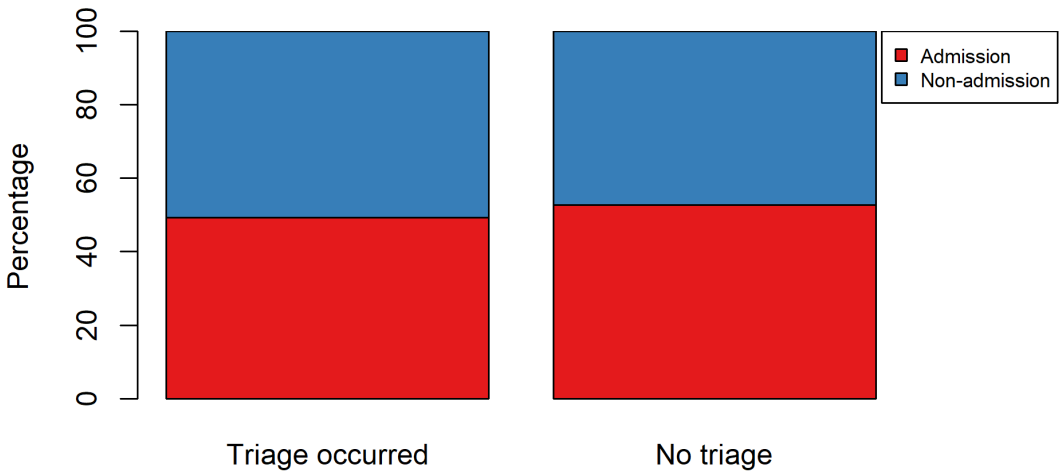

Figure 3 Cell values of Table 5, each expressed as percentages of its row sum

There are 27 opportunities in which no early interview occurred. This leaves 180 opportunities to be analysed in this Section.

From the metrics given in Table 6, it can be seen that in that sample of 180 opportunities:

- an early admission of guilt occurred in 52.6% of those opportunities where early triage did not happen;
- this figure fell to 49.3% amongst the opportunities where early triage did occur.

This effect is much less than small (its **w**-value is 0.027). Pearson's chi-square testing reveals that it is statistically not significant ($\chi^2 = 0.03$, uncorrected-p = 0.86, Bonferroni-corrected-p = 1), suggesting that it happened by chance.

From this, it can be concluded that there is no evidence to suggest that the introduction of early triage leads to admission of guilt during early interview.

6.3 The effect of early triage finding

6.3.1 The effect of early triage finding on early interview occurrence

The contingency table shown in Table 7 was created by the cross-categorisation of the variables 'Early triage finding' and 'Early interview occurrence', which are as defined in Section 3.3. Table 8 shows the cell values of Table 7, each expressed as percentages of its row sum and Figure 4 shows those percentages in a graphical form.

Table 7 Counts of 'Early triage finding' (rows), grouped by 'Early interview occurrence' (columns)

	Interview occurred	No interview	Sum
Positive	107	1	108
Negative	35	15	50
Sum	142	16	158

Table 8 Cell values of Table 7, each expressed as percentages of its row sum (individual percentages are rounded to the nearest 0.1 percentage point)

	Interview occurred	No interview	Sum
Positive	99.1	0.9	100
Negative	70.0	30.0	100

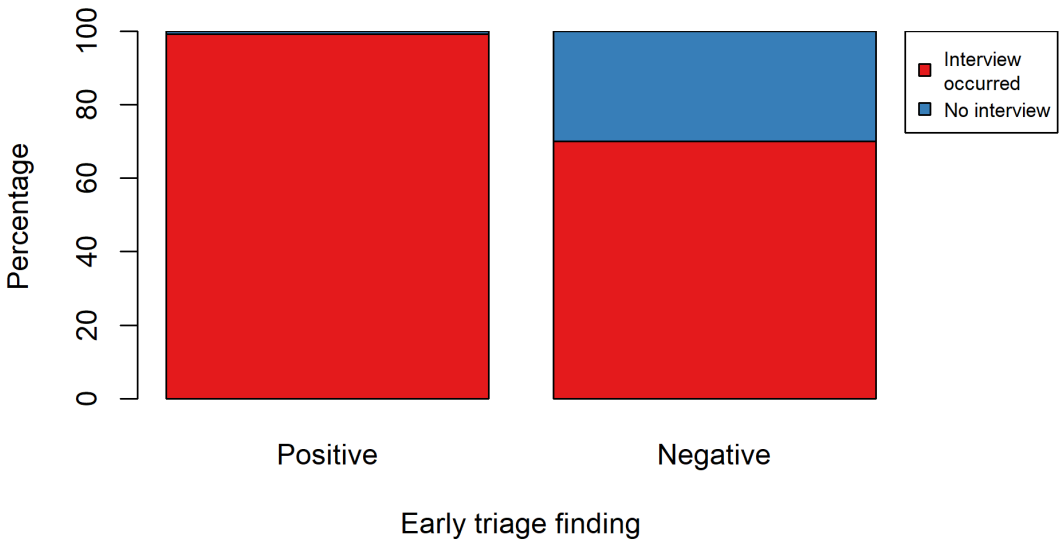

Figure 4 Cell values of Table 7, each expressed as percentages of its row sum

There are 49 opportunities for which there was no early triage. This leaves 158 opportunities to be analysed in this Section.

From the metrics given in Table 8, it can be seen that in that sample of 158 opportunities:

- an early interview occurred in 70% of those opportunities where early triage finding was negative;
- this figure rose to 99.1% amongst the opportunities where early triage finding was positive.

This effect is in the medium to large range (its **w**-value is 0.448). Pearson's chi-square testing reveals that it is statistically highly significant ($\chi^2 = 28.63$, uncorrected-p = 8.8×10^{-8}, Bonferroni-corrected-p = 1.1×10^{-6}). This strongly suggests that the effect seen in the sample is a reflection of an effect in the population.

From this, it can be concluded that, in circumstances that replicate the conditions of this study, there is strong evidence to suggest that a positive early triage finding is more likely to be followed by an early interview than is a negative early triage finding. The cause of this effect is not known. However, arguably, it could reasonably be hypothesised that it is due to the use of information from early triage being used to help decide whether to proceed with an early interview. Further work to test this hypothesis would be needed before it could be accepted.

6.3.2 The effect of early triage finding on early admission of guilt

The contingency table shown in Table 9 was created by the cross-categorisation of the variables 'Early triage finding' and 'Early admission', which are as defined in Section 3.3. Table 10 shows the cell values of Table 9, each expressed as percentages of its row sum and Figure 5 shows those percentages in a graphical form.

Table 9 Counts of 'Early triage finding' (rows), grouped by 'Early admission' (columns)

	Admission	Non-admission	Sum
Positive	55	52	107
Negative	15	20	35
Sum	70	72	142

Table 10 Cell values of Table 9, each expressed as percentages of its row sum (individual percentages are rounded to the nearest 0.1 percentage point)

	Admission	Non-admission	Sum
Positive	51.4	48.6	100
Negative	42.9	57.1	100

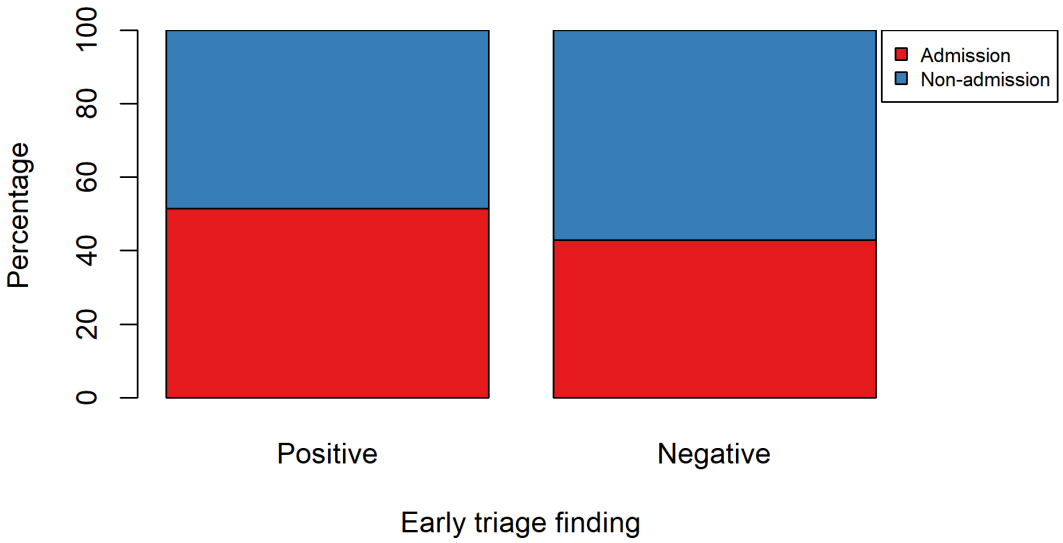

Figure 5 Cell values of Table 9, each expressed as percentages of its row sum

There are 65 opportunities for which there was no early triage or no early interview or both. This leaves 142 opportunities to be analysed in this Section.

From the metrics given in Table 10, it can be seen that in that sample of 142 opportunities:

- an early admission of guilt occurred in 42.9% of those opportunities where early triage finding was negative;
- this figure rose to 51.4% amongst the opportunities where early triage finding was positive.

This effect is less than small (its **w**-value is 0.074). Pearson's chi-square testing reveals that it is statistically not significant ($\chi^2 = 0.47$, uncorrected-p = 0.49, Bonferroni-corrected-p = 1), this suggests that the effect seen in the sample may have happened by chance.

From this, it can be concluded that there is *no* evidence strong enough to suggest that a positive early triage finding is more likely to be followed by an admission of guilt at early interview than is a negative early triage finding. However, it is interesting to note that:

1. Moston and Engelberg (2011) state *'The suspect's decision to confess during questioning by police may be influenced by a range of factors'*, and, *'by far the strongest single predictor of a confession is the strength of evidence against the suspect …, a fact that has been demonstrated in studies employing a diverse range of methodologies.'*.

2. As stated in Section 2, the definitions of positive and negative triage findings only concern whether, in any given case, evidence of criminality was found on one or more mobile phones, tablets or SIM cards. This means that any opportunities in which early triage found evidence of criminal activity solely on digital devices that were not mobile phones, tablets or SIM cards would be categorised as producing a negative triage finding. It is not known how often this happened as this data was not available. If it did occur, it could mask any increased likelihood of the admission of guilt at early interview that might accompany the finding of evidence of criminality during early triage.

6.4 Overall conclusion

There is no evidence strong enough to suggest that a positive early triage finding leads to an increased likelihood of the admission of guilt during any subsequent early interview. However, it must be noted that, as discussed in Section 6.3.2, there are circumstances that could exist in which the discovery of evidence of criminality during early triage could be categorised as producing a negative early triage finding. If such circumstances occurred amongst the opportunities that were analysed, this would likely downplay any impact of the discovery of criminality during early triage on whether there is an admission of guilt at a subsequent early interview.

As shown in Section 6.3.1, amongst the sample analysed 70% of the opportunities where there was a negative early triage finding were followed by an early interview. However, this figure rose to 99.1% when the early triage finding was positive. This effect is statistically highly significant, meaning that there is strong evidence for an association between positive early triage finding and early interview occurrence in the population from which the sample is drawn. This association would be well explained if the outcome of early triage were being used to help to decide whether to proceed to early interview. However, it is not known whether this mechanism is at play and, to ascertain whether it is, further work would be required.

If the early triage finding is affecting that decision-making process, it has the potential to alter the proportion of opportunities that include an early interview. As shown in Section 6.2.1, in the sample, the introduction of early triage is associated with an increase in the percentage of opportunities in which an early interview occurred from 77.6% to 89.9%. *However*, once the number of statistical tests carried out is taken into account, the size of that effect is not large enough to be statistically significant with the sample size used (which is 207). This means that there is insufficient evidence to propose that a similar effect is present in the population. This could be explored further by the collection of more scientific evidence, which could throw light on the extent to which early triage finding informs the decision-making process referred to above.

References

Cohen, J (1988) *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ, USA: Lawrence Erlbaum.

Field, A, Miles, J and Field Z (2012) *Discovering statistics using R*. London, UK: SAGE.

Jafari, M and Ansari-Pour, N (2019) Why, when and how to adjust your p values? *Cell Journal* **20**(4): 604-607. Available from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6099145/ (accessed 28 April 2021).

Moston, S, Engelberg, T (2011) The effect of evidence on the outcome of interviews with criminal suspects, *Police Practice and Research*, **12**(6): 518-526

Stover, C *Contingency Table.* From MathWorld–A Wolfram Web Resource, created by Eric W. Weisstein. https://mathworld.wolfram.com/ContingencyTable.html (accessed 28 April 2021).