

## ORIGINAL ARTICLE

# Economic Impact of the Coronavirus Disease-2019 Pandemic: Sleman Health and Demographic Surveillance System Individual Panel Secondary Data Analysis

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## ABSTRACT

**Introduction:** The coronavirus disease-2019 (COVID-19) pandemic has brought down the economy globally. This study aims to create a “snapshot” of the economic impact of the COVID-19 pandemic in Sleman, Indonesia, collected in the third trimester of 2020. **Methods:** The sixth wave of the Sleman Health and Demographic Surveillance System (HDSS) was collected through the telephone interview method from September until October 2020. The descriptive statistical analysis included frequencies and proportions for categorical variables. The parameters were demographic, geographic, health insurance, socioeconomic status, and impact of COVID-19 (employment status, changes of expenditure, and financial assistance). **Results:** From a total of 6,946 HDSS respondents, 1,516 were analysed. Only 6.7% were above 60 years old. The majority lived in urban areas (77.9%), finished middle school (65.7%), married (73.6%), and had insurance (86.8%). Approximately 60% of respondents experienced the economic impact of the pandemic. In addition, a small percentage (3%) of the lower socioeconomic status group (45.8% of total respondents) were laid off or lost their job. Respondents with low socioeconomic status were 2.5, 3.04, and 2.48 times more likely to be concerned about losing their jobs, meeting their basic needs, and fulfilling their financial obligations, respectively. Regarding financial assistance, respondents with low socioeconomic status were 3, 2, and 3 times more likely to receive cash, food voucher, and financial obligation elimination, respectively, than high economic status. **Conclusion:** Respondents with low socioeconomic status experienced the most significant economic impact due to the COVID-19 pandemic. Therefore, the government needs to have better data and quick response to protect the poor population.

**Keywords:** Socioeconomic Status, COVID-19, Indonesia, Economic Impact, Financial Assistance

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## INTRODUCTION

The rapid spread of the coronavirus disease 2019 (COVID-19) had urged the World Health Organization to declare its pandemic status on March 11, 2020

(1). Since then, governments from multiple countries have published and implemented various schemes to restrict socio-physical interactions designated to limit viral transmission. This scheme includes regional or national lockdown resulting in the closure of the lesser essential businesses and services. Furthermore, current studies have identified new virus variants with further risk of severity and transmissibility (2). Therefore, this pandemic had a wider impact in overwhelming both the global healthcare and economic sectors.

The International Monetary Fund (IMF) reported a greater than 4.9% decline in the global gross domestic product in the second quarter of 2020 (3). The global economic status amidst the pandemic is predicted to be worse compared to the 2008 global economic crisis. Nevertheless, the 2021 global economy is projected to recover with 5.4% growth (4). Still, this expected number is lower than the 2021 pre-pandemic economic growth projection.

The production, processing, and consumption supply chain are also widely burdened by social restriction and lockdown. The economic impact mechanism of the COVID-19 pandemic resulted from the lower working capital demand (direct effect from the employment layoff), travel revenue decline, international transaction trade cost increment, and reduced demands for household goods and services (5). Surveys in Uganda and Kenya reported that 2/3 of the respondents underwent an income shock (6). Food access insecurity was claimed by 38%–44% of respondents and the consumption of fresh fruit decreased by 30% (6).

The Bureau of Indonesia National Statistics revealed that 18.3% of workers were laid-off, whereas 2.5% others were terminated from their job only at the beginning of the COVID-19 pandemic (7). Moreover, 41.9% of respondents reported reduced income, in which the income group under Indonesian Rupiah 1,800,000 (United States dollar 130), was the worst impacted with 70.5% extreme income reduction (7).

In response to this economic disturbance, the Indonesian government increased the allocation of the State Budget for the Social Safety Net program and Economic Recovery (8). This includes expanding the reach of the Keluarga Harapan Program, food provision, presidential monetary assistance, cash transfer, electricity bill subsidies, and the pre-employment card, which were aimed at individuals from the lower socioeconomic groups and those who were most vulnerable (9). Internet subsidies for learning purposes were also provided by the Indonesian Ministry of Education and Culture, targeting students and educators (10). However, a potential for social or financial support programs to not reach the appropriate target groups is suspected. A study found that the social cash transfer program did not run effectively as a result of poor information dissemination and data validation (11).

Additionally, the pandemic also shifted how individuals allocated their expenditures. A study employing transaction-level data in the United States indicated changes in spending behavior, noting increased stockpiling groceries; whereas traveling, entertainment, and restaurant expenses showed major cutback (12). The severity of the pandemic was also estimated to encourage changes in spending patterns in a given area (13). Regardless, data on shifts in financial status, expenditure

patterns, and the nature of the variations among different socioeconomic groups is still insufficient. This study aims to report the economic impacts of the COVID-19 pandemic among households and population-based cohorts in Sleman, Yogyakarta-Indonesia (Sleman Health and Demographic Surveillance System [HDSS]) and describe the characteristics of these impacts. Despite small numbers of households, this report shall give a glimpse of economic conditions during the early COVID-19 pandemic.

Geographically, Sleman Regency in 2020 has an area of 574.82 Km<sup>2</sup>, comprising of 17 sub-districts and 86 villages. Sleman Regency is directly adjacent to Boyolali Regency, Central Java Province on the north side; Klaten Regency, Central Java Province on the east side; in the south is Bantul Regency, DI Yogyakarta Province; then in the west is Kulonprogo Regency, Central Java Province. The population of Sleman Regency in 2020 is 1,125,804 people with a population density of 1,958.53 people/km<sup>2</sup>. The health facilities in Sleman Regency are quite complete. There are 21 hospitals, 28 public health centres (Puskesmas). The Sleman Regency's per capita expenditure based on 2015 data was 14.60 (million Rupiah) (14). Considering Sleman Regency's uniqueness in Indonesia, economic impact during pandemic COVID-19 research in Sleman Regency is important.

## MATERIALS AND METHODS

### Data Source

This study used the data from Wave Six (Release 10.1.0) of the Sleman HDSS. The Sleman HDSS is a surveillance system that collects data on population transition, health status, and social transition to provide a base for developing evidence-based policymaking. Health and demographic data were periodically collected since 2015, including basic demographic information, e.g., birth, death and migration, socioeconomic, infectious disease and non-communicable disease morbidity, reproductive health, child health, behavioral factors, and health services. The design and data collecting method of Sleman HDSS has been described elsewhere (15). During the COVID-19 pandemic, Sleman HDSS conducted the sixth wave data collection through phone-interviews (September–October 2020). This remote data collection method was chosen in order to comply with government recommendations to prevent the transmission of COVID-19 by limiting direct interaction and social restrictions (16).

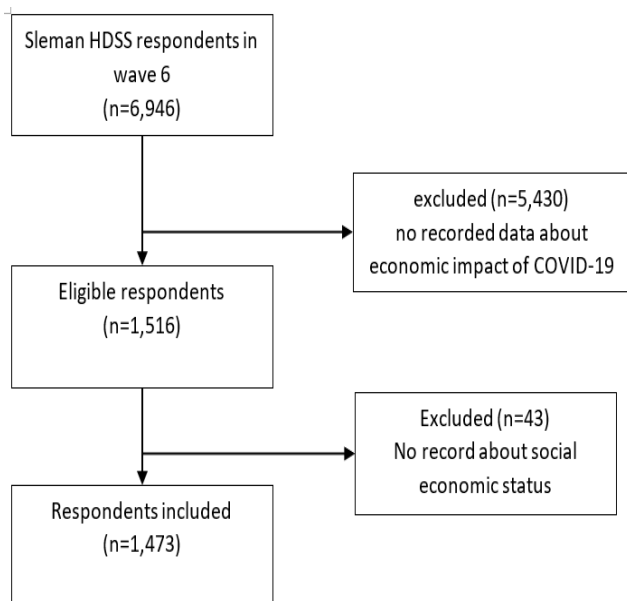
### Study sample

In total, 6,946 respondents participated in the Sixth Wave of the Sleman HDSS. Data on demographic variables, the economic impact of COVID-19, and socioeconomic status were merge with those respondents. Sleman HDSS received ethical approval from the Medical and Health Research Ethics Review Committee of the Medical Faculty, Universitas Gadjah Mada (KE/FK/0586/

EC/2020). Verbal consent was obtained from Sleman HDSS respondents after they received an explanation regarding the objectives, design, and procedure of the study. They were also informed that their responses would remain confidential and that they could withdraw their participation from this study at any time.

### Weighting

The percentages used in this study were weighted by the gender and age groups of the Sleman population. Thus, it is expected to represent the actual Sleman population. Respondents without recorded data on the economic impact of COVID-19 ( $n = 5,430$ ) and socioeconomic status ( $n = 43$ ) were excluded from this sample. Thus, 1,473 respondents were included in the data analysis (Fig 1). Sleman HDSS managed the sixth wave data collection via telephone interviews in September-October 2020. The mobile phone-based data collection successfully interviewed 1,525 respondents (33% response rate). The biggest reasons for the initial failed contacts were inactive phone numbers (66%), unresponsive respondents (26%), and misdialing phone numbers (5%).



**Figure 1: HDSS Respondent Flowchart**

Socioeconomic status is a wealth index generated from house characteristics and assets calculated using the Principal Component Analysis (PCA) method (17). We used several housing characteristics for the wealth index indicators, including the wall, roof, floor, and electricity sources. We considered house, rice field, garden, and yard ownership as land-agricultural assets. Market-based assets that indicate the wealth index are ownership of televisions, tv subscription services, refrigerators, air conditioners, mobile phones, water heaters, laptops, desktop PCs, motorcycles, bicycles, cars, trucks, buses, and type of gas holder. This categorization was data-driven and based on tests of spline lines, which showed that this categorization gave the best fit to the data (18).

### Main Outcomes

Variables included in the dataset are sex, age, marital status, educational levels, occupation, health insurance, social-economic status, location (urban/rural), and the economic impact of COVID-19. The socioeconomic status variable was collected in wave 4, whereas other variables were collected in wave 6. The fourth wave dataset was obtained in 2018 and the sixth wave dataset was obtained in 2020.

Four variables of economic impact are used on the related individuals (individual level), including:

1. Employment: recording respondent's occupational status during the COVID-19 pandemic
2. Economic impact: recording the economic attitude of respondents during the COVID-19 pandemic
3. Changes in Expenditure: respondent reports on changes in spending proportion (increased, fixed, and decreased)
4. Type of assistance: type of assistance received by respondents.

The individual panel respondents answered various questions related to the socioeconomic impact during the COVID-19 pandemic. The socioeconomic impact questionnaire was adapted from the Indonesia Statistics Bureau (BPS) questionnaire and from the Canada Ontario Government (19). The data was collected using the Sleman HDSS data collection application called e-HDSS on a tablet personal computer.

### Statistical Analysis

This study used descriptive analysis to look at respondent characteristics and changes in socioeconomic and health status during the COVID-19 pandemic. Respondents may report more than one type of assistance, thus the proportion presented was the percentage received by socioeconomic status. This study conducted post-stratification weighting to reduce sampling errors and non-response biases. This study used bivariate logistic regression to calculate the odds ratio (OR). The Stata 16 application was used for the cleaning process and data analysis (20).

### RESULTS

Table 1 portrays the characteristics of individual respondents in this study population extracted from Sleman HDSS in 2020. The respondents ranged in age from 20 to 66 years old, the majority were male (50.6%) and mainly lived in urban areas (77.9%). They were mostly educated until the middle school level (63.7%), which included either junior high school, high school or vocational school. A high percentage (74.6%) of married individuals formed this study population. Furthermore, wage laborers (35.6%), entrepreneurs (21.2%), and household workers (20.8%) were among three-fourths of the respondents. Health insurance was owned by 86.8% of respondents. Nevertheless, the respondents from low economic status (45.8%) surpassed the percentage of the medium and high economic status with 35.9% and

**Table I: The characteristics of individual respondents extracted from Sleman HDSS in 2020**

| Characteristic                    | n    | Percent |
|-----------------------------------|------|---------|
| <b>Age (years)</b>                |      |         |
| Early adulthood (20–40)           | 393  | 44.4    |
| Middle adulthood (41–60)          | 967  | 45.9    |
| Late adulthood (>61)              | 113  | 9.7     |
| <b>Sex</b>                        |      |         |
| Male                              | 505  | 50.6    |
| Female                            | 968  | 49.4    |
| <b>Marital Status</b>             |      |         |
| Single                            | 85   | 17.7    |
| Married                           | 1254 | 74.6    |
| Divorce                           | 36   | 1.9     |
| Widowed                           | 91   | 5.4     |
| Separate                          | 6    | 0.4     |
| <b>Education</b>                  |      |         |
| Primary school                    | 224  | 13.0    |
| Middle school                     | 896  | 63.7    |
| Secondary school                  | 351  | 23.4    |
| <b>Occupation</b>                 |      |         |
| Household workers                 | 425  | 20.8    |
| Unemployed                        | 56   | 10.2    |
| Wage Laborers                     | 466  | 35.6    |
| Retired                           | 40   | 2.4     |
| Entrepreneur                      | 340  | 21.2    |
| Service                           | 78   | 5.3     |
| Agro-Livestock                    | 68   | 4.6     |
| <b>Health Insurance Ownership</b> |      |         |
| Yes                               | 1278 | 86.8    |
| No                                | 193  | 13.2    |
| <b>Socio-economic Status (3)</b>  |      |         |
| Low                               | 608  | 45.8    |
| Medium                            | 571  | 35.9    |
| High                              | 294  | 18.3    |
| <b>Region</b>                     |      |         |
| Urban                             | 1246 | 77.9    |
| Rural                             | 227  | 22.1    |

**Table II: Occupational status grouped by the socioeconomic status of individual respondents in 2020**

| Categories                                 | Low |      | Medium |      | High |      |
|--|-----|------|--------|------|------|------|
|  | n   | %    | n      | %    | n    | %    |
| Work full-time                             | 247 | 39.4 | 274    | 53.9 | 155  | 52.1 |
| Work part-time                             | 121 | 19.3 | 114    | 19.9 | 38   | 17.6 |
| Work but asked to stay at home without pay | 9   | 2.4  | 3      | 0.5  | 4    | 1.1  |
| Got laid off because the office was closed | 6   | 0.7  | 3      | 0.3  | 1    | 0.2  |
| Does not work                              | 225 | 38.2 | 177    | 25.4 | 96   | 29.0 |

18.3%, respectively.

Table II shows the occupational status of respondents according to their socioeconomic status during the COVID-19 pandemic in 2020. They mostly still worked full time (46.9%), although 31.9% of respondents were not working, whereas 19.2% were part-time workers. Most respondents with medium socioeconomic status worked full-time (53.9%), followed by not-working (25.5%), and part-time-workers (19.9%). The same sequence is also found among high socioeconomic status respondents where 52.1%, 29.0%, and 17.6% were full-time workers, not-working, and part-time workers, respectively. A similar result was found among the low socioeconomic status group, although the not-working respondents (38.2%) in this group almost surpassed the percentage of full-time workers (39.4%).

Only 0.5% of the total respondents were laid off because of office closure. The same percentage was discovered for the forcibly unpaid stay-at-home workers (0.5%). Respondents with a low socioeconomic status had a greater influence on these two issues. Respondents with low socioeconomic status who worked from home without pay accounted for 2.4%, whereas 0.7% were affected by the layoff scheme.

Table III depicts the impact disparity across different socioeconomic statuses. The lower the socioeconomic status, the higher the financial threat was perceived. The COVID-19 pandemic created a financial impact in >60% of respondents. Nonetheless, respondents, particularly low-income families, were anxious about their jobs and household income (43%). Most low socioeconomic status respondents were 2.5 times more likely to be concerned about losing their jobs, 3.04 times more likely to be unable to meet their basic needs, and 2.48 more likely unable to fulfill their financial obligations compared to respondents with medium and high socioeconomic status. This group is also significantly less likely to benefit from the pandemic (OR: 0.58, p-value < 0.05). Contrarily, the medium socioeconomic status group fails to meet their primary needs and financial obligations expenses at 2.43 times and 2.30 times, respectively, compared to the high socioeconomic status group.

Table IV shows the proportion of individual respondents of Sleman HDSS based on their expenditure during the COVID-19 pandemic in 2020. Individual respondents of Sleman HDSS appeared to have a constant or increasing trend on their expenditure on average since the COVID-19 pandemic. Most of their increasing expenditures were from health care spending (55%), whereas the other expenditures remained constant.

Electricity expenditure was found to have a constant (45.6%) or decreasing trend (43.8%) among the low economic status group and constant (47.7%) or

**Table III: Individual respondents' perception following economic impact experiences during the COVID-19 pandemic in 2020**

| Categories   |              | Low |      |       |      |           | Medium |      |       |      |           | High |      |     |    |        |
|--|--------------|-----|------|-------|------|-----------|--------|------|-------|------|-----------|------|------|-----|----|--------|
|  |              | n   | %    | OR    | SE   | 95% CI    | n      | %    | OR    | SE   | 95% CI    | n    | %    | OR  | SE | 95% CI |
| I am worried about losing my job or main source of income in the next few weeks if nothing changes       | yes (n=579)  | 291 | 43.2 | 2.50* | 0.38 | 1.84-3.38 | 209    | 35.2 | 1.57* | 0.24 | 1.15-2.14 | 79   | 31.0 | Ref |    |        |
|  | no (n=894)   | 317 | 56.8 |       |      |           | 362    | 64.8 |       |      |           | 215  | 69.0 |     |    |        |
| I cannot fulfil the primary needs, such as food, electricity, fuel, etc.                                 | yes (n=81)   | 42  | 19.0 | 3.04* | 1.26 | 1.34-6.85 | 32     | 5.4  | 2.43* | 1.03 | 1.06-5.58 | 7    | 5.7  | Ref |    |        |
|  | no (n=1,392) | 566 | 81.0 |       |      |           | 539    | 94.6 |       |      |           | 287  | 94.3 |     |    |        |
| I am unable to fulfil financial obligations, such as lease payments or credit (ex: house rent, car loan) | yes (n=140)  | 67  | 9.1  | 2.48* | 0.75 | 1.36-4.48 | 59     | 9.0  | 2.30* | 0.71 | 1.26-4.20 | 14   | 3.9  | Ref |    |        |
|  | no (n=1,333) | 541 | 90.9 |       |      |           | 512    | 91.0 |       |      |           | 280  | 96.1 |     |    |        |
| I use my savings to meet financial obligations   | yes (n=567)  | 204 | 43.2 | 0.64* | 0.09 | 0.47-0.84 | 233    | 40.4 | 0.87  | 0.12 | 0.65-1.15 | 130  | 45.4 | Ref |    |        |
|  | no (n=906)   | 404 | 56.8 |       |      |           | 338    | 59.6 |       |      |           | 164  | 54.6 |     |    |        |
| My finances are not affected   | yes (n=588)  | 244 | 46.8 | 1.22  | 0.18 | 0.91-1.63 | 240    | 43.5 | 1.32* | 0.19 | 0.99-1.77 | 104  | 39.2 | Ref |    |        |
|  | no (n=885)   | 364 | 53.2 |       |      |           | 331    | 56.5 |       |      |           | 190  | 60.8 |     |    |        |
| I experienced positive impacts, such as a raise or a new job   | yes (n=186)  | 54  | 6.6  | 0.58* | 0.12 | 0.38-0.89 | 90     | 15.3 | 1.12  | 0.22 | 0.75-1.66 | 42   | 13.7 | Ref |    |        |
|  | no (n=1,287) | 554 | 93.4 |       |      |           | 481    | 84.7 |       |      |           | 252  | 86.3 |     |    |        |

\* p<0.05. Ref is a reference to the value of OR Socioeconomic Status (SES)

**Table IV: The proportion of individuals who reported increased or decreased expenditure during the COVID-19 pandemic, based on the type of expenditure in individual respondents of Sleman HDSS in 2020**

| Categories  |          | Low |      | Medium |      | High |      |
|---|----------|-----|------|--------|------|------|------|
|   |          | n   | %    | n      | %    | n    | %    |
| The impact on spending since the COVID-19 outbreak occurred | Increase | 235 | 34.5 | 239    | 39.6 | 123  | 43.6 |
|   | Fixed    | 245 | 34.2 | 226    | 42.2 | 113  | 38.4 |
| Change in spending on the items: Groceries                  | Decrease | 128 | 31.3 | 106    | 18.2 | 58   | 18.0 |
|   | Increase | 181 | 25.0 | 191    | 33.9 | 102  | 36.4 |
| Change in spending on the items: Prepared food or dish      | Fixed    | 317 | 45.6 | 315    | 55.3 | 163  | 52.3 |
|   | Decrease | 110 | 29.4 | 65     | 10.8 | 29   | 11.3 |
| Change in spending on the items: Health                     | Increase | 55  | 7.1  | 76     | 18.3 | 42   | 13.2 |
|   | Fixed    | 382 | 56.3 | 314    | 51.5 | 153  | 53.5 |
| Change in spending on the items: Electricity                | Decrease | 171 | 36.6 | 181    | 30.2 | 99   | 33.3 |
|   | Increase | 304 | 56.8 | 308    | 53.2 | 205  | 73.8 |
| Change in spending on the items: Oil and gas                | Fixed    | 280 | 38.0 | 241    | 43.6 | 82   | 24.2 |
|   | Decrease | 24  | 5.2  | 21     | 3.2  | 7    | 2.0  |
| Change in spending on the items: Mobile/data package        | Increase | 70  | 10.6 | 158    | 27.6 | 127  | 45.1 |
|   | Fixed    | 218 | 45.6 | 245    | 43.4 | 138  | 47.7 |
| Change in spending on the items: Public transport           | Decrease | 320 | 43.8 | 167    | 29.0 | 29   | 7.3  |
|   | Increase | 62  | 11.0 | 43     | 7.9  | 20   | 7.4  |
| Change in spending on the items: Groceries                  | Fixed    | 359 | 51.3 | 313    | 57.1 | 139  | 49.6 |
|   | Decrease | 187 | 37.7 | 214    | 35.0 | 135  | 43.0 |
| Change in spending on the items: Prepared food or dish      | Increase | 283 | 37.9 | 287    | 49.7 | 142  | 47.3 |
|   | Fixed    | 293 | 57.4 | 248    | 44.2 | 139  | 47.3 |
| Change in spending on the items: Health                     | Decrease | 32  | 4.8  | 35     | 6.2  | 13   | 5.5  |
|   | Increase | 9   | 0.9  | 6      | 0.9  | 7    | 2.6  |
| Change in spending on the items: Electricity                | Fixed    | 498 | 71.6 | 454    | 79.8 | 202  | 69.7 |
|   | Decrease | 101 | 27.5 | 110    | 19.3 | 85   | 27.7 |

increasing trend (45.1%) in high socioeconomic status group. Expenditures on oil and gas remained constant or had a decreasing trend among the high socioeconomic status group. Mobile/data package spending showed an increasing trend in the middle (49.7%) and high socioeconomic status groups (47.3%).

Table V shows individual respondents of the Sleman HDSS who received assistance during the COVID-19 pandemic in 2020. Overall, the assistance provided to these individual respondents in Sleman HDSS was dominated by cash assistance (53.9%). Most respondents with low socioeconomic status were 3 times more likely to receive cash (56.2%), 2.04 times more likely to receive foodstuff (56.2%), and 2.61 times more likely to obtain the elimination of financial obligation (47.5%) compared to respondents with high socioeconomic status.

Medical check-up assistance was the least frequent form of assistance received by the respondents from all levels of socioeconomic status. Only 3.3% of respondents with low socioeconomic status, and none with high socioeconomic status received medical check-up assistance. Therefore, it is not possible to analyse the odds ratio (OR).

**DISCUSSION**

The majority of the study respondents were aged 20–66

**Table V: Individual respondents of Sleman HDSS who received assistance during the COVID-19 pandemic in 2020**

| Types of assistance during COVID-19 |             | Low |      |       |      |           | Medium |      |       |      |           | High |       |     |    |        |
|-------------------------------------|-------------|-----|------|-------|------|-----------|--------|------|-------|------|-----------|------|-------|-----|----|--------|
|                                     |             | n   | %    | OR    | SE   | 95% CI    | n      | %    | OR    | SE   | 95% CI    | n    | %     | OR  | SE | 95% CI |
| Cash                                | yes (n=517) | 304 | 56.2 | 3.00* | 0.78 | 1.79-5.01 | 187    | 53.7 | 2.32* | 0.62 | 1.36-3.91 | 26   | 36.6  | Ref |    |        |
|                                     | no (n= 376) | 183 | 43.8 |       |      |           | 146    | 46.3 |       |      |           | 47   | 63.4  |     |    |        |
| Foodstuff                           | yes (n=462) | 279 | 56.2 | 2.04* | 0.52 | 1.23-3.36 | 154    | 42.1 | 1.31  | 0.34 | 0.77-2.18 | 29   | 39.6  | Ref |    |        |
|                                     | no (n=431)  | 208 | 43.8 |       |      |           | 179    | 57.9 |       |      |           | 44   | 60.4  |     |    |        |
| Medical Check-up                    | yes (n=15)  | 11  | 3.3  | -     |      |           | 4      | 0.8  | -     |      |           | 0    | 0.0   | -   |    |        |
|                                     | no (n=878)  | 476 | 96.7 |       |      |           | 329    | 99.2 |       |      |           | 73   | 100.0 |     |    |        |
| Elimination of financial obligation | yes (n=409) | 250 | 47.5 | 2.61* | 0.71 | 1.52-4.46 | 138    | 40.2 | 1.75* | 0.49 | 1.01-3.04 | 21   | 27.6  | Ref |    |        |
|                                     | no (n=484)  | 237 | 52.5 |       |      |           | 195    | 59.8 |       |      |           | 52   | 72.4  |     |    |        |

\* p<0.05

years, located in urban areas, and of low economic status. Only a small percentage of respondents experienced a positive impact from the COVID-19 pandemic. A considerable proportion of respondents with low economic status were jobless. Low socioeconomic groups experienced the greatest impact compared to other socioeconomic groups. 40-50% of respondents used their savings to fulfill financial obligations.

Globalization has brought more interconnections than before, which increases the occurrence of a pandemic and its economic impact (21). The Indonesia High-frequency Monitoring of COVID-19 Impacts by World Bank (22) reported that 24% of households' breadwinners had stopped working by early May 2020. Among household breadwinners who continued working, 64% experienced reduced income. In the early phase of the pandemic, workers and enterprise owners in the industry and service sector were more likely to stop working. This could be due to social restrictions enacted by the government. The recovery was seen at the end of the second trimester, where employment of all work sectors was increasing (22). In this research, most respondents were still working full time by the time of the survey in June–September 2020. This percentage seemed to be low compared to the World Bank survey, which reported 90% of the breadwinners were working in the July–August period. This might be due to the different survey methodology.

A considerable percentage of our respondents have been laid off from their jobs, and keeping up with the expenditures is one of the main challenges. Approximately 40% of our respondents have used their savings in the pandemic. When the limited savings and other financial resources were no longer enough, selling assets and reallocating expenses from human capital investment, such as education, was the chosen strategy for the poor with inadequate safety nets (23). The negative impacts

are often discussed but the new economic opportunities bought by the pandemic by disrupting the old supply chain routes are rarely mentioned. Online shopping and online education have tremendously improved and led to significant progress in digital technology and internet networks (24). This may explain the phenomenon of having increased income among the respondents in our research.

Despite the economic disturbance, more than half of those in the low and middle-income households reported increased spending on their health, mainly in the low-income households. The number was even higher in the high-income households. This was also observed during the severe acute respiratory syndrome outbreak, wherein people were willing to pay for eliminating the likelihood of infection (25).

More than 82% of the lowest per-capita-expenditure households received social assistance and subsidies under the government programs. Households with the lowest and second-lowest quintiles in consumption reported that they received at least one relief program from the government, whereas <30% lost their jobs. Households in the bottom 30% of income were also reported to have the highest proportion of social protection beneficiaries (22).

Despite the policy responses from The Government of Indonesia to support the nation's economy due to the pandemic, the current pandemic is still challenging. A report by Setyonaluri D and Samudra R (23) has found the pandemic disproportionately affected the poor, women, and people with disabilities. The risk of COVID-19 infection was elevated for the poor due to the lack of access to modern health care facilities and living in unhealthy environments. The disparities need further attention, at least in the policy and research area. This study shows the economic impact on the

community in low-middle-income countries the data of which is rarely accessible. In addition, we conducted this research using the Sleman HDSS data. Sleman HDSS is a longitudinal research platform that can enable long-term monitoring of the economic impact during and past pandemics. Sleman HDSS also covered broadened respondent characteristics, such as urban and rural areas and low-middle-high wealth index (15). In addition, this research was weighted to meet district-level representativeness. The surveyors were trained to conduct phone interviews. Sleman HDSS also conducted a data quality control process, including spot-check, crosscheck, and data cleaning (15).

During the COVID-19 pandemic, data collection was carried out by telephone interviews, which differed from previous waves by face-to-face interviews. Interviews via telephone require researchers to ensure respondents' convenience during the interview process by simplifying questions and limiting interview time. Thus, the questions in this study are more brief, superficial, and straightforward. However, telephone interviews have their own benefit, respondents may answer questions that might not be answered in the face-to-face interview due to "Facial Anonymity" (26). In addition, the limited number of respondents who were able to respond to telephone-interview research was a constraint of this study. It was quite challenging to reach respondents of low socioeconomic status, lower education levels, elderly, and people with disabilities (hearing disabilities) through telephone interviews. We present weighting in order to ensure that the data analysis represents the population of the Sleman district.

## CONCLUSION

Respondents with low socioeconomic status experienced the greatest economic impact compared to other socioeconomic groups due to the COVID-19 pandemic. However, only more than half of the low socioeconomic status population received assistance from multiple sources. Government should have better data to quickly respond to the need and economic impact due to COVID-19 in order to ensure equity in protecting the poor population in particular.

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