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THE EFFECTS OF APPOINTMENT DELAY AND REMINDERS ON APPOINTMENT-KEEPING BEHAVIOR

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ABSTRACT: Two experiments investigated the effects of appointment delay and phone reminders on college students' appointment-keeping behavior. A significantly higher percentage of students kept their appointments in the 1-day appointment delay condition than in the 15-day delay condition with no reminders in both experiments. Phone reminders provided 1 day prior to the appointment dates increased the percentage of appointments kept in the 15-day delay condition in Experiment 2. In order to assess the shape of the effect of appointment delay, future research should increase the number of values in appointment delay.

KEYWORDS: appointments, appointment delay, telephone reminders

Appointment-making is frequently occurring behavior in one's everyday life. Individuals make appointments to see a doctor, have a job interview or business meeting, participate in a research study, etc. For meetings and programs that require individuals to make appointments, maximizing the number of appointments kept by those individuals is important because: a broken appointment creates idle time, during which the individual who originally made the appointment and/or others could have benefited in some way; the financial cost of broken appointments is not negligible because not only did the appointments generate labor costs, but they also might have brought some revenues; and when the appointment made was for a research program in which the effect of a treatment method would be assessed, the findings may not be valid because of some unknown variables that differentiate between those who kept their appointments and those who did not.

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Broken appointments not only result in significant wasted resources (Greenspoon, 1997), they may also cause life-threatening consequences, as in the case of missed medical screenings for preventable yet fatal illnesses. Many researchers have acknowledged such socially important aspects of appointment-keeping behavior, and extensively studied this issue. Although some research has reported on correlations between appointment-keeping and subject variables such as age and gender (Gottesfeld & Martinez, 1972; Slaikeu, Lester, & Tulkin, 1973), others reported no such significant relationships (Stern & Brown, 1994). Further, these variables lack practical significance since they cannot be manipulated.

Environmental and contextual variables manipulated by researchers and service providers can influence appointment-keeping behavior (Greenspoon, 1997; Tucker & Davison, 2000). For example, Ross, Friman, and Christophersen (1993) reported that 63% of the patients at a pediatric clinic kept their appointments when the appointment delay was less than 4 wks, while 47% kept appointments when appointment delay was more than 4 wks. Others have reported similar effects of appointment delay on appointment-keeping for gynecological exams (Benjamin-Bauman, Reiss, & Bailey, 1984), mental health services (Folkins, Hersch, & Dahlen, 1980), substance abuse services (Festinger, Lamb, Kirby, & Marlowe, 1996; Stark, Campbell, & Brinkerhoff, 1990), and other settings (Tucker & Davison, 2000).

Reminders also influence appointment-keeping behavior. Turner and Vernon (1976) demonstrated with a reversal design that telephone appointment reminders significantly increased attendance in a mental health center from 78% and 75% in baseline phases with no reminders to 89% and 86% in intervention phases with phone reminders. In addition, intervention packages including mailed and telephone reminders, as well as parking passes, showed the effect of telephone reminders to increase appointment-keeping in a pediatric clinic (Friman, Finney, Rapoff, & Christophersen, 1985; Ross, Friman, & Christophersen, 1993).

The previous studies demonstrated that appointment-keeping behavior is a function of both appointment delay and reminders in various contexts. The present study reported two experiments that systematically investigated the combined effect of appointment delay and telephone reminders on appointment-keeping behavior. Two experiments replicated earlier research and evaluated the effects of two values of appointment delay: 1 day and 15 days. The present study also examined the effect of phone reminders on delayed appointments. Since immediate appointments may not be so realistic or prevalent in real-world settings, assessing whether phone reminders could compensate for poor

appointment-keeping of delayed appointments would provide valuable information.

METHOD

Participants and Setting

In both experiments, participants were introductory psychology students who were required to fulfill a course requirement by either participating in research studies as subjects or writing reports. The students obtained partial credit for the requirement.

In Experiment 1, the experimenter requested introductory psychology instructors to give contact information of the experimenter in class, and to announce that students who were interested in participating in the study would be expected to call to make appointments. Forty-three students called the experimenter, of whom 38 made appointments. Five students told the experimenter that they would not be available on the suggested appointment dates. Seventeen of the 38 students were randomly assigned into the 1-day delay condition, and 21 students into the 15-day condition. Four of the latter cancelled their appointments by phone prior to the appointment times, resulting in 17 students participating in the 15-day condition. The students in the 15-day delay condition were further divided into the reminder (8 students) or no reminder condition (9 students).

In Experiment 2, the experimenter modified the recruitment procedure in order to increase the number of participants. Introductory psychology instructors were requested to distribute sign-up sheets in class, on which students who were interested in participating in the study wrote their names and phone numbers. One hundred twenty-one students wrote their names and phone numbers on the sign-up sheets and the experimenter called all of them to make appointments. Sixty-eight students made appointments. Six students were not available on the suggested dates, 10 students decided to participate in another study, and 37 students did not return the experimenter's initial phone call. Twenty-nine students were randomly assigned into the 1-day delay condition, and 39 into the 15-day delay condition. Three of the latter, however, cancelled their appointments by phone prior to the appointment times, resulting in 36 students participating in the 15-day delay condition. Sixteen students in the 15-day delay condition were further assigned to the reminder condition and 20 to the no reminder condition.

Procedure

Independent variables. Appointment delay was the number of days between appointment-making and the appointment date. For example, when the appointment was made for the next day, there was an appointment delay of 1 day. Participants were randomly divided into two groups: 1- and 15-day delays. Participants in the 15-day delay condition were randomly divided into the reminder and no reminder groups. The experimenter called each participant in the reminder condition 1 day prior to the appointment date. The students in the no reminder condition did not receive phone reminders.

Appointment-making. Either the student (Experiment 1) or the experimenter (Experiment 2) made the initial phone call to make an appointment. In Experiment 2, the experimenter left a message in the student's voice mailbox, or with a family member or roommate, when the student did not answer the phone. If the student did not return the initial call, the experimenter did not attempt further contact with the student.

In the phone conversation to make an appointment, the experimenter told the student: the experimental session will take approximately 30 minutes; there would be open time slots for an appointment either tomorrow (1-day delay) or in 15 days, depending on the condition into which the student was assigned; the student could make an appointment anytime during a given 3- to 4-hr period (e.g., between 11 a.m. and 3 p.m.); and as a result of participation, the student would be awarded a 1-hr credit toward the introductory psychology research requirement. If the student said s/he would be unavailable on the appointment date, the experimenter made an appointment for another day and excluded the student's data from analysis. After the student agreed to participate, the experimenter repeated the date and time for the appointment, the building and room number to which the student would come, and the experimenter's name and phone number.

Phone reminder. The experimenter called each student in the reminder condition 1 day (17 – 27 hrs) prior to the appointment date. The experimenter told the students that she called to make sure they “still have an appointment tomorrow,” stated the date, time, and location of the appointment, and said, “I’ll see you tomorrow.” When the student did not answer the phone, the experimenter left the above message in the student's voice mailbox, or with a family member or roommate.

Experimental session. Students had to show up within 20 minutes of their appointment times for their appointments to be considered kept. The percentage of appointments kept was calculated for each condition.

At the appointment, the experimenter debriefed the student concerning the actual purpose of the research. None of the students at this point withdrew from

either experiment. The experimental session lasted approximately 15-20 minutes for each student.

RESULTS AND DISCUSSION

Figure 1 shows the percentages of appointments kept plotted as a function of appointment delay and reminders in Experiments 1 and 2. In Experiment 1, when the students were offered appointments for the next day, 16 out of 17 (94%) of the appointments were kept. When the appointments were delayed by 15 days, 5 out of 9 students (56%) kept appointments without reminders while 6 out of 8 (75%) kept appointments with reminders. Significantly more students kept their appointments in 1-day delay than in 15-day delay with no reminders (one-tailed Fisher's exact test, $p = .034$). Although there was a trend between 15-day delay with reminders and with no reminders, the difference was not significant ($p = .373$).

In Experiment 2, 26 out of 29 appointments (90%) were kept when the appointments were made for the next day. With a delay of 15 days, 7 out of 20 students (35%) kept appointments without reminders and 14 out of 16 (88%) kept appointments with reminders. The difference between the appointment-keeping in 1-day delay and 15-day delay with no reminders was significant (one-tailed Fisher's exact test, $p < .001$) as was the difference between 15-day delay with reminders and with no reminders ($p = .002$).

Both experiments showed that appointment-keeping decreased as appointment delay increased, even though the initial calls were made by students in Experiment 1 and by the experimenter in Experiment 2. These results were similar to those of previous studies conducted primarily in health-related settings (Folkins et al., 1980). Since there were no previous studies conducted in a more controlled setting such as the present one, the consistent outcome is an important addition to the literature.

Further, phone reminders in the 15-day delay condition increased appointment-keeping to the same level as the 1-day delay condition in Experiment 2. There was no significant effect of phone reminders in Experiment 1, and this may be attributed to a small number of participants in reminder and no reminder conditions (8 and 9 participants, respectively), rather than to the different appointment-making procedures in Experiments 1 and 2. In addition, although Experiment 2 yielded more participants than Experiment 1, a large number of students (37 out of 121 students who originally signed up) did not return the experimenter's initial phone call. In the future, it should be assessed whether these students' not serving as participants would affect the outcome of the study.

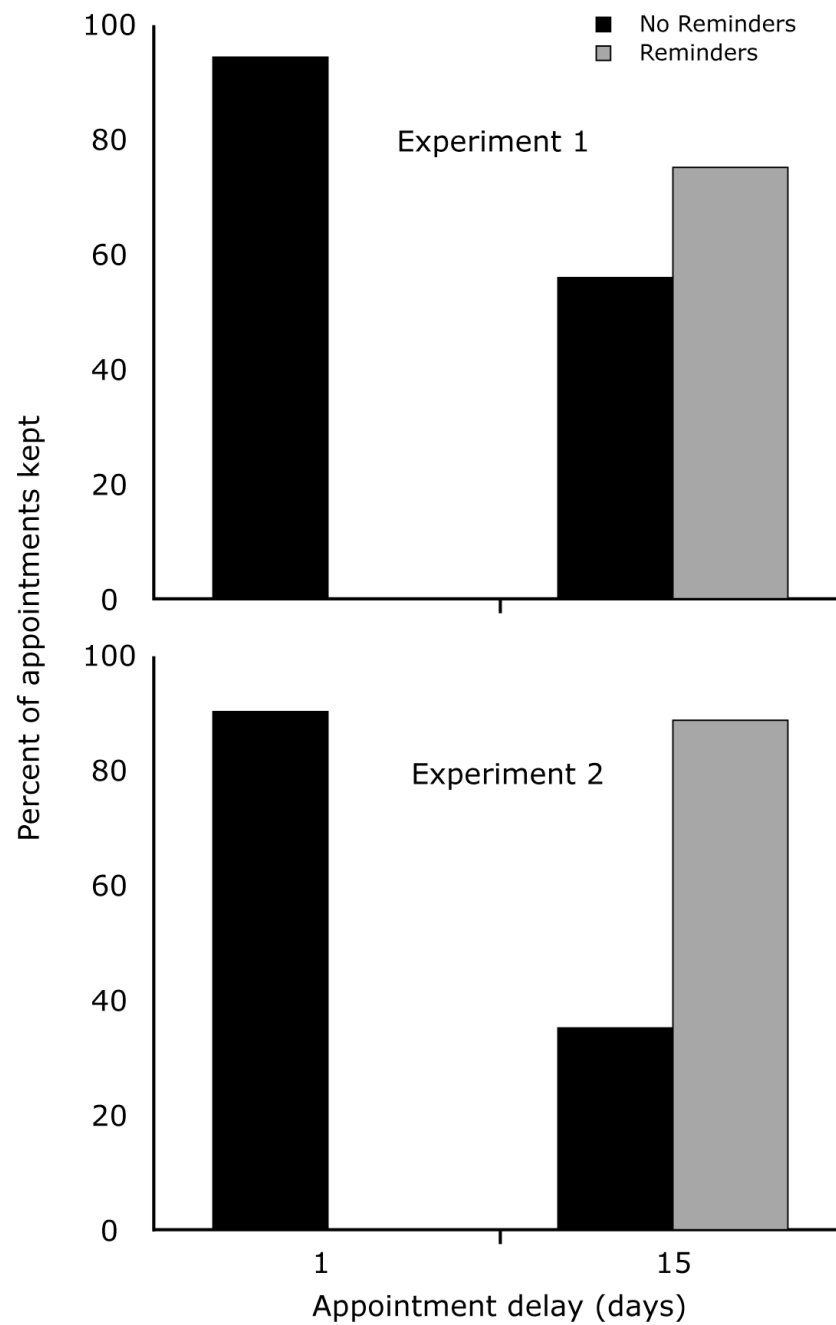


Figure 1. Reminders and appointment delays.

APPOINTMENT DELAY AND REMINDERS

In real-life settings such as doctor's appointments and job interviews, it is often not feasible to have an appointment on the next day (i.e., 1-day appointment delay). Therefore, the effect of phone reminders has a great practical value. That is, by making reminder phone calls, service providers and other organizations can save money by avoiding wasted time and labor costs. For example, Turner and Vernon (1976) concluded that the cost for phone reminder procedure was recovered when several appointments were kept at a community mental-health center. Further, phone reminders may even save lives by resulting in early diagnoses and treatments of fatal illnesses such as substance abuse, cancer, and heart disease.

Future research may address at least two questions. First, since the present study had only two values for appointment delay, the shape of the function of appointment delay has not been established yet. That is, it is still unknown at which point of appointment delay the descending trend in appointment-keeping starts and ends. This question will be examined with an increased number of values for appointment delay. The findings of such research may help service providers determine to whom phone reminders should be given in real-life settings. Second, the effect of time intervals between reminders and appointment dates may also be studied in the future. Both in research and real-life settings, phone reminders are typically given 1 day prior to the appointment. To assess the effect of reminders given two or more days prior may give some flexibility to those who are required to provide reminders to increase appointment-keeping.

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