Note: Importance of Digital Profile Pictures on Social Media Perceived by Different Groups

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ABSTRACT

Nowadays much of human interaction are taking place online and on social networking sites. These platforms often encourage people to use profile pictures as parts of their profiles. To understand digital identity construction across various user communities and to foster inclusive, diverse, and sustainable online interactions among them, it is imperative to understand the perception of different users groups about digital profile pictures (DPP). In order to explore this, we conducted a cross-border analysis on different social media platforms. Based on a quantitative study on more than 500 responses from a two-week survey of social media users from 29 different countries, we observed how people from various demographic groups perceive the importance of DPPs. Our results suggest that the perception is significantly different across some social factors and social media usage behavior.

CCS CONCEPTS

• **Human-centered computing** → **Empirical studies in collaborative and social computing**; • **Social and professional topics** → **User characteristics**.

KEYWORDS

Identity, Digital profile pictures, Perceived importance

1 INTRODUCTION AND BACKGROUND

People's identities take shape through various factors like their demography (e.g., gender, age) [8], membership in different collectives (e.g., nationality, religion) [2], socioeconomic classes (e.g., relationship status, educational background, profession) [3]. Their perception about themselves get reflected in their interaction with others. In the present world, a large share of our interpersonal communication takes place online, especially on social media. In these interaction on social media, people's digital profile picture (DPP) become one of the first things to create a first impression, and thus, an important part of their online identity. Since societal factors and online presence are intertwined and influence each other, it is important to understand how users' perception around online presence and DPP are shaped to promote inclusive and diverse online sphere.

The social media presence varies across a network of communities-close circle groups, professional groups and there are faces created to impress others [1, 4, 9]. In general social media data content can represent the spatial and temporal aspect of one's personal journey as has been studied by [15]. Religion plays an important role during the consideration of any representation, particularly communities with conservative values [14]. Zhao et al. [15] led a comparative study between the users of social networking sites from the USA and China. They used two different platforms to observe users' activities. The users were observed on the basis of their tendency of self-representation, and the outcome suggests that this relates to the national culture of the users. There have been an important studies on how gender impacts technology usage, representation, and exploration in the South Asian region that found the possibility of abuse, negative experiences along with lack of access to digital artifacts are responsible for digital divide among women [11, 12]. Again, social media trends differ in their capacity of social engagement, character, and how these structure and impact users' engagement [7].

We argue that one's personal pattern of using social media is influenced by and also impacts their perception of how important online presentation of their self is. Consequently, one's social media usage behavior is likely to be related to their perception about the importance of DPP. In this note, we are interested to understand the relationship between the perception of DPPs' importance with (a) different demographic, collective, and socioeconomic aspects of

one's identity (b) patterns of social media use. We conducted our study to answer the following research questions:

- **RQ1.** Is there any significant difference in people's perception about the importance of DPP across different identity aspects?
- **RQ2.** Is there any significant difference in people's perception about the importance of DPP based on their pattern of using social media?

2 DATA COLLECTION

2.1 Participants Recruitment

We conducted a two-week long online survey (using Google Forms) to collect responses from people around the world. Since we are interested in a particular online behavior of social media users[1], we shared the link to the survey from our social media profiles with our friends and followers, which resulted in the convenience sampling [5] of our data. We also requested our participants to share the survey's link with their friends and followers to reach out to more social media users through snowball sampling [5]. Our research team has a diverse composition with researchers from Bangladesh, India, Mexico, Saudi Arabia, and the USA. Moreover, each of us are connected with a substantial number of friends and followers on social media. These factors minimize the possible bias in the data introduced by the sampling techniques. The only two recruitment criteria for our survey were: (a) being more than 18 years old (b) using social media for more than six months.

2.2 Survey Design

We designed our survey to ask the participants about their demographic information as well as their social media and digital profile picture (DPP) use. In most cases, these questions were structured. For example, we asked the participants to identify the age range (at 10 years interval) that they fall under, instead of asking their actual age. Again, for some questions, besides of choosing from our pre-listed answers, participants had the scope to answer out of that list through a short text field. For example, in our question about the participants' religious beliefs, we provided some widely popular religious views as pre-defined options, such as Christianity, Islam, Hinduism, Buddhism, and Secularism. Moreover, this question also welcomed open responses from the participants about their religious beliefs. We argue that in such formatting, while a pre-defined list of potentially popular answers can help them to complete the response soon, the open response fields gave the participants more flexibility. Second, we included some questions to understand the users' general social media use patterns. We asked these questions in closed-options format. We asked how often they use social media (daily multiple times, daily once, weekly, fortnightly, monthly, yearly, mostly stopped using social media), how many friends they have on these platforms (0, <10, 10+, 100+, 1000+, 10000+), how frequently they change their DPP (never, daily, weekly, fortnightly, monthly, every few months, yearly, random, rarely), how many reactions they receive on their posts (0, <10, 10+, 25+, 50+, 100+), and how many times they react on others' posts (0, <10, 10+, 25+,

50+, 100+). We also asked the participants to report their perceived importance of DPPs in their social media profiles in a scale of 1 (not important at all) to 5 (super important). All of our survey questions were voluntary and participants could choose not to answer any of those questions. Therefore, some of our demographic data described below do not add up to hundred percent.

Our survey also included some open-ended questions to know about the participants' selection process, the response of their friends and followers about these pictures, and the possible temporal change of this phenomenon over time. However, in this study, we have not used the data from those open-ended questions.

2.3 Author Positionality

Prior works have found that in identity research, authors' own identity can bring certain affinity in perspectives during data collection and analysis [13]. Two authors of this paper are from Bangladesh, while the others are from India, Mexico, and Saudi Arabia. Two authors are men and three other authors are women. The authors of this paper belong to Christian, Hindu, and Muslim religious faiths. While the analysis presented in this paper is fairly quantitative, the survey design, data collection, and research questions of the paper were influenced by the authors' social circles and perspectives of identity.

2.4 Research Ethics and Incentives

The participation to the survey was voluntary without any monetary incentive. The first page of the survey explained the objective of the research prior to the participation and participants were allowed to leave the survey or skip any questions at any point if they were not comfortable to answer specific queries. We excluded the contact information of the volunteers collected during the survey and anonymized the data before analysis. All data were kept in a secured drive that only the researchers could access.

2.5 Data Pre-processing

Due to the mixed structures of possible answers of some of our survey questions (e.g., the question related to religious belief, as described above), we needed to pre-process our data before starting analysis. For each question, we excluded the non-response categories like 'prefer not to say' or blanks. We converted all responses to lower cases and removed additional white spaces as the next cleaning step. Then, we merged some responses for some questions. For example, to respond to the question "Which country do you come from?", some Mexican participants wrote 'Colima' and 'Morelos', both of which are regions in Mexico. As a pre-processing of these responses, we replaced the names of these regions with 'Mexico' to conform the responses to the question. Similarly, in responses to the question of religion, we replaced the sect-identifying responses like 'Catholicism' and 'Methodism' with the broader religious view 'Christianity'. Due to the differences in the education systems of different countries from where our participants are from, we mapped the responses to the question "Highest educational level completed ..." to three broader categories: 'did not attend college', 'received college education', and 'received postgraduate education'. For the questions on the participants' social media use patterns and their perceived importance of DPP being closed-option questions,

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[1]The data was collected long before the mass spread of COVID-19, and so, the survey responses might not reflect the participants' current social media behavior.
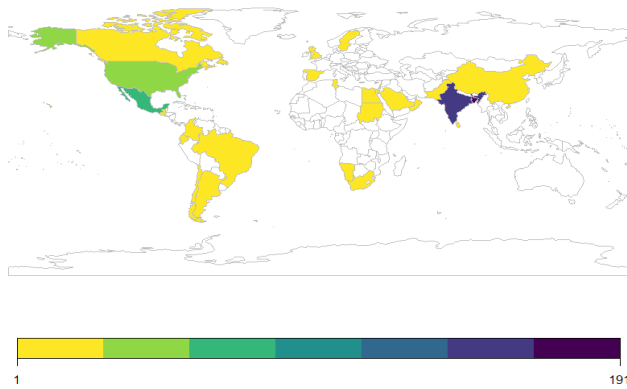
Figure 1: Survey responses from different countries.

did not require any data pre-processing. Though some participants chose not to answer a very little number of these questions, we did not assign any imputed values in place of those missing responses.

3 DATA ANALYSIS AND FINDINGS

We used descriptive and inferential statistics to have primary insights about our participants and answer two RQs given their responses.

3.1 Descriptive Data Analysis

To understand the participants' background with respect to different identity aspects such as their country, gender, age groups, religions, relationship statuses, levels of education, and employment statuses, we visualized the data distributions as donut-charts while reporting their percentages. Similarly, we also reported the distributions of the participants' responses to the questions about their patterns of using social media such as frequency of using social media, number of friends, frequency of receiving/giving reactions on posts, frequency of changing DPP, and their perception about the importance of DPP in forms of bar chart visualizations and percentages.

After pre-processing, we have total valid 507 responses from 29 countries. As we can see in Figure 1, most of our participants come from Bangladesh, India, Mexico, and the USA while the rest of our participants are scattered around the world.

We received responses from almost equal numbers of male (48.3%) and female (51.2%) participants. We also received one response from a transgender and a gender-queer participant. The gender distribution of our study participants is shown in Appendix Figure 2(a). Most of our participants are from 18-25 years or 25-35 years age groups while some older social media users participated in our survey, as shown in Appendix Figure 2(b). Our participants are followers of different religions, showed in Appendix Figure 2(c): Islam (39.2%), Hinduism (33.0%), Christianity (14.8%), Secularism (9.3%), and etc. Majority of our participants are single (72.1%), a good number of the rest are married (26.9%), while a few participants are divorced (2.1%), see Appendix Figure 2(d). We had a comparable number of participants from three groups based the participants' received education as we mentioned earlier, see Appendix Figure 2(e). While majority of our participants attended college (43.7%) or postgraduate education (32.0%), a substantial number of our participants

(24.3%) did not attend college. Our participants had various employment statuses, showed in Appendix Figure 2(f). While most of our participants have one job (39.7%) or are currently students (42.2%), a good number of participants also said that they work in multiple jobs (8.6%), while many participants are unemployed (7.1%).

We also asked questions to understand the participants' social media use patterns. An overwhelming 83.4% of our participants use social media multiple times daily with another 14.6% participants reported to use social media at least once daily, see Appendix Figure 3(a). Majority of our participants (55.8%) have over 100 friends on their social media accounts. The number of people who have more than a thousand friends (21.2%) and the number of people who have 10-100 friends (20.3%) are almost equal, shown in Appendix Figure 3(b). There were a few people who had less than ten friends or over ten thousand friends across all of their social media profiles. As evident from Appendix Figure 3(c) and Appendix Figure 3(d), the distributions of the numbers of reactions the participants give and receive each day are very similar. 35.3% and 35.8% participants respectively receive and give less than ten reactions on others' and their own social media posts. With regards to changing their DPP, there are two dominant patterns, see Appendix Figure 3(e). While 32.1% participants change their DPP monthly, 43.6% participants report to rarely change their DPP. A substantial 13.7% participants yearly change their DPP on social media. To report their perceived importance of DPP, the responses from the participants had an average score of 3.29 (median= 3) in a distribution like Appendix Figure 3(f).

3.2 Inferential Data Analysis

To answer our RQs, we have used inferential statistical hypothesis testing approach. As described earlier, while our data comes from participants from various backgrounds, some groups are less represented than the others. For example, in case of the participants' countries, some countries are highly represented in our data (e.g., India, Mexico, etc.), while we received only a handful amount or no responses from other countries (e.g., Canada, South Africa, etc.). For applying statistical hypothesis testing, small samples of data can create unintended issues and reduce the confidence in the findings. Hence, we only compared among those groups from which we have at least 10 responses. We apply this minimum threshold of ten values for all groups for all identity aspects and use patterns.

3.2.1 Perceived importance of DPP across various identity aspects. In RQ1, we want to understand whether the perceived importance of DPP varies across people from various identity dimensions. First, we checked whether the responses to the question about their perceived importance of DPP from different groups of participants based on their identity aspects follow normal distributions using Shapiro-Wilk test [10]. This test evaluates the distributions whether the data was drawn from a Gaussian/normal distribution.

We found that most of the categories (in some case all categories) under each identity aspect were following non-normal distributions (see Appendix Table 1 column 2). Therefore, we used nonparametric inferential statistics approach Kruskal-Wallis method [6] to test if the distributions under each identity aspect were significantly different. Our null hypotheses were: "There is no difference in perceived importance of DPP among users from different X",

where X ∈ {countries, genders, age groups, religions, relationship statuses, attended highest education levels, employment statuses} (see Appendix Table 1 column 3). Looking at the H-statistics and p-values (see Appendix Table 1 column 4), we found $p < 0.05$ only in case of X=employment statuses. Hence, we could reject the null hypothesis for this identity aspect.

In other words, our data suggests that the perception of the importance of DPP is significantly different among participants of different employment statuses. For other identity aspects (e.g., education, age groups), our data does not show any significant difference among different categories.

3.2.2 Perceived importance of DPP and patterns of using social media. In RQ2, we want to understand whether the perceived importance of DPP is shaped by participants' different patterns of using social media. Similar to earlier, first, we checked the normality on the distributions of the participants' perception of DPPs' importance, across different categories of use patterns using Shapiro-Wilk test [10].

We found that most of the groups (in some case all categories) of users based on their use patterns on social media were following non-normal distributions (see Appendix Table 2 column 2). Therefore, to test if the perceptions of DPPs' importance differ significantly across users of different social media use patterns, we used non-parametric inferential statistics approach Kruskal-Wallis method [6]. Given our RQ2, the null hypotheses that we tested were: "There is no difference in perceived importance of DPP among users with different Y" where Y ∈ {frequencies of using social media, number of friends on social media, frequencies of reacting on others' posts, frequencies of receiving reactions from others, frequencies of changing DPP} (see Appendix Table 2 column 3). Looking at the H-statistics and p-values (see Appendix Table 2 column 4), we found $p < 0.05$ in cases of Y ∈ {frequencies of reacting on others' posts, frequencies of receiving reactions from others, frequencies of changing DPP}.

That means, we could reject the null hypotheses for these three use patterns of social media. In other words, our data suggests that the participants' perception of how important DPP is to their online presence differs significantly among users of different frequencies of changing DPP, receiving and giving reactions.

4 DISCUSSIONS

As described in the methods section, we have collected open-ended responses from our participants which we considered out of scope for this note. In our future work, beyond understanding the existence of differences across users of different identity aspects and use patterns, we will use those open-ended responses to understand the reasons behind those differences.

In this note, we tested if our participants' perceptions of importance of DPP are different across different identity aspects and patterns of using social media. We have found that the perception is not different among demographic markers of identity like countries of origin, genders, age groups, and religions. We looked at different socioeconomic aspects like relationship statuses, levels of education, and employment statuses. While we could not find any difference in participants' perceptions for the first two aspects, we found that the perception of DPP being important for social

media presence varies significantly for people having different employment statuses. We speculate that one possible reason behind such difference might be the availability of one's time. Again, the difference in the purposes of using social media (e.g., retaining social connections on Facebook vs building professional connections on LinkedIn) can be a factor behind this difference. Though our study did not find strong evidence of difference in the perception of the importance of DPP for most identity aspects, the other part of our investigation to understand the relationship of this perception with social media use pattern provided better insights. We found that the perceptions about the importance of DPP differ among the participants who receive or give reactions to social media posts differently. The strongest inference from our study is that this perception varies significantly as participants' frequency of changing DPP differs. Relating this finding back to descriptive finding about our participants, the people who change their DPP frequently (e.g., monthly) have significantly different perception about the importance of DPP than the ones who change it rarely. The work that we have undertaken in this note, quantitatively shows the roles of users' identity and social media use behavior on their perception of importance around DPP which is an important part of users' self-presentation online. Thus, our work has implications for interaction design around multimedia-centered identity on digital platforms.

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APPENDIX

(a) Gender

(b) Age group

(c) Religion

(d) Relationship

(e) Education

(f) Employment Status

Figure 2: Responses from different social identity aspects.

(a) Frequency of using social media

(b) Number of friends

(c) Frequency of reacting on others' posts

(d) Frequency of receiving reactions on posts

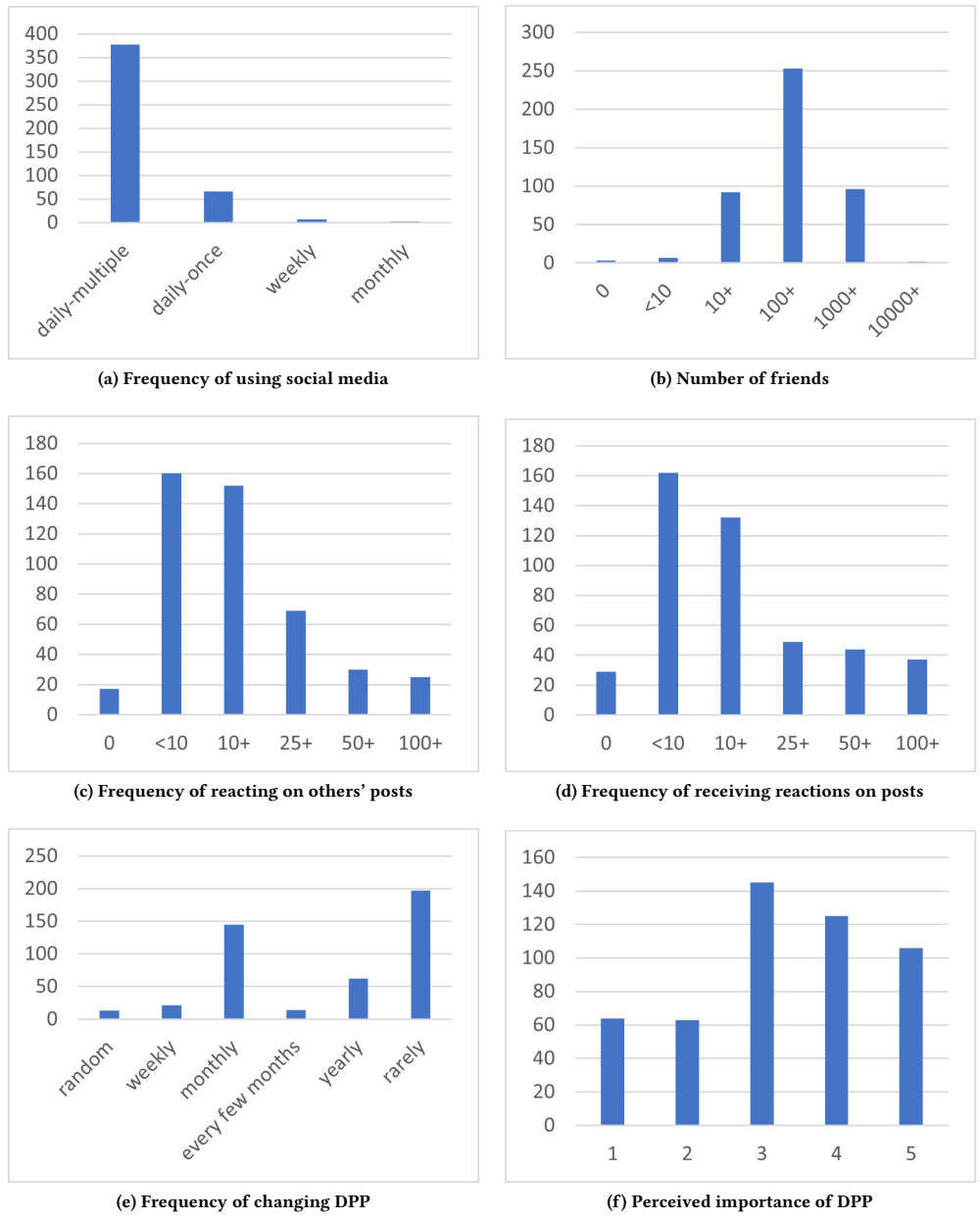(e) Frequency of changing DPP

(f) Perceived importance of DPP

Figure 3: Responses showing the participants' social media use patterns.

Table 1: Statistical hypothesis tests to understand the relationship between participants' perceived importance of DPP and their various identity aspects.

Identity aspect	Shapio-Wilk normality test	Null hypothesis	Hypothesis test ($\alpha = 0.05$)
Countries	India: W-statistics=0.907, p-value=0.000 ∴ Sample does not look Gaussian. Mexico: W-statistics=0.902, p-value=0.000 ∴ Sample does not look Gaussian. Bangladesh: W-statistics=0.866, p-value=0.000 ∴ Sample does not look Gaussian. USA: W-statistics=0.868, p-value=0.000 ∴ Sample does not look Gaussian. Canada: W-statistics=0.828, p-value=0.135 ∴ Sample looks Gaussian. Pakistan: W-statistics=0.884, p-value=0.044 ∴ Sample does not look Gaussian. KSA: W-statistics=0.827, p-value=0.041 ∴ Sample does not look Gaussian. There are more than two groups and not all the distributions are normal. So, we need to use non-parametric Kruskal-Wallis test.	There is no difference in perceived importance of DPP among users from different countries.	H-statistics=10.1793, p-value=0.1173 Cannot reject the null hypothesis.
Gender	Male: W-statistics=0.898, p-value=0.000 ∴ Sample does not look Gaussian. Female: W-statistics=0.892, p-value=0.000 ∴ Sample does not look Gaussian. The distributions are not normal. So, we need to use non-parametric Kruskal-Wallis test.	There is no difference in perceived importance of DPP among users of different genders.	H-statistics=0.1550, p-value=0.6938 Cannot reject the null hypothesis.
Age group	18-25: W-statistics=0.894, p-value=0.000 ∴ Sample does not look Gaussian. 26-35: W-statistics=0.900, p-value=0.000 ∴ Sample does not look Gaussian. 36-45: W-statistics=0.856, p-value=0.000 ∴ Sample does not look Gaussian. Above 45: W-statistics=0.738, p-value=0.000 ∴ Sample does not look Gaussian. There are more than two groups and the distributions are not normal. So, we need to use non-parametric Kruskal-Wallis test.	There is no difference in perceived importance of DPP among users from different age groups.	H-statistics=2.7358, p-value=0.4342 Cannot reject the null hypothesis.
Religion	Agnosticism: W-statistics=0.835, p-value=0.067 ∴ Sample looks Gaussian. Buddhism: W-statistics=0.895, p-value=0.406 ∴ Sample looks Gaussian. Christianity: W-statistics=0.883, p-value=0.000 ∴ Sample does not look Gaussian.		

Table 1: *Continued*

Identity aspect	Shapio-Wilk normality test	Null hypothesis	Hypothesis test (α = 0.05)
	Hinduism: W-statistics=0.898, p-value=0.000 ∴ Sample does not look Gaussian. Islam: W-statistics=0.878, p-value=0.000 ∴ Sample does not look Gaussian. Secular: W-statistics=0.903, p-value=0.002 ∴ Sample does not look Gaussian. Spiritual: W-statistics=0.684, p-value=0.006 ∴ Sample does not look Gaussian. There are more than two groups and not all the distributions are normal. So, we need to use non-parametric Kruskal-Wallis test.	There is no difference in perceived importance of DPP among users following different religions.	H-statistics=3.3565, p-value=0.7630 Cannot reject the null hypothesis.
Relationship status	Single: W-statistics=0.901, p-value=0.000 ∴ Sample does not look Gaussian. Married: W-statistics=0.880, p-value=0.000 ∴ Sample does not look Gaussian. Divorced: W-statistics=0.859, p-value=0.094 ∴ Sample looks Gaussian. There are more than two groups and not all the distributions are normal. So, we need to use non-parametric Kruskal-Wallis test.	There is no difference in perceived importance of DPP among users of different relationship statuses.	H-statistics=2.6681, p-value=0.2634 Cannot reject the null hypothesis.
Education	Did not attend college: W-statistics=0.871, p-value=0.000 ∴ Sample does not look Gaussian. College: W-statistics=0.903, p-value=0.000 ∴ Sample does not look Gaussian. Postgraduate: W-statistics=0.895, p-value=0.000 ∴ Sample does not look Gaussian. There are more than two groups and the distributions are not normal. So, we need to use non-parametric Kruskal-Wallis test.	There is no difference in perceived importance of DPP among users having different education levels.	H-statistics=3.6780, p-value=0.1590 Cannot reject the null hypothesis.
Employment status	Student: W-statistics=0.889, p-value=0.000 ∴ Sample does not look Gaussian. Unemployed: W-statistics=0.915, p-value=0.015 ∴ Sample does not look Gaussian. Unpaid-job: W-statistics=0.732, p-value=0.003 ∴ Sample does not look Gaussian. One job: W-statistics=0.899, p-value=0.000 ∴ Sample does not look Gaussian. Multiple jobs: W-statistics=0.848, p-value=0.000 ∴ Sample does not look Gaussian. There are more than two groups and the distributions are not normal. So, we need to use non-parametric Kruskal-Wallis test.	There is no difference in perceived importance of DPP among users having different employment statuses.	H-statistics=9.5328, p-value=0.0491 Can reject the null hypothesis and accept the alternate hypothesis: There is significant difference in perceived importance of DPP among users having different employment statuses.

Table 2: Statistical hypothesis tests to understand the relationship between participants' perceived importance of DPP and their various use patterns on social media.

Use pattern	Shapio-Wilk normality test	Null hypothesis	Hypothesis test ($\alpha = 0.05$)
Frequency of using social media	Daily multiple times: W-statistics=0.893, p-value=0.000 ∴Sample does not look Gaussian. Daily once: W-statistics=0.901, p-value=0.000 ∴Sample does not look Gaussian. Weekly: W-statistics=0.820, p-value=0.064 ∴Sample looks Gaussian. There are more than two groups and not all the distributions are normal. So, we need to use non-parametric Kruskal-Wallis test.	There is no difference in perceived importance of DPP among users with different social media usage frequencies.	H-statistics=3.3506, p-value=0.1872 Cannot reject the null hypothesis.
Number of friends	0: W-statistics=0.750, p-value=-0.000 ∴Sample does not look Gaussian. <10: W-statistics=0.818, p-value=0.062 ∴Sample looks Gaussian. 10+: W-statistics=0.903, p-value=0.000 ∴Sample does not look Gaussian. 100+: W-statistics=0.893, p-value=0.000 ∴Sample does not look Gaussian. 1000+: W-statistics=0.880, p-value=0.000 ∴Sample does not look Gaussian. There are more than two groups and not all the distributions are normal. So, we need to use non-parametric Kruskal-Wallis test.	There is no difference in perceived importance of DPP among users with their number of friends.	H-statistics=4.5019, p-value=0.3423 Cannot reject the null hypothesis.
Frequency of reacting on others' posts	0: W-statistics=0.723, p-value=0.000 ∴Sample does not look Gaussian. <10: W-statistics=0.899, p-value=0.000 ∴Sample does not look Gaussian. 10+: W-statistics=0.892, p-value=0.000 ∴Sample does not look Gaussian. 25+: W-statistics=0.897, p-value=0.000 ∴Sample does not look Gaussian. 50+: W-statistics=0.895, p-value=0.006 ∴Sample does not look Gaussian. 100+: W-statistics=0.847, p-value=0.002 ∴Sample does not look Gaussian. There are more than two groups and the distributions are not normal. So, we need to use non-parametric Kruskal-Wallis test.	There is no difference in perceived importance of DPP among users with their engagement through giving reactions on others' posts.	H-statistics=15.6484, p-value=0.0079 Can reject the null hypothesis and accept the alternate hypothesis: There is significant difference in perceived importance of DPP among users with their engagement through giving reactions on others' posts.

Table 2: *Continued*

Use pattern	Shapio-Wilk normality test	Null hypothesis	Hypothesis test (α = 0.05)
Frequency of receiving reactions from others	0: W-statistics=0.872, p-value=0.002 ∴Sample does not look Gaussian. <10: W-statistics=0.899, p-value=0.000 ∴Sample does not look Gaussian. 10+: W-statistics=0.893, p-value=0.000 ∴Sample does not look Gaussian. 25+: W-statistics=0.874, p-value=0.000 ∴Sample does not look Gaussian. 50+: W-statistics=0.891, p-value=0.001 ∴Sample does not look Gaussian. 100+: W-statistics=0.891, p-value=0.002 ∴Sample does not look Gaussian. There are more than two groups and the distributions are not normal. So, we need to use non-parametric Kruskal-Wallis test.	There is no difference in perceived importance of DPP among users with their engagement through receiving reactions from others.	H-statistics=14.0778, p-value=0.0151 Can reject the null hypothesis and accept the alternate hypothesis: There is significant difference in perceived importance of DPP among users with their engagement through receiving reactions from others.
Frequency of changing DPP	Random: W-statistics=0.776, p-value=0.004 ∴Sample does not look Gaussian. Weekly: W-statistics=0.846, p-value=0.004 ∴Sample does not look Gaussian. Monthly: W-statistics=0.875, p-value=0.000 ∴Sample does not look Gaussian. Every few months: W-statistics=0.883, p-value=0.065 ∴Sample looks Gaussian. Yearly: W-statistics=0.911, p-value=0.000 ∴Sample does not look Gaussian. Rarely: W-statistics=0.896, p-value=0.000 ∴Sample does not look Gaussian. There are more than two groups and not all the distributions are normal. So, we need to use non-parametric Kruskal-Wallis test.	There is no difference in perceived importance of DPP among users with different DPP change frequencies.	H-statistics=40.1518, p-value=1.3917e-07 Can reject the null hypothesis and accept the alternate hypothesis: There is significant difference in perceived importance of DPP among users with different DPP change frequencies.