

Differences in presenting alibi and evidence by day and time

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The current study aimed to investigate the frequency differences in presentation of alibi and evidence by factors 'day' and 'time'. We analyzed the frequencies of presenting alibis, physical evidence and witness evidence, and investigated the base rate by day (weekday / weekend) and time. A total of 282 respondents participated in this study through self-report online questionnaires. Participants were randomly assigned to one of 8 conditions that consisted of either the day (Tuesday / Saturday) and the time (3:00 / 9:00 / 15:00 / 21:00), and then they were asked to generate their alibis (location), physical evidence, and witness evidence to prove their innocence from mock robbery that they did not commit. Chi-square test was utilized to verify differences in the evidence reported by participants for certain day and time. In addition, binary logistic regression analysis was used in order to investigate the effect of day and time on the evidence. As a result, the day influenced whether family members witness evidence was reported and the time influenced all types of physical and witness evidence. In other words, people are most likely to report the witness evidence with the weakest reliability on weekend, and believable physical and witness evidence were least often reported at 3am in which crimes are most frequent. This study shows that a perfect alibi and evidence to prove innocence in the investigation process may not be possible. Finally, the limitations of the present study and suggestions of subsequent study were discussed.

Key words : Alibi, Physical evidence, Witness, Day, Time

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There do exist people throughout the world who have been wrongfully convicted of crimes that they did not commit(Saks & Koehler, 2005). Although some of those had alibis to prove innocence, alibis sometimes were not admitted, and resultingly they were found guilty(Burke & Marion, 2012; Burke, Turtle, & Olson, 2007; Dahl & Price, 2012; Simon, 2012). Such cases sometimes have occurred in South Korea, and the murder case of the Suwon Homeless Girl in 2007 can be an example of this. At that time, the defendant claimed that he had alibis. However, there was insufficient evidence to prove his alibi, thus he was finally convicted. He had demanded a retrial after the release and was acquitted through additional closed-circuit television evidence that had been found to corroborate the defendant's innocence (Ablenews, 2012. 06. 29).

Recent researches have shown that more than 1,400 convictions have been determined as being wrongfully judged through DNA testing or other types of evidence in the United States since 1989 (Marion, Kukucka, Collins, Kassin, & Burke, 2015). Wells et al.(1998) has indicated that the lack of persuasive evidence had been a cause of misjudgment in approximately one fifth of wrongful conviction cases.

Although there were frequently the cases of false convictions, researches on alibi have rarely been conducted. A search of the term 'Alibi' on Web of Science results in a total of 57 studies (Sauerland, 2017) from 1988 to 2017, and RISS

(Research Information Sharing Service) reports that there are only 2 alibi studies related to law and crime in Korea.

Alibi is defined as an allegation that a suspect provides during criminal investigation (Olson & Wells, 2004). Generally, if there is no evidence to prove the alibi, it is considered that there is no alibi. For example, if there is no evidence because the person was alone at the time of the crime, then it is deemed no alibi. In the present study, however, alibi (absence of the crime scene) was defined as a defendant's claim or defense that the defendant could not commit the crime physically and thus can not be a offender because the defendant was in a different place other than the crime scene at a particular time(Han, 2013; Nolan, 1990). Even though there is no evidence supporting the alibi, if the alibi provider can recall his/her whereabouts at the time of the crime, he/she is considered to have an alibi.

The difficulty to prove an alibi

Burke and colleagues(2007) proposed that alibi generation can be divided into two phases: the story phase and the validation phase. A misunderstanding about alibi can occur in both phases(Crozier, Strange & Loftus, 2017).

First, it can be difficult to provide an accurate alibi for a specific time and place at the alibi story phase(Olson & Charman, 2012). From studies on alibi (Berman & Cutler, 1996;

Berman, Narby, & Cutler, 1995; Culhane, Kehn, Horgan, Meissner, & Hosch, 2008b; Culhane & Hosch, 2012; Dysart & Strange, 2012; Fisher, Brewer, & Mitchell, 2009), in the criminal justice system, people such as lawyers, judges, jurors, and investigators have shown that they tend to assume that an alibi is less reliable or false unless the alibi is presented in the beginning of investigation or the details are consistent throughout the investigation. Also, approximately 63% of lay people believe that people are able to encode events as a video and recall it in detail at any time (Simons & Chabris, 2011, 2012).

However, people are not able to encode a minute-by-minute of what they do and where they were in detail (Bransford & Johnson, 1972; Loftus, 1996; Neisser, 1982; Newman & Lindsay, 2009). Especially routine and repeated events are less coded than emotional, important, and unusual events (Dysart & Strange, 2012). For innocent people, alibis that they usually should provide are likely to be routine, and the likelihood of recalling normal reoccurring events in the alibis is even lower (Crozier et al., 2017). Also, people do not recall where they were, or they wrongfully recall it if the memory is not accessed. Since the more time elapses, the more rapidly what we encoded will decay (Schacter, 1999), it is difficult for people to recall accurate information after a reasonable period of time.

Second, misunderstanding about alibi also occurs at the alibi verification stage. The

criminal justice system assumes that alibis of innocent people will be supported by accurate and strong evidence (Olson & Charman, 2012). Investigators tend to regard alibis with no strong evidence as easy-to-fabricate one (Culhane & Hosch, 2004; Dysart & Strange, 2012; Olson & Wells, 2004).

Physical evidence, however, that exists at the time of the crime, is likely to be disappeared or to be lost during the investigation, such as CCTV recording video or receipt (Dysart & Strange, 2012). In regard with witness evidence, a witness may also have the same memory problem as an alibi provider. The witness may not recall the event or have false memories (Crozier et al., 2017). Therefore, even though a defendant provide an accurate alibi, the alibi may not be able to be proven by an alibi witness. A few studies show that some innocent alibi providers are not able to provide strong evidence to prove their alibi (Marion et al., 2015).

The types of physical and witness evidence

Olson and Wells (2004) categorized the reliability of physical evidence as 'difficult-to-fabricate' and 'easy-to-fabricate' based on fabrication. Difficult-to-fabricate evidence is generally evaluated as more reliable than easy-to-fabricate evidence.

Nieuwkamp, Horselenberg, & Van Koppen

(2017) asked participants to generate alibi evidence. Participants answered the short answer questionnaire, and reported a total of 21 kinds of physical evidence(e.g. video recordings, photographs, personal public transportation cards, telephone records, computer logs, receipts, reservations and so on) including knowledge evidence and unclear evidence. Among the physical evidence, ‘Knowledge evidence’ refers to the content of the TV program they had watched, the contents of the book that they had read, or the content of the lesson they had took (Nieuwkamp et al, 2017). ‘Unclear evidence’ refers to evidence that is not directly linked to the presented alibi or the time when the mock crime is committed. Someone, for instance, who is hiking at the time of the crime, may report the soiled shoes as evidence (Nieuwkamp et al, 2017). The shoes can be referred to as unclear evidence. Olson and Wells (2004) classified a recorded video as difficult-to-fabricate evidence and a receipt as easy-to-fabricate evidence.

Witness evidence is categorized as ‘non-motivated familiar other’, ‘non-motivated stranger’, and ‘motivated familiar other’ based on motivation to lie and the possibility of mistaken identification. A person, who has no motivation to lie and is not likely mistaken, is more reliably evaluated(Olson & Wells, 2004).

First, acquaintances are referred to as non-motivated familiar other since they have the lowest motive to lie. They are evaluated as the most reliable witness evidence because they are

familiar to the suspect and are unlikely to make mistake to identify him/her. Second, strangers are referred to as non-motivated stranger and have moderate believability. They are characterized by no previous interaction with the defendant, which leads to less possibility to remember the suspect correctly, even though there is no motive to lie. Third, kinship such as his/her parents, spouse, partner, friends, and colleagues is referred to as motivated familiar other and has the least reliability in that those have the highest motive of a false testimony. Hosch, Culhane, Jolly, Chavez, & Shaw (2011) classified several witnesses based on the relationship between a witness and a suspect, and examined their reliability. As a result, the closer relationship a witness had had with the suspect, the more skeptical attitudes the raters showed.

In general, the weakest physical evidence is more credibly assessed than the strongest witness evidence owing to the suspicion that witnesses presenting evidence may be motivated to lie or be mistaken(Olson & Wells, 2004). When evidence of alibi is presented, the more reliable the evidence is, the more believable the alibi appears to be(Hosch, Culhane, Jolly, Chavez, & Shaw, 2011; Jung, Allison, & Bohn, 2013).

Unfortunately, it is doubtful whether everyone counted as a suspect in a real crime can meet the expectation of perfect alibi. Nieuwkamp and colleagues (2017) shows that most of the participants (99.5%) generated alibis and 92.4%

of them had evidence of their alibis. Only 25% of the participants, however, were able to report evidence with high reliability. In particular, the longer the period between the time of a crime and the alibi occurrence is, the greater likelihood that the physical evidence is disappeared will be. Moreover, difficulties with proof of an alibi are intensified as the possibility of damage to memories of the alibi witness becomes greater (Olson & Charman, 2012). Expectations for a perfect alibi presentation can lead to misjudgment, including convictions of innocent people.

Differences in alibi evidence depending on days and times

Alibi and evidence may vary depending on days and times. According to the statistics of all crime in Korea(Supreme Prosecutor's Office, 2017), 15.5% of crimes were committed on Saturday, followed by Friday(15.0%), Thursday (14.2%), Wednesday and Sunday(14.0%), Tuesday (13.9%), and Monday(13.4%). In addition, 34.4% of crimes were committed during night time (18:00 ~ 23:59), 22.1% between 12:00 ~ 17:59, 17.7% between 06:00 ~ 11:59, and 15.7% between 00:00 ~ 05:59(Supreme Prosecutor's Office, 2017).

Daily life patterns of people may be different between weekdays and weekends(Culhane, Hosch, & Kehn, 2008), and people may have more activities during the day. Thus, the likelihood

of reporting alibi and evidence and the type of evidence(physical or personal) may vary depending on the day and time. The results of this hypothesis, however, are not consistent. Culhane et al.(2008) showed that there is no difference in alibi evidence between weekdays (Tuesday) and weekends(Saturday). On the other hand, Nieuwkamp and colleagues(2017) suggested that there is no difference in the absence or presence of alibis depending on the day and time, but it affected the possibility to report evidence of an alibi.

According to Nieuwkamp et al. (2017), even those who did not commit crime were unlikely to be able to present evidence of their alibi. Furthermore, the factors 'day' and 'time' influenced people's location, in turn, determined the type of the alibi and the evidence reported. Thus, the purpose of this study is to examine the frequency of an alibi and evidence of non-offender, and the difference in the type of alibi or alibi evidence reported on specific days and times.

In recent years, researches on alibi have been actively studied abroad, but little research has been conducted in Korea, although the influence of culture on alibi and evidence exists. Culhane et al.(2008) indicated that culture can influence the probability of presentation of witness evidence. In an individualistic culture such as the United States, for example, people are more likely to spend time either alone or with a wide range of social members. By contrast, those

raised in a collective cultures such as Mexico are expected to spend time with close social members like family members(Hofstede, 2001; Triandis, 1994). Therefore, the purpose of current study is to establish the base rate of alibis and evidence in Korea, which may have different cultures from the countries that the previous researches were conducted.

In line with the results of previous studies, we hypothesized that the majority of participants would be able to present their alibis. In addition, we hypothesized that believable evidence may be hard to obtain, even for innocent alibi providers. In other words, 'difficult-to-fabricate' evidence will be lower than 'easy-to-fabricate' physical evidence on the base rate. Also, 'non-motivated other' evidence will be lower than other types of witness evidence on the base rate. Finally, we hypothesized that there would be differences in the frequency of presenting an alibi and evidence by 'day' and 'time'. In other words, the rate of reporting both physical and witness evidence at dawn would be lower than other timeframe, and the effects of the factor 'day' will vary depending on the type of evidence.

Method

Participants

Three hundred fifty-five undergraduate

students in Seoul and lay people participated in this study. Students in the psychology course were able to participate through the website of the psychology department which is to recruit participants for researches, and they earned partial course credit in psychology classes for their participation. The lay people were able to participate through the questionnaire link attached to advertisement in the local community.

Among participants, one participant did not agree to participate in this study, two participants did not understand the questionnaires, and sixty-six participants were eliminated at the manipulation check because they failed to remember the experimental conditions. Thus, a total of sixty-nine participants were excluded and the data from 282 participants were retained for analysis.

The demographic distribution of participants is as follows. Among the participants, 218(77.3%) were female and 64(22.7%) were male. Their ages varied from 19 to 53 years, with a mean age of 24.5(SD=5.13). Most of participants were single(260, 92.2%) and only 22(7.8%) of them were married. Two hundreds and seven participants(73.4%) were living with their spouse or family, 20(7.1%) were living with friends or co-workers, and 55(19.5%) were living alone. Of the participants, 207(73.4%) were students, 62 (22%) were employed, and 13(4.6%) were unemployed.

Procedure

People participated in this study through a self-report online questionnaire. Participants were assigned randomly to one of the eight experimental conditions by selecting one of eight links. First, they were asked to read the scenario which was partially modified from previous study (Nieuwkamp et al., 2017). The scenario is as follows.

“Last Tuesday night at 3:00, an armed robbery was committed around your residential district and the robber threatened a convenience store staff with a knife. The police have started to look into the robbery and identified you as a prime suspect. The police now want you to explain where you were, what you were doing, and who you were with when the robbery was committed.”

Next, participants were asked to recall their whereabouts and write narrative alibis. We allowed participants to use a personal diary and mobile phone recording while generating their alibi stories to reduce the probabilities of memory failure. Participants were also asked to report physical evidence, witness evidence, the number of witnesses, and their relationship with the witnesses. There was not time limit for adequate time to recall.

The 21 kinds of physical evidence reported in previous study(Nieuwkamp et al., 2017) were re-categorized into eleven types, which were

presented to the participants as options in this study in order to allow participants to report a variety of evidence: videos, photographs, telephone recordings, online recordings, receipts, public transportation card recordings, checking in records, tickets, timetables, knowledge evidence, and unclear evidence. The ‘unclear evidence’ includes somewhat easily fabricated videos, photos and message records that was not directly linked to the presented alibi. Someone, for example, reported CCTV to confirm that he/she had stayed at home until the crime was committed, The video, that did not directly record the face of a participant, was categorized as unclear evidence.

The four kinds of witness evidence reported in previous study(Nieuwkamp et al., 2017; Olson & Charman, 2012) were subdivided into six types, which were showed to the participants as options: a partner, family, friend, coworker, acquaintance, and stranger.

Participants were allowed to select multiple options. Finally, a manipulation check was conducted through two questions by asking what day and time the crime was committed.

Research design

We tested our hypotheses using a 2(day: Tuesday / Saturday) x 4(time: 3:00 / 9:00 / 15:00 / 21:00) between-subjects factorial design. In accordance with Nieuwkamp et al.(2017), we selected Tuesday and Saturday for the factor of

'day'. Also, for the factor of 'time', we chose dawn, morning, afternoon, and night, which have the 6 hours' time difference. The dependent variables were alibi (participant's location), physical and witness evidence of the alibi.

Data coding scheme

Data analysis of this study was conducted by two evaluators who did not know the hypotheses. The criteria to select and classify participant's responses were set as follows: 1) All data must be based on narrative alibis reported by the participants. 2) Only alibis and evidence generated within an hour of the mock crime committed should be acknowledged. Evidence needs to solve both time and space issues to support an alibi. In other words, the evidence must prove that the suspect was not in the 'place' and at the 'time' wherein the crime was committed. Both requirements are a necessary condition, and the evidence is not valid unless two requirements are met(Olson & Wells, 2004).

The evaluators selected alibis, physical and witness evidence reported by the participants on the basis of the narrative responses. Next, the eleven types of physical evidence were re-classified into two categories according to the possibility of fabrication: 'difficult-to-fabricate' and 'easy-to-fabricate'(Olson & Wells, 2004). For instance, a video, picture, and telephone recording can be sorted as 'difficult-to-fabricate

evidence', which has the highest reliability. On the other hand, an online record, receipt, public transportation card record, visiting record, admission ticket, timetable, knowledge evidence, and unclear evidence can be classified as 'easy-to-fabricate', which has relatively lower reliability than difficult-to-fabricate evidence (Nieuwkamp, Horselenberg, & Van Koppen, 2016b; Olson & Well, 2004). The six types of witness evidence were re-classified into three categories founded on the false testimony motivation and the possibility of mistaken identification: 'non-motivated other', 'non-motivated stranger' and 'motivated other' (Olson & Wells, 2004).

The categorized alibi and evidence were re-coded as a one for existence and a zero for absence. If a participant had, for instance, any of video recordings, photographs, and telephone recordings, difficult-to-fabricate was re-coded as a one. On the other hand, difficult-to-fabricate was re-coded as a zero unless a participant had all of video recordings, photographs and telephone records.

Inter-rater reliability

The inter-rater reliability analysis was conducted by evidence types(Table 1). The inter-rater reliability was from .772 to .949 with the alibi(.937), physical evidence(.837) and witness evidence(.818).

Table 1. Inter-rater reliability analysis

	Cohen's Kappa	<i>p</i>
alibi	.949	< .001
physical evidence	.837	< .001
Difficult-to-fabricate	.928	< .001
Easy-to-fabricate	.772	< .001
witness evidence	.818	< .001
acquaintance	.844	< .001
stranger	.865	< .001
family	.948	< .001

Result

Alibi

First, a participant was seemed to have an alibi if a participant could recall their whereabouts at a particular moment. As shown in Table 2, all participants were able to present their alibi. The highest percentage of participants' alibi reported that they were at home when the crime was committed except Tuesday at 15:00. On Tuesday at 15:00, the ratio of educational facilities was the highest, reflecting that 73% of the participants were students. A total of 275 participants(98%) were able to present physical or witness evidence of the alibis. Approximately, 2%(seven people) were not able to report evidence(Table 3).

Physical evidence

Eighty-five percent(241 people) of the participants reported a total of 485 physical evidence items(range 1-7). The most reported evidence was 'video' and 'unclear evidence', accounting for 26%(74 items) of the total evidence, respectively(Table 4). Regardless of the type of evidence, the largest number of physical evidence was reported on Tuesday at 15:00 (238%, 88 items) and Saturday at 15:00(219%, 81 items)(Table 4).

Witness evidence

Eighty-four percent(236 people) of the participants reported a total of 288 witness evidence(Table 4). The most reported witness evidence was 'family(38%)' and the next was 'friends(27%)'. The largest number of witness evidence was reported on Tuesday at 15:00 and on Saturday at 21:00, regardless of the type of evidence (Table 5).

Frequency of participants who reported evidence

The frequencies of participants, who were able to report evidence of alibis among all participants, were examined(Table 6). In terms of physical evidence, participants were less likely to report difficult-to-fabricate evidence than easy-to-fabricate evidence in all conditions. The highest

Table 2. Frequency of alibis

Alibi	Tuesday				Saturday				Total N=282
	3:00 N=35	9:00 N=33	15:00 N=37	21:00 N=31	3:00 N=32	9:00 N=30	15:00 N=37	21:00 N=47	
At home	30 (0.86)	19 (0.58)	3 (0.08)	13 (0.42)	27 (0.84)	20 (0.67)	10 (0.27)	25 (0.53)	147
At work	1 (0.03)	1 (0.03)	1 (0.03)	2 (0.06)	0 (0.00)	1 (0.03)	6 (0.16)	0 (0.00)	12
At educational facilities	1 (0.03)	5 (0.15)	20 (0.54)	4 (0.13)	1 (0.03)	4 (0.13)	3 (0.08)	3 (0.06)	41
At accommodation	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	0 (0.00)	2 (0.04)	3
At a restaurant	0 (0.00)	1 (0.03)	2 (0.05)	7 (0.23)	1 (0.03)	2 (0.07)	6 (0.16)	5 (0.11)	24
At mart	1 (0.03)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	4 (0.09)	6
At hospital	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	1 (0.02)	2
Playing sports	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	1 (0.03)	1 (0.02)	4
Shopping	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1
At beauty shop	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	2 (0.04)	4
At entertainment	0 (0.00)	1 (0.03)	2 (0.05)	2 (0.06)	0 (0.00)	0 (0.00)	8 (0.22)	1 (0.02)	14
At government office	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1
At religious facilities	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.03)	1 (0.03)	1 (0.02)	3
On the public transportation	0 (0.00)	4 (0.12)	4 (0.11)	1 (0.03)	0 (0.00)	1 (0.03)	0 (0.00)	1 (0.02)	11
On holiday	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	1
On the go	2 (0.06)	1 (0.03)	2 (0.05)	1 (0.03)	0 (0.00)	0 (0.00)	1 (0.03)	1 (0.02)	8

Table 3. Frequency of participants who reported physical and witness evidence

The type of evidence	Tuesday				Saturday				Total N=282
	3:00 N=35	9:00 N=33	15:00 N=37	21:00 N=31	3:00 N=32	9:00 N=30	15:00 N=37	21:00 N=47	
Combination of physical and witness evidence	21 (0.60)	19 (0.58)	32 (0.86)	26 (0.84)	18 (0.56)	15 (0.50)	30 (0.81)	41 (0.87)	202 (0.71)
Physical evidence only	5 (0.14)	7 (0.21)	4 (0.11)	4 (0.13)	6 (0.19)	6 (0.20)	3 (0.08)	4 (0.09)	39 (0.14)
Witness evidence only	8 (0.23)	6 (0.18)	0 (0.00)	1 (0.03)	8 (0.25)	6 (0.20)	3 (0.08)	2 (0.04)	34 (0.12)
No evidence	1 (0.03)	1 (0.03)	1 (0.03)	0 (0.00)	0 (0.00)	3 (0.10)	1 (0.03)	0 (0.00)	7 (0.02)

Table 4. Frequency of physical evidence reported

Physical evidence	Tuesday				Saturday				Total N=282
	3:00 N=35	9:00 N=33	15:00 N=37	21:00 N=31	3:00 N=32	9:00 N=30	15:00 N=37	21:00 N=47	
Video recordings	4 (0.11)	5 (0.15)	16 (0.43)	10 (0.32)	3 (0.09)	6 (0.20)	17 (0.46)	13 (0.28)	74 (0.26)
Photographs	0 (0.00)	1 (0.03)	2 (0.05)	6 (0.19)	0 (0.00)	1 (0.03)	7 (0.19)	8 (0.17)	25 (0.09)
Telephone records	3 (0.09)	1 (0.03)	2 (0.05)	8 (0.26)	1 (0.03)	3 (0.10)	10 (0.27)	12 (0.26)	40 (0.14)
Online recordings	7 (0.20)	5 (0.15)	11 (0.30)	6 (0.19)	6 (0.19)	6 (0.20)	5 (0.14)	10 (0.21)	56 (0.20)
Receipts	1 (0.03)	3 (0.09)	11 (0.30)	8 (0.26)	3 (0.09)	3 (0.10)	12 (0.32)	14 (0.30)	55 (0.20)
public transportation cards	0 (0.00)	10 (0.30)	11 (0.30)	10 (0.32)	0 (0.00)	3 (0.10)	8 (0.22)	11 (0.23)	53 (0.19)
Checking in records	3 (0.09)	3 (0.09)	15 (0.41)	4 (0.13)	2 (0.06)	7 (0.23)	8 (0.22)	7 (0.15)	49 (0.17)
Tickets	0 (0.00)	0 (0.00)	1 (0.03)	1 (0.03)	0 (0.00)	0 (0.00)	4 (0.11)	0 (0.00)	6 (0.02)
Timetables	0 (0.00)	8 (0.24)	10 (0.27)	1 (0.03)	0 (0.00)	1 (0.03)	3 (0.08)	0 (0.00)	23 (0.08)
Knowledge	2 (0.06)	5 (0.15)	6 (0.16)	3 (0.10)	1 (0.03)	2 (0.07)	3 (0.08)	8 (0.17)	30 (0.11)
Unclear evidence	14 (0.40)	7 (0.21)	3 (0.08)	6 (0.19)	18 (0.56)	9 (0.30)	4 (0.11)	13 (0.28)	74 (0.26)
Total items physical evidence	34 (0.97)	48 (1.45)	88 (2.38)	63 (2.03)	34 (1.06)	41 (1.37)	81 (2.19)	96 (2.04)	485 (1.72)

Table 5. Frequency of witness evidence reported

Evidence	Tuesday					Saturday					Total N = 282
	3:00 N = 35	9:00 N = 33	15:00 N = 37	21:00 N = 31	3:00 N = 32	9:00 N = 30	15:00 N = 37	21:00 N = 47			
Non-motivated other	0 (0.00)	3 (0.09)	11 (0.30)	2 (0.06)	3 (0.10)	1 (0.03)	2 (0.05)	4 (0.09)	26 (0.09)		
acquaintance	0 (0.00)	3 (0.09)	11 (0.30)	2 (0.06)	3 (0.10)	1 (0.03)	2 (0.05)	4 (0.09)	26 (0.09)		
Non-motivated stranger	2 (0.06)	5 (0.15)	16 (0.43)	4 (0.13)	2 (0.06)	4 (0.13)	6 (0.16)	10 (0.21)	49 (0.17)		
stranger	2 (0.06)	5 (0.15)	16 (0.43)	4 (0.13)	2 (0.06)	4 (0.13)	6 (0.16)	10 (0.21)	49 (0.17)		
colleague	1 (0.03)	1 (0.03)	2 (0.05)	2 (0.06)	0 (0.00)	1 (0.03)	9 (0.24)	2 (0.04)	18 (0.06)		
friend	8 (0.23)	6 (0.18)	12 (0.32)	15 (0.48)	6 (0.19)	3 (0.10)	16 (0.43)	11 (0.23)	77 (0.27)		
Motivated other	1 (0.03)	0 (0.00)	0 (0.00)	0 (0.00)	2 (0.06)	1 (0.03)	1 (0.03)	6 (0.13)	11 (0.04)		
partner	1 (0.03)	0 (0.00)	0 (0.00)	0 (0.00)	2 (0.06)	1 (0.03)	1 (0.03)	6 (0.13)	11 (0.04)		
family	19 (0.54)	15 (0.45)	3 (0.08)	10 (0.32)	16 (0.50)	14 (0.47)	8 (0.22)	22 (0.47)	107 (0.38)		
Total items witness evidence	31 (0.89)	30 (0.91)	44 (1.19)	33 (1.06)	29 (0.91)	24 (0.80)	42 (1.14)	55 (1.17)	288 (1.02)		

Table 6. Frequency of participants who reported evidence by type of evidence

Type of evidence	Tuesday					Saturday					Total N=282
	3:00 N=35	9:00 N=33	15:00 N=37	21:00 N=31	3:00 N=32	9:00 N=30	15:00 N=37	21:00 N=47			
Physical evidence	difficult-to-fabricate	4 (0.11)	8 (0.24)	22 (0.59)	17 (0.55)	5 (0.16)	7 (0.23)	24 (0.65)	20 (0.43)	107 (0.38)	
	easy-to-fabricate	24 (0.69)	23 (0.70)	33 (0.89)	24 (0.77)	21 (0.66)	18 (0.60)	29 (0.78)	38 (0.81)	210 (0.74)	
	Total	28 (0.80)	31 (0.94)	55 (1.49)	41 (1.32)	26 (0.81)	25 (0.83)	53 (1.43)	58 (1.23)	317 ¹ (1.12)	
Witness evidence	Non-motivated other	0 (0.00)	3 (0.09)	11 (0.30)	2 (0.06)	3 (0.09)	1 (0.03)	2 (0.05)	4 (0.09)	26 (0.09)	
	Non-motivated stranger	2 (0.06)	5 (0.15)	16 (0.43)	4 (0.13)	2 (0.06)	4 (0.13)	6 (0.16)	10 (0.21)	49 (0.17)	
	Motivated other	27 (0.77)	22 (0.67)	17 (0.46)	26 (0.84)	23 (0.72)	19 (0.63)	31 (0.84)	36 (0.77)	201 (0.71)	
Total	29 (0.83)	30 (0.91)	44 (1.19)	32 (1.03)	28 (0.88)	24 (0.80)	39 (1.05)	50 (1.06)	276 ² (0.98)		

¹ Seventy-six participants who reported two levels of physical evidence were added to 241 participants (Table 3) (eg: participants who reported 'difficult-to-fabricate' and 'easy-to-fabricate')

² Thirty-five participants who reported more than two levels of witness evidence were added to 236 participants (Table 3) (eg: participants who reported non-motivated other and 'motivated other')

rate of participants who presented difficulty-to-fabricate evidence was 65% on Saturday at 15:00, with 10 - 15% of participants who reported difficulty-to-fabricate on Tuesday at 3:00 and on Saturday at 3:00(Table 6).

With respect to witness evidence, participants reported motivated other evidence the most on all conditions and non-motivated other evidence the least on most of conditions. The highest percentage of participants who presented non-motivated other was 30% on Tuesday at 15:00, with less than 10% of participants who reported ‘non-motivated other’ on all other conditions(Table 6).

Frequency difference of presenting evidence by day and time

Chi-square test was utilized to examine whether there were frequency differences of various types of evidence between conditions. First, in terms of the factor ‘day’(Table 7), a significant difference was not found on all types of evidence. That is, there was not a difference in the frequency of the evidence reported on Tuesdays and Saturdays. In terms of the factor ‘time’(Table 8), however, there was significant differences in most types of evidence except the ‘motivated other’ type.

Physical evidence was less likely to be

Table 7. Frequency difference in presenting evidence by day

Type of evidence	Tuesday N = 136	Saturday N = 146	χ^2	ϕ
Physical evidence	118 (86.8%)	123 (84.2%)	.359	.036
Difficult-to-fabricate	51 (37.5%)	56 (38.4%)	.022	.009
Easy-to-fabricate	104 (76.5%)	106 (72.6%)	.554	-.044
Witness evidence	114 (83.8%)	125 (85.6%)	.175	-.025
Non-motivated other	16 (11.8%)	10 (6.8%)	2.033	-.085
Non-motivated stranger	27 (19.9%)	22 (15.1%)	1.123	-.063
Motivated other	92 (67.6%)	109 (74.7%)	1.690	.077

* p < .05, ** p < .01, *** p < .001

Table 8. Frequency difference in presenting evidence by time

Type of evidence	3:00 N = 67	9:00 N = 63	15:00 N = 74	21:00 N = 78	χ^2	Φ
Physical evidence	50 (74.6%)	47 (74.6%)	69 (93.2%)	75 (96.2%)	23.091***	.286
Difficult-to-fabricate	9 (13.4%)	15 (23.8%)	46 (62.2%)	37 (47.4%)	43.858***	.394
Easy-to-fabricate	45 (67.2%)	41 (65.1%)	62 (83.8%)	62 (79.5%)	9.212*	.181
Witness evidence	53 (79.1%)	48 (76.2%)	66 (89.2%)	72 (92.3%)	9.800*	.186
Non-motivated other	3 (4.5%)	4 (6.3%)	13 (17.6%)	6 (7.7%)	8.799*	.177
Non-motivated stranger	4 (6.0%)	9 (14.3%)	22 (29.7%)	14 (17.9%)	14.374**	.226
Motivated other	50 (74.6%)	41 (65.1%)	48 (64.9%)	62 (79.5%)	5.603	.141

* p < .05, ** p < .01, *** p < .001

presented at '3:00' and '9:00' in comparison with '15:00' and '21:00'. In particular, with regard to difficult-to-fabricate evidence, the difference was three times. The easy-to-fabricate evidence was reported 2.5 times as much as the difficult-to-fabricate evidence, but still low at 3:00 and 9:00.

In the case of witness evidence, witness evidence was less likely to be presented at '3:00' and '9:00' in comparison with '15:00' and '21:00'. Non-motivated other evidence was approximately 2 - 3 times more likely to be reported at 15:00 (17.6%) than other conditions which have a mean of 6%. The non-motivated strangers, also, were 1.5 - 5.5 times more likely

to be reported at 15:00 (29.7%) than other conditions which have a mean of 12.7%. On the other hand, the motivated other was 2 - 10 times more frequent than other types, but no significant difference was observed by the factor 'time'.

Effects of the factors 'day' and 'time' on presenting evidence

The results of chi-square test implied that most types of evidence were influenced by the factor 'time'. In other words, evidence of a non-offender differs between various times.

Furthermore, in order to understand the

Table 9. Effects of day and time on presenting physical evidence

	B	S.E.	Wald	OR	95% CI	<i>p</i>
Physical evidence						
Day						
Tuesday	.371	.357	1.084	1.450	.721 ~ 2.916	.298
Saturday				1.000		
Time						
3:00	-1.561	.543	8.264	.210	.072 ~ .609	.004
9:00	-1.562	.547	8.145	.210	.072 ~ .613	.004
15:00				1.000		
21:00	.632	.751	.710	1.882	.432 ~ 8.194	.400
Difficult-to-fabricate						
Day						
Tuesday	.053	.269	.039	1.055	.622 ~ 1.788	.843
Saturday				1.000		
Time						
3:00	-2.361	.431	29.988	.094	.041 ~ .220	.000
9:00	-1.661	.381	19.022	.190	.090 ~ .401	.000
15:00				1.000		
21:00	-.594	.331	3.216	.552	.289 ~ 1.057	.073
Easy-to-fabricate						
Day						
Tuesday	.265	.281	.887	1.303	.751 ~ 2.261	.346
Saturday				1.000		
Time						
3:00	-.935	.410	5.215	.392	.176 ~ .876	.022
9:00	-1.029	.412	6.232	.357	.159 ~ .802	.013
15:00				1.000		
21:00	-.262	.423	.382	.770	.336 ~ 1.765	.537

$R^2 = .154$ (Nagelkerke), Hosmer-Lemeshow *p-value* = .954

$R^2 = .206$ (Nagelkerke), Hosmer-Lemeshow *p-value* = .954

$R^2 = .052$ (Nagelkerke), Hosmer-Lemeshow *p-value* = .954

Table 10. Effects of day and time on presenting witness evidence

		B	S.E.	Wals	OR	95% CI	<i>p</i>
Witness evidence							
Day	Tuesday	-.051	.339	.023	.950	.489 ~ 1.845	.880
	Saturday				1.000		
Time	3:00	-.778	.480	2.625	.459	.179 ~ 1.177	.105
	9:00	-.946	.477	3.929	.388	.152 ~ .989	.047
	15:00				1.000		
	21:00	.369	.567	.424	1.447	.476 ~ 4.400	.515
Non-motivated other							
Day	Tuesday	.618	.431	2.063	1.856	.798 ~ 4.316	.151
	Saturday				1.000		
Time	3:00	-1.540	.667	5.323	.214	.058 ~ .793	.021
	9:00	-1.170	.603	3.766	.310	.095 ~ 1.012	.052
	15:00				1.000		
	21:00	-.884	.527	2.818	.413	.147 ~ 1.160	.093
Non-motivated stranger							
Day	Tuesday	.384	.326	1.383	1.468	.774 ~ 2.781	.240
	Saturday				1.000		
Time	3:00	-1.914	.576	11.030	.148	.048 ~ .456	.001
	9:00	-.946	.442	4.576	.388	.163 ~ .924	.032
	15:00				1.000		
	21:00	-.624	.392	2.539	.536	.249 ~ 1.154	.111

Table 10. Effects of day and time on presenting witness evidence (continue)

	B	S.E.	Wals	OR	95% CI	<i>p</i>
Motivated other						
Day						
Tuesday	-.303	.268	1.278	.739	.437 ~ 1.249	.258
Saturday				1.000		
Time						
3:00	.475	.373	1.623	1.608	.774 ~ 3.337	.203
9:00	.017	.360	.002	1.017	.502 ~ 2.061	.963
15:00				1.000		
21:00	.713	.373	3.662	2.041	.983 ~ 4.239	.056

$R^2 = .061$ (Nagelkerke), Hosmer-Lemeshow *p-value* = .995

$R^2 = .140$ (Nagelkerke), Hosmer-Lemeshow *p-value* = .099

$R^2 = .094$ (Nagelkerke), Hosmer-Lemeshow *p-value* = .419

$R^2 = .144$ (Nagelkerke), Hosmer-Lemeshow *p-value* = .079

time that the supportive evidence is most likely to be proffered for their alibi, binary logistic regression analysis was conducted. In most types, the frequency at 15:00 was the highest. Thus, 15:00 was chosen as the reference group and compared to three other timeframes.

The results of the analysis(Table 9) showed that the frequencies of 3:00 and 9:00 were significantly lower compared to those of 15:00 in overall and each type of physical evidence. In other words, participants were less able to report physical evidence at 3:00 and 9:00 than 15:00 in all types of physical evidence.

In terms of witness evidence(Table 10), the differences depended on the types. Compared to 15:00, the frequency at 3:00 was significantly

lower in non-motivated other type and the frequency at 3:00 and 9:00 was significantly lower in non-motivated stranger type. There was, however, no significant difference in motivated other type.

Discussion

This study was focused primarily on the frequencies of submitting an alibi and evidence, and established the base rate of an alibi and supportive evidence which were presented when non-offenders attempted to corroborate their innocence. Furthermore, the effects of factors ‘day’ and ‘time’ on the base rates were examined.

The base rate of alibis and evidence

The result of current study indicate that all participants are able to present alibis, and most participants(98%) are able to report supportive evidence. However, the possibilities that strong evidence such as difficult-to-fabricate physical evidence and non-motivated other witness evidence is reported were 37% and 9%, respectively. The current study is, therefore, beneficial to show that it would be difficult for innocent people who did not actually commit a crime to present a full alibi and strong evidence which is demanded by the police detectives to verify their innocence.

As a result, the type of evidence depends on the time people are asked to present an alibi and evidence. When a defendant is, for instance, asked to present supportive evidence for his or her alibi at night, it seems that the defendant is more likely to report only motivated other evidence such as a family, which is the most unconvincing witness evidence, because people are more likely to rest or sleep at home at night time.

In accordance with previous research of specific crime type(Lee & Gwak, 2007), robbery had been committed the most from 0 am to 4 am, accounting for 30% of a total rate. This result suggests that discrepancies increase between evidence that a suspect is able to report and the rigorous criteria that a police detective expects to exist during the night.

The factor 'day' did not have an effect on likelihood to report evidence, which indicated inconsistencies with previous studies(Nieuwkamp et al., 2017). A selection bias can be considered as a reason. In this study, a majority of participants were university students. The student may have different life patterns from the employee, who has clearly contrasting schedules between weekdays and weekends. The student uses most of the 24 hours to learn. In a study on the difference of daily time use by day, university students were excluded from the study because they were more likely to have a specific life pattern. As a result of the study, it was found that day had a significant effect on the daily time use such as personal care, employment, household care, social life(Lee, Lee, & Chung, 2011). Different life patterns between weekdays and weekends can affect the type of alibis and evidence. Therefore, it is needed to include people engaged in various occupations as participants in future study.

The location can be one reason why there is no difference between weekdays and weekends. According to previous research(Nieuwkamp et al., 2017), the different alibi location reported can lead to diverse types of evidence. In the current study, most participants reported home as alibis both on weekdays and weekends, so there may be no difference in the witness evidence between weekdays and weekends, with the highest rate of family members evidence.

Limitations and future directions

This study examined the differences in the frequencies of presenting the alibi and evidence depending on day and time. Most of the participants in this study were female students, unmarried and living with family members. Demographic characteristics such as sex, age, occupation, relationship status, and co-residence status can have influences on the alibi and the evidence(Olson & Wells, 2004). Students who are unmarried or unemployes are less likely to have obvious proof. In the subsequent study, therefore, it is necessary to encompass the various demographic groups and to explore whether there are differences from the present study.

Another limitation of the current study is that we could not distinguish the reliability of the multiple evidence that one participant presented from the reliability of one piece of evidence that one participant presented. If a participant provided a variety of easy-to-fabricate physical evidence such as a receipt, traffic card recording, and admission ticket to demonstrate his/her alibi, would it be fair to regard the participant who presented the multiple easy-to-fabricate physical evidence as same as another participant who reported only one easy-to-fabricate physical evidence? In future research, the number of evidence as well as the type of evidence should be considered to evaluate the believability of evidence.

In order to see if there is a difference in alibi and evidence between weekdays and weekends, Tuesday and Saturday were selected in the same way as the previous research(Culhane et al., 2008). We suggest including other days in the scenario to investigate the difference.

Although this research has a few limitations, it is the first empirical study to examine the alibi and evidence that can be reported during the police investigation and to establish the base rate that innocent alibi providers hand in alibis and evidence. Additionally, this study compared the base rate by day and time(dawn, morning, afternoon, evening). This research suggests that the alibi and the evidence should be evaluated, considering the time that a crime is committed.

The strict criteria expected by police detectives is based on an illusion that innocent people will be able to generate perfect alibis with strong evidence(Nieuwkamp et al., 2017). This misunderstanding can be a severe problem when the difficulty to submit alibis and evidence is underestimated(Turtle & Burke, 2001: Quoted in Olson & Charman, 2012). We need to set up a correct understanding of the possibility of innocent people's alibi validation through studies of alibi.

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요일과 시간에 따른 알리바이 및 증거 제시에서의 차이

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본 연구에서는 용의자로 지목된 무고한 사람들이 알리바이(소재; 所在) 및 알리바이를 증명하는 증거를 제시할 때 발생하는 어려움에 대해 살펴보고자 하였다. 이를 위해 알리바이 및 알리바이 물적/인적증거가 제시되는 빈도를 파악하고, 요일(주중/주말) 및 시간에 따른 차이에 대해 조사하였다. 총 282명이 자기보고식 온라인 설문지를 통해 본 연구에 참여하였다. 참가자들은 요일(화요일/토요일) 및 시간(3:00/9:00/15:00/21:00)에 따른 8개의 조건에 무선할당된 후, 특정 시점에 발생한 무장강도 사건으로부터 자신의 무죄를 입증하기 위해 알리바이, 물적증거, 인적증거 등을 보고하였다. 요일 및 시간에 따라 증거를 보고한 참가자 수에서의 차이를 검증하기 위해 교차분석을 실시하였으며, 이분형 로지스틱 회귀분석을 통해 요일 및 시간에 따른 증거 제시 가능성의 차이를 알아보았다. 그 결과, 요일은 가족구성원 인적증거, 시간은 모든 유형의 물적/인적증거와 관련이 있는 것으로 나타났다. 즉, 주말에는 가장 낮은 신뢰도를 가지는 인적증거의 비율이 가장 높았으며, 범죄가 가장 빈번히 발생하는 시각인 새벽 3시에 신뢰로운 물적 및 인적증거가 제시될 가능성은 낮은 것으로 나타났다. 본 연구는 수사 과정에서 무죄를 입증하기 위한 완벽한 알리바이 및 증거의 제시는 어려울 수 있음을 보여준다. 마지막으로, 본 연구의 한계점 및 후속 연구를 논의하였다.

주요어 : 알리바이, 물적증거, 인적증거, 요일, 시간

Table 2. Frequency of alibis

Alibi	Tuesday				Saturday				Total N=282
	3:00 N=35	9:00 N=33	15:00 N=37	21:00 N=31	3:00 N=32	9:00 N=30	15:00 N=37	21:00 N=47	
At home	30 (0.86)	19 (0.58)	3 (0.08)	13 (0.42)	27 (0.84)	20 (0.67)	10 (0.27)	25 (0.53)	147
At work	1 (0.03)	1 (0.03)	1 (0.03)	2 (0.06)	0 (0.00)	1 (0.03)	6 (0.16)	0 (0.00)	12
At educational facilities	1 (0.03)	5 (0.15)	20 (0.54)	4 (0.13)	1 (0.03)	4 (0.13)	3 (0.08)	3 (0.06)	41
At accommodation	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	0 (0.00)	2 (0.04)	3
At a restaurant	0 (0.00)	1 (0.03)	2 (0.05)	7 (0.23)	1 (0.03)	2 (0.07)	6 (0.16)	5 (0.11)	24
At mart	1 (0.03)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	4 (0.09)	6
At hospital	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	1 (0.02)	2
Playing sports	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	1 (0.03)	1 (0.02)	4
Shopping	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1
At beauty shop	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	2 (0.04)	4
At entertainment	0 (0.00)	1 (0.03)	2 (0.05)	2 (0.06)	0 (0.00)	0 (0.00)	8 (0.22)	1 (0.02)	14
At government office	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1
At religious facilities	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.03)	1 (0.03)	1 (0.02)	3
On the public transportation	0 (0.00)	4 (0.12)	4 (0.11)	1 (0.03)	0 (0.00)	1 (0.03)	0 (0.00)	1 (0.02)	11
On holiday	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.03)	0 (0.00)	1
On the go	2 (0.06)	1 (0.03)	2 (0.05)	1 (0.03)	0 (0.00)	0 (0.00)	1 (0.03)	1 (0.02)	8

Table 3. Frequency of participants who reported physical and witness evidence

The type of evidence	Tuesday				Saturday				Total N=282
	3:00 N=35	9:00 N=33	15:00 N=37	21:00 N=31	3:00 N=32	9:00 N=30	15:00 N=37	21:00 N=47	
Combination of physical and witness evidence	21 (0.60)	19 (0.58)	32 (0.86)	26 (0.84)	18 (0.56)	15 (0.50)	30 (0.81)	41 (0.87)	202 (0.71)
Physical evidence only	5 (0.14)	7 (0.21)	4 (0.11)	4 (0.13)	6 (0.19)	6 (0.20)	3 (0.08)	4 (0.09)	39 (0.14)
Witness evidence only	8 (0.23)	6 (0.18)	0 (0.00)	1 (0.03)	8 (0.25)	6 (0.20)	3 (0.08)	2 (0.04)	34 (0.12)
No evidence	1 (0.03)	1 (0.03)	1 (0.03)	0 (0.00)	0 (0.00)	3 (0.10)	1 (0.03)	0 (0.00)	7 (0.02)

Table 4. Frequency of physical evidence reported

Physical evidence	Tuesday				Saturday				Total N=282
	3:00 N=35	9:00 N=33	15:00 N=37	21:00 N=31	3:00 N=32	9:00 N=30	15:00 N=37	21:00 N=47	
Video recordings	4 (0.11)	5 (0.15)	16 (0.43)	10 (0.32)	3 (0.09)	6 (0.20)	17 (0.46)	13 (0.28)	74 (0.26)
Photographs	0 (0.00)	1 (0.03)	2 (0.05)	6 (0.19)	0 (0.00)	1 (0.03)	7 (0.19)	8 (0.17)	25 (0.09)
Telephone records	3 (0.09)	1 (0.03)	2 (0.05)	8 (0.26)	1 (0.03)	3 (0.10)	10 (0.27)	12 (0.26)	40 (0.14)
Online recordings	7 (0.20)	5 (0.15)	11 (0.30)	6 (0.19)	6 (0.19)	6 (0.20)	5 (0.14)	10 (0.21)	56 (0.20)
Receipts	1 (0.03)	3 (0.09)	11 (0.30)	8 (0.26)	3 (0.09)	3 (0.10)	12 (0.32)	14 (0.30)	55 (0.20)
public transportation cards	0 (0.00)	10 (0.30)	11 (0.30)	10 (0.32)	0 (0.00)	3 (0.10)	8 (0.22)	11 (0.23)	53 (0.19)
Checking in records	3 (0.09)	3 (0.09)	15 (0.41)	4 (0.13)	2 (0.06)	7 (0.23)	8 (0.22)	7 (0.15)	49 (0.17)
Tickets	0 (0.00)	0 (0.00)	1 (0.03)	1 (0.03)	0 (0.00)	0 (0.00)	4 (0.11)	0 (0.00)	6 (0.02)
Timetables	0 (0.00)	8 (0.24)	10 (0.27)	1 (0.03)	0 (0.00)	1 (0.03)	3 (0.08)	0 (0.00)	23 (0.08)
Knowledge	2 (0.06)	5 (0.15)	6 (0.16)	3 (0.10)	1 (0.03)	2 (0.07)	3 (0.08)	8 (0.17)	30 (0.11)
Unclear evidence	14 (0.40)	7 (0.21)	3 (0.08)	6 (0.19)	18 (0.56)	9 (0.30)	4 (0.11)	13 (0.28)	74 (0.26)
Total items physical evidence	34 (0.97)	48 (1.45)	88 (2.38)	63 (2.03)	34 (1.06)	41 (1.37)	81 (2.19)	96 (2.04)	485 (1.72)

Table 5. Frequency of witness evidence reported

Evidence	Tuesday					Saturday					Total N = 282
	3:00 N = 35	9:00 N = 33	15:00 N = 37	21:00 N = 31	3:00 N = 32	9:00 N = 30	15:00 N = 37	21:00 N = 47	Total N = 282		
Non-motivated other	0 (0.00)	3 (0.09)	11 (0.30)	2 (0.06)	3 (0.10)	1 (0.03)	2 (0.05)	4 (0.09)	26 (0.09)		
acquaintance	0 (0.00)	3 (0.09)	11 (0.30)	2 (0.06)	3 (0.10)	1 (0.03)	2 (0.05)	4 (0.09)	26 (0.09)		
Non-motivated stranger	2 (0.06)	5 (0.15)	16 (0.43)	4 (0.13)	2 (0.06)	4 (0.13)	6 (0.16)	10 (0.21)	49 (0.17)		
stranger	2 (0.06)	5 (0.15)	16 (0.43)	4 (0.13)	2 (0.06)	4 (0.13)	6 (0.16)	10 (0.21)	49 (0.17)		
colleague	1 (0.03)	1 (0.03)	2 (0.05)	2 (0.06)	0 (0.00)	1 (0.03)	9 (0.24)	2 (0.04)	18 (0.06)		
friend	8 (0.23)	6 (0.18)	12 (0.32)	15 (0.48)	6 (0.19)	3 (0.10)	16 (0.43)	11 (0.23)	77 (0.27)		
Motivated other	1 (0.03)	0 (0.00)	0 (0.00)	0 (0.00)	2 (0.06)	1 (0.03)	1 (0.03)	6 (0.13)	11 (0.04)		
partner	1 (0.03)	0 (0.00)	0 (0.00)	0 (0.00)	2 (0.06)	1 (0.03)	1 (0.03)	6 (0.13)	11 (0.04)		
family	19 (0.54)	15 (0.45)	3 (0.08)	10 (0.32)	16 (0.50)	14 (0.47)	8 (0.22)	22 (0.47)	107 (0.38)		
Total items witness evidence	31 (0.89)	30 (0.91)	44 (1.19)	33 (1.06)	29 (0.91)	24 (0.80)	42 (1.14)	55 (1.17)	288 (1.02)		

Table 6. Frequency of participants who reported evidence by type of evidence

Type of evidence	Tuesday					Saturday					Total N=282
	3:00 N=35	9:00 N=33	15:00 N=37	21:00 N=31	3:00 N=32	9:00 N=30	15:00 N=37	21:00 N=47			
Physical evidence	difficult-to-fabricate	4 (0.11)	8 (0.24)	22 (0.59)	17 (0.55)	5 (0.16)	7 (0.23)	24 (0.65)	20 (0.43)	107 (0.38)	
	easy-to-fabricate	24 (0.69)	23 (0.70)	33 (0.89)	24 (0.77)	21 (0.66)	18 (0.60)	29 (0.78)	38 (0.81)	210 (0.74)	
	Total	28 (0.80)	31 (0.94)	55 (1.49)	41 (1.32)	26 (0.81)	25 (0.83)	53 (1.43)	58 (1.23)	317 ¹ (1.12)	
Witness evidence	Non-motivated other	0 (0.00)	3 (0.09)	11 (0.30)	2 (0.06)	3 (0.09)	1 (0.03)	2 (0.05)	4 (0.09)	26 (0.09)	
	Non-motivated stranger	2 (0.06)	5 (0.15)	16 (0.43)	4 (0.13)	2 (0.06)	4 (0.13)	6 (0.16)	10 (0.21)	49 (0.17)	
	Motivated other	27 (0.77)	22 (0.67)	17 (0.46)	26 (0.84)	23 (0.72)	19 (0.65)	31 (0.84)	36 (0.77)	201 (0.71)	
	Total	29 (0.83)	30 (0.91)	44 (1.19)	32 (1.03)	28 (0.88)	24 (0.80)	39 (1.05)	50 (1.06)	276 ² (0.98)	

¹ Seventy-six participants who reported two levels of physical evidence were added to 241 participants (Table 3) (eg: participants who reported 'difficult-to-fabricate' and 'easy-to-fabricate')

² Thirty-five participants who reported more than two levels of witness evidence were added to 236 participants (Table 3) (eg: participants who reported non-motivated other and 'motivated other')