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Can Social Nudge Reduce Civil Servants' Tardiness Behavior?

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Abstract: Several studies in the private sector have shown that social nudge has proven successful in changing behavior in various settings. For instance, social nudge is effective in involving more people in energy conservation and plastic waste recycling behavior. Social nudge has shown great promise as behavior change intervention in both the public and private sectors worldwide because they produce highly effective results at low cost while enabling the target group whose behavior is expected to change to maintain their autonomy. This study aims to examine whether social nudges can successfully overcome civil servant disciplinary problems in Indonesia, especially issues related to the tardiness behavior of civil servants. The study employed an experiment method with the one-group pre-post-test design and the two-step intervention, which was applied to 15 participants who were civil servants at Rumah Sakit Khusus Daerah Dadi (A Regional Specialty Hospital of South Sulawesi, Indonesia). The results showed that the average number of respondents' tardiness time before the intervention (pretest) is higher than the results of the first intervention ($t = 3.367$, $p < 0.05$) and the second intervention ($t = 11.003$, $p < 0.05$). These findings indicate that social nudge is proven effective in reducing tardiness and complements the predetermined strategies to overcome the problem of tardiness in civil servants. This study is potentially the first to examine social nudges' effectiveness in government settings. The study was conducted in three weeks between 21 September 2020 and 9 October 2020.

Keywords: social nudge; social norm; tardiness behavior.

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1. Introduction

Recent evidence generated in behavioral sciences indicates that behavioral science can help address various social, environmental and political problems (Thaler & Sunstein, 2008). The insights produced by behavioral science studies are even used in designing, implementing, and evaluating public policy. The evidence obtained from past behavioral science studies has greatly helped policymakers understand human behavior, which is the ultimate target of public policies (Schrader & Thøgersen, 2011). In addition, the findings of recent behavioral science studies also play a role in providing understanding to policymakers about what factors influence behavior change so that it can lead them to formulate public policies which are not only efficient but also effective in sustainably changing behavior (Schrader & Thøgersen, 2011).

In response to the development of behavioral science and its increasingly widespread benefits in public policy, governments in various countries on a global scale have begun to show interest in applying the insights of behavioral science studies as a complementary element or even a substitutional strategy toward the conventional approaches that have been applied, such as providing incentives (punishment and reward) or mandatory policies which are coercively direct people to perform a certain behavior (Heiskanen et al., 2009; Wolff & Schönherr, 2011).

The discipline of behavioral science has produced a collection of methodologies known as 'nudges', which use small modifications in the decision-making environment, or choice architecture, to influence people towards a given decision or behavior (Raban et al., 2023). Nudge is an intervention technique originally coined by Richard Thaler, leading him to win the Nobel Prize in Economics in 2017. Thaler, along with his co-author Cass R. Sunstein, defines nudge as a behavior change technique that applies libertarian paternalism, which means that the intervention is carried out subtly, not coercively, and trying to maintain freedom of choice of the people to make their own decisions on their behavior (Thaler & Sunstein, 2008).

Nudge interventionists nudge people when they increase the likelihood that people will do the expected behavior by activating their automatic cognitive processes while maintaining their freedom of choice (Saghai, 2013). A study by Hansen (2016) enriches the definition by restating that a nudge is an endeavor to influence a person's decision-making and behavior by exploiting cognitive biases which cause a person to make irrational decisions. Therefore, it can be concluded that nudge is a strategy to influence behavior without prohibiting or restricting, without adding rational choices, without changing incentives (such as giving punishments or rewards), and without presenting information and persuasive arguments.

Nudge intervention has become extremely promising as a behavior change intervention in both the public and private sectors worldwide because it produces highly effective results at a minimal cost while still providing freedom for the target group whose behavior is expected to change. In some cases, the nudge intervention even has a more significant impact than other intervention techniques, which are mostly high-cost (Lin et al., 2017). Nudge intervention is not only low-cost, but also has a variety of impactful approaches.

Nudges have been increasingly popular in public health, health policy, and health promotion. These fields recognize the potential impact of nudges on individuals' health behavior and the utilization of healthcare systems, leading to significant benefits at the group level. The notion of "nudge" holds significant importance in the moral assessment of acts and policies, as it aims to identify impactful outcomes that

preserve individuals' freedom of choice while circumventing any undue influence on their deliberative capacities. The moral significance of the concept of nudge arises from the necessary conditions for an influence to effectively safeguard freedom of choice (Vallgårda, 2012).

There are at least 10 important and impactful types of nudge. These nudge types consist of default rules, simplification, reminders, eliciting implementation intentions, uses of social norms (social nudge), increase in ease and convenience, disclosure, warnings, pre-commitment strategies, informing people of the nature and consequences of their own past choices (Sunstein, 2019). One of the highly effective nudge approaches widely implemented in various settings recently is the social nudge (Agostinelli et al., 1995). A social nudge is a type of nudge that utilizes social norms. It is accomplished by delivering social information or eliciting social expectations, aiming to drive desired behavior (Bicchieri & Dimant, 2019). A social nudge in this study refers to a nudge which uses normative feedback (social information) as the intervention using social norms as the approach. The social norms approach suggests that a person evaluates his behavior by referring to his evaluation towards the behavior of the people around him or his group, which is often wrong (Prentice & Miller, 1993).

Festinger (1957) says an intervention that applies a social norms approach can be successful because this kind of intervention exposes a person to the actual information about the behavior of their group. Providing information to a person about their group's actual behavior can lead a person to finally decide to behave like their group because humans tend to do social conformity. One's behaviors are influenced by the direct observation of the behaviors of others (Nolan et al., 2008). In laboratory investigations and field experiments, interventions based on social norms efficiently altered individuals' decisions (Czajkowski et al., 2019). Social models must be sophisticated, easy to comprehend, and able to be adhered to as interventions to approach the instrument of behavior (Rahmawati, 2022). However, the effect of a social nudge intervention on behavior change is highly dependent on how the information is presented and how the information is presented (Moreira & Foxcroft, 2007).

Several studies have proven that social nudge has successfully influenced people to engage more in energy-saving behavior (Ayres et al., 2013; P. W. Schultz et al., 2018), and waste- recycling behavior (Goldstein et al., 2008). If the social nudge intervention can be successfully applied in energy-saving behavior and waste-recycling behavior settings, then this intervention might also work in a different setting. This study intends to explore this vacant behavioral insights gap. The results of this study can significantly impact the discourse related to the nudge and social norms field, as well as being an innovation in the practice of public administration and public policy. This research could broaden the scope of investigation of social nudges, which had generally focused mostly on pro-social and pro-environmental behavior, to bureaucratic behavior in the government settings.

This study intends to examine how significant the effect of social nudge when it is applied to overcome the problems of bureaucracy in Indonesia, especially issues related to civil servants' behavior. Several studies found that the Indonesian bureaucracy lags behind other ASEAN countries. It can be seen from the Human Development Index (HDI) that Indonesia itself is ranked sixth in ASEAN. In addition, Indonesia's Global Competitiveness Index (GCI) ranks fourth in ASEAN. Indonesia's flawed bureaucratic capacity is caused by the complexity of bureaucratic problems

in Indonesia, one of which is economic growth, which tends to stagnate (Purwanto et al., 2018).

Another problem contributing to the decline of bureaucracy performance in Indonesia is disciplinary action, which is quite latent. From 2010 to 2013, 741 civil servants out of 4.5 million were fired by the government for violating civil servant discipline, and most of the violations were tardiness and absenteeism. According to Dwi Wahyono, the Head of the BKD Control Division of DKI Jakarta, nearly thousands of Civil Servants (PNS) in DKI Jakarta demonstrated tardiness and absenteeism on the first day of work following the completion of the 2018 Christmas and 2019 New Year holidays. Although there is a lack of complete data regarding the tardiness behavior of civil servants on a national scale in Indonesia, the available data from DKI Jakarta can provide a relatively meaningful picture of the issue of tardiness among civil servants in the country (Puspa, 2019).

Moreover, data shows that from year to year, the performance of Indonesian civil servants has not increased, and on the contrary, many are asked to retire early, resign, and even be fired by the government due to disciplinary cases and poor performance (Tentama, 2015). The purpose of the government to strengthen the competency of civil servants is reflected in the modification of several government regulations (Mislawaty et al., 2022). However, the bureaucratic reform of the Indonesian government is a continuing and sustained attempt to build a good and clean administration (Fauzan et al., 2022).

This study examines whether social nudges can be used to overcome civil servants' disciplinary problems in the bureaucracy in Indonesia, particularly civil servant's tardiness behavior. The success story of previous social nudges in various settings is the principal reason for its application in this study. The social nudge applied in this study is inspired, adapted, and modified from Home Energy Report (HER), which the OPOWER company has successfully implemented in the context of energy conservation behavior (Allcott, 2011). This study intends to answer the main question: can the provision of social nudge that successfully improves energy conservation behavior also significantly reduce civil servants' tardiness behavior?

This approach can be an effective approach that complements the previously implemented approaches to dealing with the problem of civil servant's tardiness behavior. Two approaches are generally applied to overcome the problem of civil servant tardiness, among others. The first is coercion (e.g., the determination of binding working hours rules), and the second is the provision of rewards and punishments (e.g., cutting allowances or applying social sanctions). It appears that these two approaches are less effective at reducing government servant tardiness, given that the problem of civil servant tardiness persists to the present day, despite the fact that both measures are continuously employed (Apriyani & Vernanda, 2020; Arbie, 2015; Febriandy, 2019; Herdin & Suyitno, 2016; Putri, 2015; Ristiani, 2020; Rosdiana, 2015). The two approaches also have certain weaknesses, where coercion limits the freedom of individuals to choose their behavior because of their binding nature, while providing incentives (punishment and reward) is costly. Social nudge interventions can be an effective complementary approach to enhance the impact of the two approaches.

2. Methods

This study aims to reduce civil servants' tardiness behavior. The tardiness behavior in this study refers to the time participants exceeded when arriving at the office relative to the working hour starting time applied at RSKD Dadi (a Regional Specialty

Hospital of South Sulawesi). There are two different working hour starting times applied at RSKD Dadi when the research was conducted, which are 7:30 AM on Monday and Friday and 8:00 AM on Tuesday, Wednesday, and Thursday. The tardiness behavior was measured by accumulating the time participants exceeded relative to the given working hour starting time. The amount of tardiness time was counted starting from the first minute when the participants arrived at the office after the working hour starting time started.

The effect of social nudge intervention in this study was tested using an experimental method with a one-group, pre-post-test design. In this study, the researchers compare the tardiness time data of 15 participants before and after being given the social nudge intervention. The social nudge intervention was given two times, which is in the post-test and follow-up stages. In the baseline/pretest stage, the social nudge intervention was not given.

In the first week (O1/Pretest), the researchers collected the baseline data, the amount of each participant's tardiness time during the week before they were given the intervention. In the second week (O2/post-test), the researchers collected the post-test data, which is the amount of each participant's tardiness time during the week after the first intervention was given. Finally, in the third week (O3/follow-up), the researchers collected the follow-up data, which is the amount of each participant's tardiness time during the week after the second intervention was given.

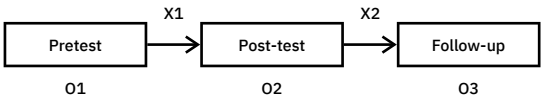

Figure 1. [Experiment Design (X1: 1st Intervention; X2: 2nd Intervention)]

The hypothesis in this study explores the effect of social nudge intervention on reducing civil servants' tardiness time at RSKAD Dadi. The hypothesis is accepted, and the intervention is considered effective if the post-test and follow-up data are lower than the baseline data (pretest). The RSKAD Dadi implements an absence system using a centralized fingerprint machine. All the civil servant attendance data, including the amount of tardiness time, are stored in an online central database, which is automatically recorded and can be downloaded. The data on participants' tardiness time is collected from the database with the help of a staff from the hospital's human resource department who can access the database.

Participants in this study are civil servants who work as administrative staff at RSKD Dadi (a Regional Specialty Hospital of South Sulawesi), except for doctors and nurses. This category was chosen due to the consideration that only administrative staff has the regular working time, which is possible to be observed and measured regularly. Doctors and Nurses are excluded because doctors normally have a flexible working time, and nurses must work in shifts. The number of participants who stated that they wanted to be involved in this study was 30 people. However, seven people took time off during this study, and eight never came late. Therefore, only 15 participants are eligible for the experiment.

The study was conducted in three weeks between September 21 2020, and October 9 2020. Data on the amount of tardiness time refers to the accumulated data on the number of tardy participants on weekdays (Monday to Friday). Data on the amount of tardiness time in the first week (Pretest stage, 21-25 September 2020) is the baseline data. The baseline data was then converted into normative data, displayed in the first social nudge intervention and given on Sunday (September

27, 2020) before the participants went to work in the second week (Post-test stage, September 28 – October 2, 2020).

The amount of participants' tardiness time during the second week (post-test stage) after being provisioned the first intervention was observed from September 28 to October 2, 2020, and collected as the post-test data. The post-test data was then converted again into normative data, displayed in the second social nudge intervention and given on Sunday (September 4, 2020, before the participants went to work in the third week on October 5-9, 2020. The amount of participants' tardiness time during the third week (follow-up stage) after being provisioned the second intervention was then observed from October 5 until October 9, 2020, and collected as the follow-up data.

The intervention was carried out twice based on the consideration that the provision of social nudge intervention will not have enough effect if only done once. The provision of nudges on Sundays was also carried out with the consideration of giving researchers enough time to recap and accumulate the amount of tardiness time of each of the 15 participants on the weekday (Monday-Friday) and to convert them into normative data and turn them into a graphic image which is ready to send. The intervention was conducted by sending social nudges in the form of graphic images through the personal WhatsApp messages of each participant, not via email as in previous social nudge studies (Allcott & Kessler, 2019; Delmas & Lessem, 2014; Myers & Souza, 2020). The use of the WhatsApp messenger application was chosen as an intervention medium with the consideration that participants generally preferred to open messages via WhatsApp messenger rather than email.

All participants involved in this study have signed a consent form agreeing to share their personal WhatsApp number and are willing to be sent a message twice a week to that WhatsApp number and open and read it. The social nudge intervention applied in this study is a graphic image containing three normative information as seen in Figure 2, including (1) the amount of accumulated tardiness time from the most disciplined participant among the 15 participants a week before the social nudge is given. (2) the average tardiness time for all participants in a week before the social nudge is given. (3) the amount of accumulated participant's tardiness time before the social nudge is given.

Figure 2. Examples of Social Nudge Given to Each Participant

Table 1. Descriptive Data of the Amount of Participant's Tardiness Time (in Minute)

Participants	Week 1 (Pretest)	Week 2 (Post-test)	Week 3 (Follow-up)
1	18	0	0
2	26	0	0
3	4	0	0
4	12	0	0
5	31	0	0
6	31	0	9
7	27	48	0
8	28	0	0
9	17	0	0
10	9	37	0
11	25	0	0
12	19	0	0
13	23	2	0
14	30	0	0
15	17	3	0
Total	**317**	**90**	**9**
The Average of Total Participants' Tardiness Time	**21.3**	**6**	**0.6**

Notes:
Fastest Arrival Week 1: 4 minutes late
Fastest Arrival Week 2: 0 minutes late
Fastest Arrival Week 3: 0 minutes late

Two examples of social nudge interventions implemented in this study can be seen in Figure 2. The social nudge interventions also include the footnotes as follows:

"kamu terlambat lebih banyak .....(jumlah menit) dibanding rata-rata seluruh pegawai dan terlambat lebih banyak ....(jumlah menit) dari rekan yang paling disiplin selama sepekan terakhir."

"You are (the amount of time)..... minutes late than the average of total participants but also (the amount of time)..... late than the fastest arrival in the last week."

If the participant is not late to work, then the footnote text that appears is:

"kamu sama sekali tidak terlambat dalam sepekan terakhir."

"You are not late at all in the last week."

It is shown to confirm the actual position of the individual's tardiness behavior relative to the group's norm of tardiness behavior.

Quantitative approaches were used to conduct the intervention test. The quantitative evaluation results are obtained from the comparison between the baseline data and the data on the amount of participants' tardiness time after the

social nudge intervention is pro-visioned. The hypothesis testing employs t-test analysis to examine whether or not the social nudge intervention affects lowering participants' tardiness time. Data analysis was performed using the Statistical Product and Service Solution (SPSS) software package in version 23 for Windows.

3. Results

Based on the data obtained from the absent finger machine, which was collected from all participants, it was found that the amount of tardiness time for one week before the intervention and two weeks after the intervention (pretest stage) was as follows: the average tardiness time of respondents in one week before the intervention is 21.4 minutes (SD = 7.781). Meanwhile, the average tardiness time of respondents in one week after being given the first intervention (posttest stage) is 6 minutes (SD = 14.99), and the average tardiness time of respondents in one week after being given the second intervention (follow-up stage) is 0.6 minutes (SD = 2.324).

Based on these results, it can be concluded that there is a significant decrease in the average value of participants' tardiness time after being given social nudge intervention, where the average amount of participants' tardiness time after being given the intervention is lower than the average amount before being given the intervention.

However, statistical testing is necessary to test whether there is a significant difference between the number of participants' tardiness time before and after the intervention. Testing the significance level of the differences between the two groups will be carried out using a t-test.

Table 2. Normative Feedback in the Social Nudge Given to Participants on Intervention 1

Participants	The Average of Participants' Tardiness Time on Week 1	The Average of Total Participants' Time on Week 1 (The Norm)	The Difference Between Participants' Tardiness Time and the Norm	The Difference Between Participants' Tardiness Time and the Fastest Arrival Time on Week 1	Intervention (Normative Feedback)
1	18	21	-3	14	You are 3 minutes less late than the average of total participants but also 14 minutes late than the fastest arrival in the last week
2	26	21	5	22	You are 5 minutes late than the average of total participants and 22 minutes late than the fastest arrival in the last week
3	4	21	-13	0	You are 13 minutes less late than the average of total participants, but you are the fastest arrival in the last week
4	12	21	-9	8	You are 9 minutes less late than the average of total participants but also 8 minutes late than the fastest arrival in the last week
5	31	21	10	27	You are 10 minutes late than the average of total participants and 27 minutes late than the fastest arrival in the last week
6	31	21	10	27	You are 10 minutes late than the average of total participants and 27 minutes late than the fastest arrival in the last week
7	27	21	6	23	You are 6 minutes late than the average of total participants and 23 minutes late than the fastest arrival in the last week.

Participants	The Average of Participants' Tardiness Time on Week 1	The Average of Total Participants' Time on Week 1 (The Norm)	The Difference Between Participants' Tardiness Time and the Norm	The Difference Between Participants' Tardiness Time and the Fastest Arrival Time on Week 1	Intervention (Normative Feedback)
8	28	21	7	24	You are 7 minutes late than the average of total participants and 24 minutes late than the fastest arrival in the last week
9	17	21	-4	13	You are 4 minutes less late than the average of total participants but also 13 minutes late than the fastest arrival in the last week
10	9	21	-12	5	You are 12 minutes less late than the average of total participants but also 5 minutes late than the fastest arrival in the last week
11	25	21	-2	15	You are 2 minutes less late than the average of total participants but also 15 minutes late than the fastest arrival in the last week
12	19	21	2	19	You are 2 minutes late than the average of total participants and also 19 minutes late than the fastest arrival in the last week
13	23	21	9	26	You are 9 minutes late than the average of total participants and also 26 minutes late than the fastest arrival in the last week
14	30	21	-4	13	You are 4 minutes less late than the average of total participants but also 13 minutes late than the fastest arrival in the last week
15	17	21	-3	14	You are 3 minutes less late than the average of total participants but also 14 minutes late than the fastest arrival in the last week

Note: The average of Total Participants' tardiness time on week 1 is rounded up

Table 3. Normative Feedback in the Social Nudge Given to Participants on Intervention 2

Participants	The Average of Participants' Tardiness Time on Week 2	The Average of Total Participants' Time on Week 2 (The Norm)	The Difference Between Participants' Tardiness Time and the Norm	The Difference Between Participants' Tardiness Time and the Fastest Arrival Time on Week 2	Intervention (Normative Feedback)
1	0	6	-6	0	You are not late and arrive 6 minutes earlier than the average of all participants in the last week
2	0	6	-6	0	You are not late and arrive 6 minutes earlier than the average of all participants in the last week
3	0	6	-6	0	You are not late and arrive 6 minutes earlier than the average of all participants in the last week
4	0	6	-6	0	You are not late and arrive 6 minutes earlier than the average of all participants in the last week
5	0	6	-6	0	You are not late and arrive 6 minutes earlier than the average of all participants in the last week
6	0	6	-6	0	You are not late and arrive 6 minutes earlier than the average of all participants in the last week

Participants	The Average of Participants' Tardiness Time on Week 2	The Average of Total Participants' Time on Week 2 (The Norm)	The Difference Between Participants' Tardiness Time and the Norm	The Difference Between Participants' Tardiness Time and the Fastest Arrival Time on Week 2	Intervention (Normative Feedback)
7	48	6	42	48	You are 42 minutes late than the average of total participants and also 49 minutes late than the fastest arrival in the last week.
8	0	6	-6	0	You are not late and arrive 6 minutes earlier than the average of all participants in the last week
9	0	6	-6	0	You are not late and arrive 6 minutes earlier than the average of all participants in the last week
10	37	6	31	37	You are 32 minutes late than the average of total participants and also 37 minutes late than the fastest arrival in the last week.
11	0	6	-6	0	You are not late and arrive 6 minutes earlier than the average of all participants in the last week
12	0	6	-6	0	You are not late and arrive 6 minutes earlier than the average of all participants in the last week
13	2	6	-4	2	You are 4 minutes late than the average of total participants and also 2 minutes late than the fastest arrival in the last week.
14	0	6	-6	0	You are not late and arrive 6 minutes earlier than the average of all participants in the last week

Note: The average of Total Participants' tardiness time on week 2 is not rounded up

Table 4. Testing the Paired Sample t-test

	Mean	Standard Deviation	Standard Error Mean	T	Df	Sig (2-tailed)
Pretest – Posttest	15.4	17.715	4.574	3.367	14	0.005
Pretest – Follow-up	20.8	7.321	1.890	11.00	14	0.000
Posttest 1 – Follow-up	5.4	15.422	3.982	1.356	14	0.197

Note: p<0.05

The t-test was conducted three times: Testing the difference in the average value of the tardiness time between pretest and posttest, pretest and follow-up, and posttest and follow-up. The results of the t-test calculation show that there is a difference between the average of participants' tardiness time one week before being given the intervention (pretest) and one week after being given the first intervention (posttest) with a value of t = 3.367 and p = 0.005 (p <0.05).

Furthermore, the calculation of the second t-test also shows that there is a difference between the average participants' tardiness time one week before being given the intervention (pretest) and one week after being given the second intervention (follow-up) with t = 11.003 and p = 0.005 (p<0.000).Then, the last t-test test showed that there was no difference between the average tardiness time of participants one week after being given the first intervention (posttest) and one week after being given the second intervention (follow-up) with t = 1.356 and p = 0.197 (p<0.05).

Based on these results, it can be concluded that there is a significant difference between the amount of participants' tardiness time before and after being given the social nudge intervention. In other words, the provision of social nudge intervention has a significant effect on reducing the amount of participants' tardiness time.

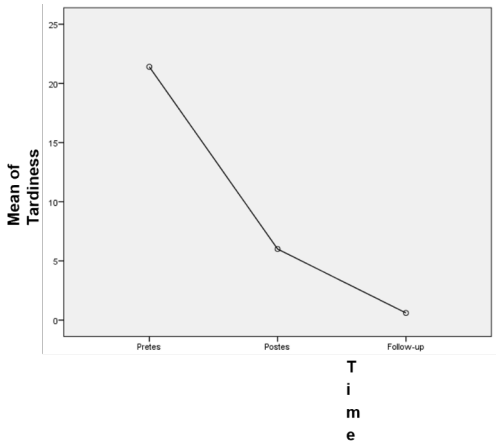

Figure 3. Means Plot of the Amount of Tardiness Time in Pretest, Posttest, and Follow-Up

In Figure 3, there is a significant downtrend every week, starting from the first week to the last week after the intervention is given. Based on the graphic shown in Figure 3 justified the conclusion that the social nudge provisioned to participants succeeded in reducing the amount of participants' tardiness time.

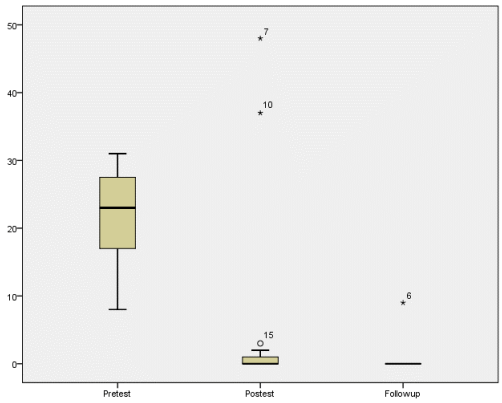

Figure 4. Means Plot of the Amount of Tardiness Time in Pretest, Posttest, and Follow-Up in Boxplot Graphic

4. Discussion

This study uses a one-group experimental design and a pre-post-test design to test the effectiveness of giving nudges with a social norm approach to reduce civil servants' tardiness time at RSKD Dadi. The intervention that is applied to reduce the amount of tardiness time in this study is a social nudge intervention technique, which is based on the social norms theory approach.

The social norm approach applied in the social nudge intervention technique is chosen because this approach is assumed to be effective in overcoming the problem of civil servants' tardiness behavior. Milgram et al. (1969) in their research suggests that watching the behavior of other people around can increase a person's desire to do the same.

Another research has also found that social norms have begun to develop as an effective alternative to existing and well-established approaches to influence

people's behavior, such as outreach posters, information campaigns, prohibition posters or fear-arousal posters (Goldstein et al., 2008; W. P. Schultz et al., 2008).

Based on the experimental results, it was found that there was a significant difference between the amount of participants' tardiness time before and after the provision of social nudge intervention. Therefore, it can be concluded that the social nudge intervention is considered successful in reducing the amount of civil servants' tardiness time at RSKD Dadi.

Borsari and Carey (2003) found that most people misjudge or overestimate the behavior of the people around them, in other words, the behavior of their group norms. They found that college students who drank alcohol excessively thought the people around them drank as much as themselves when they weren't. This causes the students who consume excessive alcohol not to view their behavior as problematic. This happens because they view their behavior is justified by the behavior of the group norms, when in fact, this view turns out to be overestimating. As simple as changing the views of someone who tends to overestimate their group's norm behavior (overestimated normative beliefs) can effectively change that person's behavior (Borsari & Carey, 2003).

This explanation can also explain civil servant tardiness behavior at RSKD Dadi. Overestimated normative beliefs can also cause tardiness behavior of the hospital's civil servants. The tardiness behavior often performed by civil servants is also caused by overestimated normative beliefs. A civil servant's tardiness behavior at RSKAD Dadi is due to their subjective view that other co-workers have also come late. Therefore, the subjective view causes him to fail to realize that their tardiness behavior is problematic.

The comparison graph between the amount of individual's tardiness time, the amount of tardiness time of the most disciplined colleague, and the average amount of all participants' tardiness time over the past week provisioned in the social nudge intervention picture that has been sent to participants via WhatsApp messages allows the participants to reevaluate their subjective views about the tardiness behavior of their colleagues. In addition, the social nudge intervention includes footnotes which say, "You are late more than .... (Number of minutes) than the average for all participants' and also late more than.... (Number of minutes) than the most disciplined colleague of the past week". It is shown to confirm the real position of the participant's tardiness behavior relative to the group's actual norm of tardiness behavior. The two elements listed in the given social nudge intervention cause the individual concerned to not use any more of their subjective view as a justification for their tardiness behavior and ultimately change the tardiness behavior voluntarily. The example of graphs and the footnotes can be seen in Figure 2.

This study supports the findings of previous studies that the social nudge intervention has proven effective in changing behavior (Allcott & Kessler, 2019; Andor & Fels, 2018; Brandon et al., 2017; Delmas & Lessem, 2014; Ito et al., 2018; Myers & Souza, 2020; Putra et al., 2019). This research is also in line with other studies conducted by P. W. Schultz et al. (2018), which also proves that the nudge intervention technique with a social norm approach is proven effective to influence behavior in saving energy behavior, even though the context is different (P. W. Schultz et al., 2018). This study is also consistent with the findings of Aldrovandi et al. (2015), Brown, and Wood in healthy food consumption behavior contexts, which found that telling someone how their behavior is compared to their group's behavior, can increase their buying behavior for healthy food products by more than 30% compared to their group's norm.

However, it is essential to acknowledge certain limitations inherent in this study. One potential confounding factor that may influence this study's outcomes is that the social intervention messages applied in this study are sent through WhatsApp by the respondents' superior, who has volunteered to assist. The potential influence of subconscious pressure exerted by a superior may introduce confounding variables. It is imperative to exercise control over this particular variable in a subsequent future study. The lack of a control group in this study may also increase the potential for participant bias, given participants could be aware of the second intervention after receiving the first intervention.

In addition, the results do not reflect whether the nudge influence in this study will continue when the social nudge is no longer present. Therefore, it is also necessary for further research to investigate the impact of a social nudge on tardiness behavior in the longitudinal context. However, there is a substantial amount of studies which argue that the first action could influence the second and next actions, which is known as spillover effects (Guadagno et al., 2001; Mead et al., 2009; Sachdeva et al., 2009). Spillover effects shows that one behavior could cause the subsequent, identical behavior to occur after the first (Dolan & Galizzi, 2015). With the spillover effect, it can be argued that the result of this study might have the possibility to remain even when the social nudge is no longer present. It will be necessary to evaluate employees' overall experiences with the nudging interventions for study using a mixed method approach, either through a survey questionnaire or an in-depth interview. The long-term impact of whether or not the nudge is present is unknown. This necessitates far more extensive research for the future.

5. Conclusion

This study aims to examine the effectiveness of social nudge intervention in reducing civil servants' tardiness time. Although it must be admitted that the number of participants in this study is relatively small, there might be a limitation in terms of result generalization, but in terms of setting, this study managed to explore the setting that was never explored by the previous studies related to social nudges. This study proved that social nudge intervention effectively influenced people's decision-making in various behavioral contexts. This research can potentially be the first to examine the effectiveness of social nudges in the context of civil servant tardiness behavior in the organizational setting.

Therefore, this research can provide a message that the social nudge intervention can also be successful in other behavioral contexts, for example, the behavior of throwing garbage, smoking behavior, queuing behavior, or paying taxes behavior. Therefore, it can be a valuable contribution to scientific studies and the practice of administrative science, especially public policy.

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