

## **CHAPTER II**

### **ADOLESCENT AND NON-COMMUNICABLE DISEASE IN SEMARANG CITY**

#### **2.1 Youth Demographics in Semarang City**

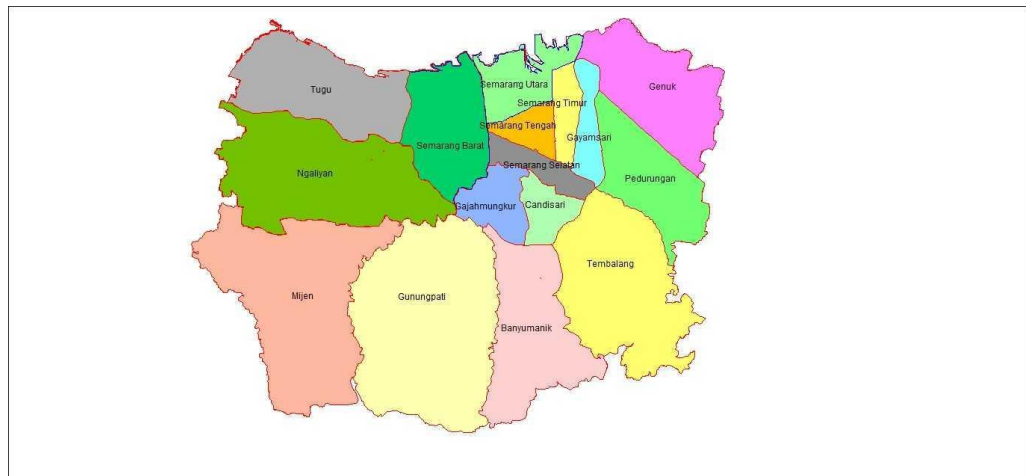
The city of Semarang is a city that acts as the capital of the Province of Central Java with a geographical location in the northern part of the island of Java, Indonesia. The city of Semarang has an area of approximately 373.8 km<sup>2</sup> with a geographical area surrounded by mountains to the west, east and south, and is located on the northern coast of Java.<sup>1</sup> As a big city, the city which is now led by Hevearita Gunaryanti Rahayu implements a city area division system consisting of Central Semarang or Central Semarang, East Semarang, South Semarang, West Semarang and North Semarang and also administratively Semarang City has 16 Districts namely Banyumanik , Candisari, Gajahmungkur, Gayamsari, Genuk, Gunung Pati, Mijen, Ngaliyan, Pedurungan, West Semarang, South Semarang, Central Semarang, East Semarang, North Semarang, Tembalang and Tugu.<sup>2</sup> Semarang has several industrial sectors that are quite advanced, such as the textile, food and beverage, electronics, automotive industries, and the most well-known is tourism, making Semarang a center for creative industries that is growing rapidly.

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<sup>1</sup> Humas Semarang Kota, "Geografi Kota Semarang", <https://humas.semarangkota.go.id/datageografi/geografi-kota-semarang>, (Accessed on 08 June 2023).

<sup>2</sup> *Ibid.*

**Figure 2.1 Semarang City Map**



*Source: Pinhome.id, Semarang City Map*

Within the city of Semarang, there are differences between urban and rural areas. Some examples of areas that can be categorized in the city of Semarang are Central Semarang, East Semarang, North Semarang, South Semarang, and West Semarang which can be categorized as urban areas due to the densely populated settlements and various urban infrastructure and services that make this area a center of commercial activity. Meanwhile, Gunungpati, Mijen, Ngaliyan, and Tembalang can be categorized as rural areas because they tend to still have the characteristics of rural areas with wider agricultural land and residential land that are not as dense as urban areas. When discussing the geographical conditions of Semarang City, it needs to be recognized that the geographical location of an area has a significant impact on the potential for developing human resources, including youth as an important resource.

Youth is an important factor in increasing resources. This is because teenagers are the young generation who will become leaders and drivers of change in the future. *World Health Organization (WHO)* defines youth as someone in the

age range of 10-19 years. Meanwhile, according to Article 1 Number 7 of the Regulation of the Minister of Health of the Republic of Indonesia Number 25 of 2014 concerning Child Health Efforts, "*Adolescents are the age group of 10 years to 18 years old*".<sup>3</sup> According to Hurlock, the term "adolescent" or "*adolescence*" refers to the period of growth and development of individuals towards adulthood. The origin of the word "adolescent" comes from Latin, namely "*adolescence*" which comes from the noun "*adolescentia*" which means to grow or grow into adulthood. A person is considered an adult when they reach the ability to reproduce. However, this time, the concept *adolescence* has a broader meaning and includes aspects of mental, emotional, and social maturity. This view is in line with Piaget's theory which states that psychologically, youth is the age at which individuals integrate themselves with adult society.<sup>4</sup>

In Indonesia, the number of teenagers in 2021 is around 46 million, which is 17% of the total population in Indonesia.<sup>5</sup> Java Province is the area with the largest distribution of the teenage population with a percentage of 60% which is divided into the following diagram.

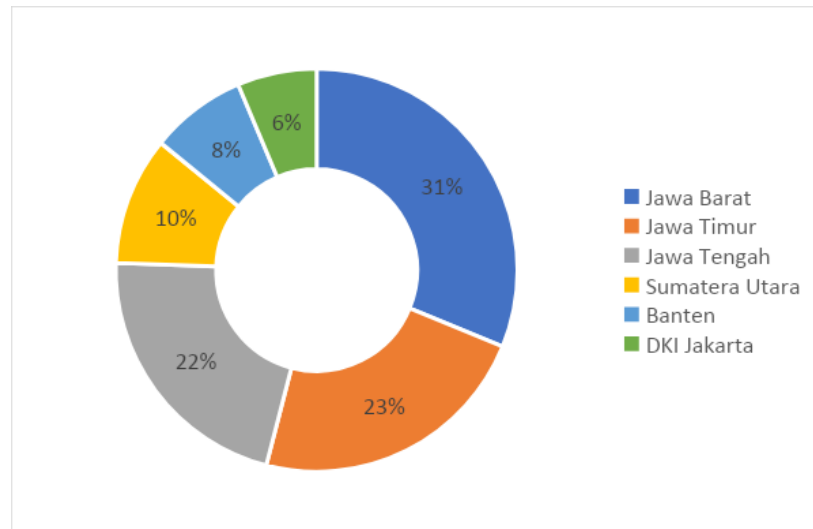
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<sup>3</sup> Pasal 1 Angka 7 Peraturan Menteri Kesehatan Republik Indonesia Nomor 25 Tahun 2014 tentang Upaya Kesehatan Anak.

<sup>4</sup> Lestarina, E., Karimah, H., Febrianti, N., Ranny, R., & Herlina, D. (2017). Perilaku konsumtif di kalangan remaja. *JRTI (Jurnal Riset Tindakan Indonesia)*, 2(2).

<sup>5</sup> UNICEF, "Profil Remaja 2021", <https://www.unicef.org/indonesia/media/9546/file/Profil%20Remaja.pdf>, (Accessed on 08 June 2023).

**Figure 2.2 Distribution of The Adolescent Population (Aged 10-19) In Indonesia**



*Source: BPS, Census of Population Number and Distribution. 2021*

Based on data from the 2021 Central Java Population Census by the Central Statistics Agency (BPS), the total population of Central Java is 36,742,501 people with a total age group of 10-19 years of 5,574,915 people, where the number of teenagers is 15% of the total population of Java Middle. When broken down by gender, Central Java has 2,872,081 teenage boys and 2,702,834 teenage girls.<sup>6</sup>

Semarang City as the Capital of Central Java Province as well as the fifth largest Metropolitan City in Indonesia is one of the Regions with the largest population in Central Java Province of 1,659,975 people.<sup>7</sup> with a population distribution based on the age group of 10-14 years of 124,332 people and the age

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<sup>6</sup> BPS Provinsi Jawa Tengah, “Provinsi Jawa Tengah Dalam Angka 2022”, <https://jateng.bps.go.id/publication/2022/02/25/431f4f4bbe02b47866b357cc/provinsi-jawa-tengah-dalam-angka-2022.html>, (Accessed on 08 June 2023).

<sup>7</sup> BPS Provinsi Jawa Tengah, “Jumlah Penduduk Menurut Kabupaten/Kota di Jawa Tengah (Jiwa), 2020-2022”, <https://jateng.bps.go.id/indicator/12/766/1/jumlah-penduduk-menurut-kabupaten-kota-di-jawa-tengah.html>, (Accessed on 08 June 2023).

group of 15-19 years of 127,834 people.<sup>8</sup> This amount is subdivided by gender in the following table.

**Figure 2.3 Number of Teenagers Based on Age and Gender**

Age group	Population Age Group (Soul)		
	Man	Woman	Amount
10-14	63.815	60.517	124.332
15-19	65.937	61.897	127.834

*Source: Central Bureau of Statistics for Semarang City Year. 2022*

Based on this table, the number of teenagers is a demographic force in the city of Semarang so education for them is important to ensure that no potential human resources are wasted. In this regard, providing quality education to all youth is a priority to ensure that they can contribute productively to society. The city of Semarang has a total of 71,036 students at the SMP/MTs level with a 13-15 year age group totaling 80,780 people so that the gross enrollment rate (APK) for SMP/MTs is 87.94%, while the number of students at the SMA/SMK/MA level as many as 73,578 with a total age group of 16-18 years of 76,177 people, the gross enrollment rate (APK) for SMA/SMK/MA is 96.59%.<sup>9</sup>

High education participation rates can increase the number of available laborers in an area. With more people participating in education, the number of

<sup>8</sup>BPS Kota Semarang, "Penduduk Kelompok Umur (Jiwa), 2020-2022", <https://semarangkota.bps.go.id/indikator/12/49/1/penduduk-kelompok-umur.html>, (Accessed on 08 June 2023).

<sup>9</sup> Portal Satu Data Indonesia Tingkat Kota Semarang, "Data Pendidikan 2022", <https://data.semarangkota.go.id/data/list/2>, (Accessed on 08 June 2023).

individuals ready to work and looking for work has also increased. However, a high level of educational participation does not always guarantee a low unemployment rate. In employment in Semarang City, the Open Unemployment Rate is dominated by the 15-19 Years Age Group with a percentage of 40.01%.<sup>10</sup> The high TPT in the young population is caused by the fact that in this age range, people usually have just graduated from school and are looking for work.

In order to optimize the utilization of the large demographic potential of adolescents in the city of Semarang, support from various factors is needed, including health. With attention and investment in the health aspect, the City of Semarang can ensure that youth can grow and develop properly, so that they can contribute positively to building a better future.

## **2.2 Disease Prevalence in Semarang**

Good health is an important foundation for the sustainable development and progress of a country. Countries with healthy populations tend to have more prosperous and socially and economically sustainable societies. Health, which is a person's initial capital, makes them tend to be more physically and mentally active, and have enough energy to work and contribute to the country's economic development. Indonesia in a survey conducted by CEOWORLD magazine 2022 regarding health scores and health risk scores for countries with a population of at

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<sup>10</sup> BPS Kota Semarang, "Profil Ketenagakerjaan Kota Semarang Tahun 2022", <https://semarangkota.bps.go.id/publication/2023/02/28/f8584624a2ad671eba28c094/profil-ketenagakerjaan-kota-semarang-hasil-sakernas-agustus-2022.html>, (Accessed on 08 June 2023).

least 1 million shows that Indonesia occupies 79th position with 46.74 points.<sup>11</sup> Then according to a survey conducted by the Global Health Security Index 2021, Indonesia is ranked 45th out of 195 countries with a score of 50.4 on the results of each country's evaluation by assessing its performance in 37 different indicators, which are then combined to give each country through six general categories.<sup>12</sup> Indonesia continues to improve the health sector because health is an important aspect of human life and has a direct impact on people's quality of life and productivity.

Indonesia has a Public Health Development Index (IPKM) based on the 2018 Riskesdas data which includes 30 health indicators grouped into 7 sub-indices, namely Toddler Health, Reproductive Health, Health Services, Health Behavior, Non-Communicable Diseases, Infectious Diseases, and Environmental Health. Widespread and sustained disease prevalence can have a significant negative impact on a country's health index. If a country faces a widespread disease outbreak, for example, there may be an increase in mortality and morbidity (the number of cases of disease), which in turn can reduce the health index.

Disease is a serious problem for humans because it can cause health problems, suffering, and even death. Diseases interfere with the normal functioning of the human body and can affect various organ systems, both physically and mentally. In addition, illness can interfere with a person's ability to work, interact

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<sup>11</sup> Brown, L, "Which are the healthiest countries in the world for 2023?", <https://ceoworld.biz/2022/12/21/which-are-the-healthiest-countries-the-world-2023/>, (Accessed 08 June 2023).

<sup>12</sup> GHS Index, "2021 GHS Index Country Profile for Indonesia", <https://www.ghsindex.org/country/indonesia/>, (Accessed 08 June 2023).

with others, and live daily life properly. In Indonesia, there are top diseases that are of serious concern in public health efforts. These diseases include stroke, heart attack, diabetes mellitus, tuberculosis, liver cirrhosis, chronic lung disease, diarrhea, hypertension, lower respiratory tract infection, and neonatal or newborn death.<sup>13</sup> These diseases have a significant impact on the Indonesian population and require serious prevention, treatment and management efforts.

The city of Semarang as a development center in Central Java also experiences similar challenges in terms of health. Throughout 2022, the Semarang City Health Office will make a report regarding the Morbidity or Prevalence of a disease that is spread in the City of Semarang with the following details.

**Figure 2.4 Top 10 Diseases at The Semarang City Health Center In 2022**

NO	NAME OF THE DISEASE	CODE	AMOUNT
1	Acute Upper Respiratory Tract Infection (ARI)	J06	1.294.024
2	Essential (primary) hypertension	I10	995.256
3	Acute pharyngitis	J02	836.270
4	Diabetes mellitus	E11	424.967
5	Gastritis and duodenitis	K29	359.833
6	Infectious gastroenteritis and colitis	A09	245.239
7	Another headache syndrome	g44	242.461
8	Diseases of the pulp and periapical tissues	K04	234.251

<sup>13</sup> Databoks, “10 Penyakit Penyebab Kematian Tertinggi di Indonesia(2019)”, <https://databoks.katadata.co.id/datapublish/2023/02/07/stroke-dan-tbc-masuk-dalam-10-penyakit-penyebab-kematian-tertinggi-di-indonesia>, (Accessed 08 June 2023).



9	Other arthritis	M13	231.770
10	Other fevers of unknown origin	R50	221.529

*Source: Semarang City Health Profile. 2022*

Based on the disease data uploaded by The Health Office, it can be found that the 10 most common diseases at the Semarang City Health Center cover a variety of health conditions. This new data provides a more comprehensive picture of disease trends in the region. Diseases such as ARI (Acute Respiratory Infection), hypertension, diabetes, fever, gastroenteritis, and internal organ disease still dominate the number of cases in Semarang.

To know more about the context of Semarang's public health analysis, it is important to understand how major diseases impact different population groups. In this regard, there are data showing the distribution of these diseases in each sex, with the aim of describing the differences in prevalence and potential risks that may differ between male and female populations. Examples of these cases are *Tuberculosis* (TBC) which in 2022, there were 4,653 cases of Tuberculosis (TB) sufferers of all types. This data shows that the number of TB sufferers of all types in men reached 2,474 cases or around 53.2%, exceeding the number in women which reached 2,179 cases or around 46.8%. This is because men tend to be more frequently exposed to risk factors and focus less on aspects of individual health care when compared to women.<sup>14</sup>

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<sup>14</sup> Pustaka Data Semarang, "Profil Kesehatan Semarang 2022", <https://pustakadata.semarangkota.go.id/upload/pdf/451-profil-kesehatan-2022.pdf>. (Accessed on 08 June 2023).

In addition, there were 508 HIV cases recorded in 2022 with an increase in HIV cases which were more dominant in the male population which reached 79% of the total cases or as many as 399 cases, while the percentage of cases in women was lower with a percentage of 21% of the total cases or as many as 109 cases. This factor may be related to mobility which tends to be higher in men, which in turn can increase the potential risk of HIV transmission.<sup>15</sup>

In terms of health, big cities like Jakarta and Bandung also face similar health problems. Throughout 2021, Jakarta will experience high cases of respiratory infections with 26,854 cases of lung tuberculosis and 19,973 cases of pneumonia.<sup>16</sup> Moreover, Jakarta is currently experiencing levels of air pollution with the Air Quality Index (AQI) reaching 164.<sup>17</sup> Based on this phenomenon, the Government of Jakarta makes ISPA cases a health problem that must be considered.

In contrast to Jakarta, Bandung City is experiencing serious challenges in terms of health related to cardiovascular disease problems. This is based on the Pattern of the Top 20 Causes of Death Recorded and Reported by the Community Health Center in Bandung City where diseases such as Hypertension, Stroke, Heart

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<sup>15</sup> Pustaka Data Semarang, "Profil Kesehatan Semarang 2022", <https://pustakadata.semarangkota.go.id/upload/pdf/451-profil-kesehatan-2022.pdf>. (Accessed on 08 June 2023).

<sup>16</sup> BPS Provinsi DKI Jakarta, "Jumlah Kasus Penyakit Menurut Provinsi/Kabupaten/Kota dan Jenis Penyakit 2021", <https://jakarta.bps.go.id/indicator/30/504/1/jumlah-kasus-penyakit-menurut-provinsi-kabupaten-kota-dan-jenis-penyakit-.html>, (Accessed 08 June 2023).

<sup>17</sup> IQAir, "Kualitas udara di Jakarta", <https://www.iqair.com/id/indonesia/jakarta>, (Accessed on 08 August 2023).

Failure, and Cardiac Ischemia are diseases with a high mortality rate.<sup>18</sup> cardiovascular disease is caused by disorders of the heart or blood vessels resulting from unhealthy lifestyles such as smoking habits, not exercising regularly, and excessive alcohol consumption.

Like other big cities, Semarang also faces several health problems that need to be addressed, such as the spread of infectious diseases, air and water pollution, as well as health problems due to unhealthy lifestyles such as obesity and lack of physical activity. With the challenges and relatively large population, the Improvement of Health Services both in quantity and quality is expected to encourage quality health that reaches all sections of society to improve the quality of human resources.<sup>19</sup>

The government and health institutions work together to increase public awareness about the importance of a healthy lifestyle, vaccination, early detection and appropriate treatment to reduce the burden of disease and improve the population's quality of life. In providing public health insurance, of course, the city of Semarang has adequate health services by having both government and private hospitals. Apart from that, there are also several health centers and clinics scattered in various areas of the city with the following details.

**Figure 2.5 Number of Health Facilities in The City of Semarang 2020 – 2022**

No	Types of Health Facilities and Infrastructure	2020	2021	2022
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<sup>18</sup> Dinas Kesehatan Kota Bandung, “Profil Kesehatan Bandung 2021”, <https://dinkes.bandung.go.id/wp-content/uploads/2022/07/Profil-Kesehatan-Kota-Bandung-Tahun-2021-31102022.pdf>, (Accessed on 08 August 2023).

<sup>19</sup> Pane, N., Sembiring, S. D. B., & Unsa, I. (2020). Pengaruh Pembangunan Infrastruktur Kesehatan, Pendidikan dan Jumlah Penduduk Terhadap Pertumbuhan Ekonomi di Sumatera Utara. *JS (JURNAL SEKOLAH)*, 4(2), 172-182.

1.	General Hospital:			
	a. Private Hospital	14	15	15
	b. Regional/Provincial General Hospital	3	3	3
	c. Central General Hospital	1	1	1
	d. TNI / POLRI Hospital	3	3	3
	e. Special Hospital, consisting of:			
	- Mental Hospital	1	1	1
	- Oral and Dental Hospital	0	2	2
	- Medical Rehabilitation Hospital	0	0	0
	- Mother and Child Hospital (RSIA)	6	6	6
	- Eye Hospital	0	1	1
	- Surgical Hospital	0	0	1
2.	Health Center, consisting of:	37	37	38
	a. Treatment Center	10	10	10
	b. Non-Treatment Health Center	27	27	28
3.	Auxiliary Health Center	38	38	37
4.	Mobile Health Center	37	37	37
5.	existing Posyandu	1.610	1.616	1.626
6.	Active Posyandu	1.397	1.383	1.557
7.	Drugstore	423	422	425
8.	Health Laboratory	25	22	26
9.	Specialist Clinic / Primary Clinic	50	53	61
10.	Drug store	38	39	40
11.	Primary Clinic	247	259	264

*Source: Semarang City Health Office. 2022*

Based on these data, the health service infrastructure continues to develop. Recent data shows that in recent years, the number of health service facilities in this city has increased. There are a total of 4,182 health facilities which include hospitals, health centers, clinics, and pharmacies, scattered in various regions. This

reflects continuous efforts to improve the accessibility of health services for the people of Semarang City.

The city of Semarang also has several health programs run by the local government, such as the UHC (Universal Health Coverage) Program, immunization programs, prevention of communicable diseases, prevention of non-communicable diseases, mental counseling services, and other public health programs. Not only that, there are also several non-governmental organizations that play a role in increasing public awareness and providing services and support regarding health. Some examples of these institutions are the Semarang Indonesian Cancer Foundation (YKI), Semarang Aisyiyah Orphanage Foundation (YPPA), Semarang Health Institute (LKM) Semarang, Semarang Tropical Disease Foundation (YPT), and others. This addition is expected to have a positive impact in providing better and more equitable health services to all urban residents.

### **2.3 Non-communicable Diseases in Adolescents in Semarang City**

Non-Communicable Diseases (NCDs) have become a serious concern in the health sector. This phenomenon includes significant morbidity and mortality problems worldwide. Diseases known as degenerative diseases or diseases that arise due to changes in the function of cells in the body that affect the function of this organ every year cause a high mortality rate and infect every individual at various ages.<sup>20</sup> There are several types of diseases that are included in the category of Non-

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<sup>20</sup> Kementerian Kesehatan Direktorat Jenderal Pelayanan Kesehatan, “Penyakit Tidak Menular (PTM)”, [https://yankes.kemkes.go.id/view\\_artikel/761/penyakit-tidak-menular-ptm](https://yankes.kemkes.go.id/view_artikel/761/penyakit-tidak-menular-ptm), (Accessed August 28, 2023)

Communicable Diseases, namely Cardiovascular Disease, Cancer, Chronic Respiratory Disease, and Diabetes.<sup>21</sup>

Adolescent health conditions in Semarang demonstrate susceptibility to non-communicable diseases, with a number of factors such as diet, physical activity, and exposure to technology having contributed to the increased risk of developing these diseases among adolescents. This invites serious concern that affects their welfare. Even though access to health information is getting easier, challenges such as unhealthy lifestyles still affect the physical health of adolescents in the city of Semarang.

Awareness regarding the importance of a healthy lifestyle for teenagers in Semarang City is still quite low, which can be seen from the fact that around 15.60% of them in the 15-24 year age group will continue to smoke in 2021.<sup>22</sup> Even though there was a slight decrease from the previous year, which reached 15.71%, this decline was not classified as very significant and was still much higher than figures in other cities such as Jakarta. In Jakarta, in 2020, the average smoking rate in the 15-24 year old group will still be around 11.50%.<sup>23</sup> Smoking during adolescence has the potential to negatively impact health in the long term, with a higher risk of

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<sup>21</sup> *Ibid.*

<sup>22</sup> BPS Provinsi Jawa Tengah, “Persentase Penduduk Usia 15 Tahun Ke Atas yang Merokok dalam Sebulan Terakhir Menurut Kabupaten/Kota dan Kelompok Umur di Provinsi Jawa Tengah (Persen), 2019-2021”, <https://jateng.bps.go.id/indicator/30/1785/1/persentase-penduduk-usia-15-tahun-ke-atas-yang-merokok-dalam-sebulan-terakhir-menurut-kabupaten-kota-dan-kelompok-umur-di-provinsi-jawa-tengah.html>, (Accessed on August 28, 2023).

<sup>23</sup> BPS Provinsi DKI Jakarta, “Persentase Penduduk Usia 15 Tahun Ke Atas yang Merokok dalam Sebulan Terakhir Menurut Kabupaten/Kota dan Kelompok Umur di Provinsi DKI Jakarta, 2020” <https://jakarta.bps.go.id/statictable/2021/08/23/271/persentase-penduduk-usia-15-tahun-ke-atas-yang-merokok-dalam-sebulan-terakhir-menurut-kabupaten-kota-dan-kelompok-umur-di-provinsi-dki-jakarta-2020.html>, (Accessed on August 28, 2023).

developing non-communicable diseases such as respiratory problems, heart problems, and even cancer.

In addition, the condition of adolescents in the city of Semarang is not only limited to smoking habits, but also includes diabetes. The Health Office of the City of Semarang stated that there was an increase in cases of diabetes mellitus in children in the City of Semarang. The head of the Semarang City Health Office, M. Abdul Hakam explained that type 1 diabetes mellitus is caused by damage to the pancreas. In this state of damage, the pancreas loses its ability to produce insulin. Therefore, it is necessary to inject insulin before eating as a substitute for natural insulin which is normally produced by the pancreas.<sup>24</sup>

Hakam noted that in 2021, there were 27 cases of diabetes in the city of Semarang that required insulin injections. The details are one girl aged 0-12 years, while at the age of 13-18 years, there are 18 boys and 8 girls who need insulin injections. However, Hakam also highlighted that several cases of Diabetes Mellitus, both type 1 and type 2, appeared at an early age as a result of unhealthy eating patterns and lack of physical activity. In 2022, the number of cases of diabetes mellitus in children requiring insulin injections will increase from 27 to 33 children. The details are one boy and eight girls aged 0-12 years, and nine boys and 15 girls aged 13-18 years who need insulin injections. Meanwhile, the number of cases of diabetes mellitus in children who do not require insulin injections has also

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<sup>24</sup> Pemerintah Kota Semarang, "Dinkes Kota Semarang Sebut Kasus Diabetes pada Anak Meningkat", [https://semarangkota.go.id/p/4433/dinkes\\_kota\\_semarang\\_sebut\\_kasus\\_diabetes\\_pada\\_anak\\_meningkat](https://semarangkota.go.id/p/4433/dinkes_kota_semarang_sebut_kasus_diabetes_pada_anak_meningkat), (Accessed on August 28, 2023).

increased, from 242 in 2021 to 344 in 2022. The details are 23 boys and 24 girls aged 0-12 years, and 127 boys and 170 girls aged 13-18 years who did not need insulin injections. Hakam explained that this could be caused by various factors such as unhealthy eating patterns and lack of physical activity in these various age groups.<sup>25</sup>

Unhealthy eating patterns and lack of physical activity in adolescents also have great potential to cause obesity, this was conveyed in a study (Nugraha, Agus, & Handarsari, 2019) of SMA students at the Indonesian Institute of Semarang City. This study involved 60 respondents who were divided into two groups, namely 30 case samples and 30 control samples, which were selected randomly. The results showed that around 46.7% of the respondents often consumed fast food and had short sleep time. These results confirm that there is a correlation between the frequency of consuming fast food and the risk of obesity in SMA students at the Indonesian Institute of Semarang City.

This study also revealed that the quantity of sleep has a significant impact on the incidence of obesity in SMA students at the Indonesian Institute of Semarang City. Sleep deprivation can create a positive imbalance in energy which can result in increased food intake, especially snacks. In addition, sleep deprivation can lead to daytime fatigue, which may reduce their physical activity. It is important to note that individuals who get enough sleep tend to have better fat-burning efficiency,

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<sup>25</sup> Pemerintah Kota Semarang, "Dinkes Kota Semarang Sebut Kasus Diabetes pada Anak Meningkat", [https://semarangkota.go.id/p/4433/dinkes\\_kota\\_semarang\\_sebut\\_kasus\\_diabetes\\_pada\\_anak\\_meningkat](https://semarangkota.go.id/p/4433/dinkes_kota_semarang_sebut_kasus_diabetes_pada_anak_meningkat), (Accessed August 28, 2023).



losing around 56% fat, compared to those who are sleep-limited, who only lose about 26% fat. Therefore, these findings indicate that sleep quantity has a significant role in weight control and prevention of obesity in adolescents.

In addition to physical problems such as obesity and diabetes, mental health problems are also rampant among teenagers. Mental health is an important aspect that is often overlooked in discussions about non-communicable diseases in adolescents in the city of Semarang. Although often overlooked, mental health has a significant impact on the quality of life and well-being of adolescents. During puberty, adolescents often face health challenges which are part of their development both physically and mentally. However, there is no adequate explanation of the concrete impacts that arise during this process.

One of the effects felt is the increased sensitivity of adolescents, which can increase their risk of depression. This is caused by a significant increase in blood flow to the brain during adolescence. Certain parts of the brain that may not get adequate blood supply become more sensitive and tend to be prone to feelings of anxiety and depression. Girls have an even higher risk of developing schizophrenia because of differences in their brain structure from boys, with the hormone estrogen, which causes an increase in blood supply to the brain, as a contributing factor.<sup>26</sup>

Current technological factors play an important role in increasing the risk of lack of mental health in adolescents. The increased use of modern technology,

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<sup>26</sup> Dinas Kesehatan Kota Semarang, "Hari Kesehatan Jiwa Sedunia, Kementerian Kesehatan Republik Indonesia Fokus pada Kesehatan Mental Remaja", <https://dinkes.semarangkota.go.id/index.php/content/post/81>, (Accessed on 01 September 2023).

especially social media and mobile devices has become one of the factors contributing to the increase in mental health problems in adolescents. This statement is proven by research (Yuhana, Mariyati, & Puspitasari, 2023) which was conducted on teenagers at SMAN 8 Semarang involving 291 respondents aged between 15 to 18 years. This study focuses on analyzing the relationship between social media use and adolescent mental health. As a result, the majority of respondents at SMA N 8 Semarang, as many as 120 people (41.2%), often use social media. Meanwhile, most of the mental health problems at this school were in the disorder category, with the number of respondents reaching 197 people (67.7%).

These findings indicate that there is a significant relationship between social media use and adolescent mental health at SMA N 8 Semarang. The study also noted that the majority of respondents experienced emotional mental disorders. Some of the most common symptoms include frequent headaches, loss of appetite, sleep disturbances, fear, anxiety, difficulty thinking clearly, and difficulty enjoying everyday activities. Their daily activities are often neglected, they feel unable to play a role in life, lose interest in many things, feel worthless, feel tired easily, and continue to feel tired all the time.

It is important to remember that stress and depression can affect anyone, regardless of age, if we do not have adequate skills to manage our emotions. Mental disorders that arise due to the inability to manage emotions can also have a negative impact on our physical health.