No. 553 OCTOBER 10, 2025

The Argus

Since 1954

A Glimpse into Social Structures Revealed Through Jamal's Journey

A Cinematic Journey that Mirrors the Cycle of Real-world Poverty

Inequalities of Life and Opportunities Exposed in the Slums

The Hidden Link Between Slum Survival and the Quiz Show

The Cycle of Poverty Repeating Across Generations

The Argus

ESTABLISHED 1954

Published monthly except on school holidays by and for the students of Hankuk University of Foreign Studies, The Argus, the campus English magazine, pursues the highest standard of campus journalism and academism.

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Printed by HONG DESIGN | Tel: 464-5167 Fax: 464-5168

Editorial

Conquering the Impossible Through Cooperation

There are moments in life when we encounter challenges that seem utterly insurmountable. They may be deeply personal or may be rooted in broader societal structures, such as inequality or systemic barriers. When confronted with such impossibilities, some may surrender to a sense of helplessness, while others push forward; yet even those who attempt to persevere often find themselves exhausted when struggling alone. After all, no individual possesses all the knowledge required to tackle every obstacle. As Isaac Newton once said, "If I have seen further, it is by standing on the shoulders of giants." History shows us that cooperation and solidarity allow us to go beyond individual limits.

Humans exist within the vast system of society, where each of us functions as a cog in an intricate machine. When every cog fulfills its role and works in harmony with others, society moves forward, but when one stalls, or when one acts without regard for the rest, the system falters. This October issue underscores a simple yet powerful truth: cooperation can turn impossibility into possibility. Poverty, for instance, has long been perceived as a permanent, unsolvable problem, but when poverty is understood as a structural issue, solutions emerge. Improving environments in underprivileged areas, building stronger safety nets for children and families, and reforming education systems to expand access can dismantle the barriers of poverty when pursued collectively.

The same applies to urban underground infrastructure, which poses recurring risks that cities often struggle to resolve. However when citizens and policymakers unite, solutions can be devised. Similarly, the rise of Artificial Intelligence (AI) has led to the unsettling phenomenon of "AI psychosis," yet awareness of the mental health risks of overreliance on AI can inspire collective efforts to redesign programs and reform regulations to safeguard the well-being of humans. Even Alzheimer's disease, an enigma since its discovery in 1906, once seemed impossible to combat. More than a century later, through the relentless cooperation of researchers worldwide that glimmers of treatment are beginning to emerge.

The challenges before us often appear overwhelming. However, instead of despairing with the question, "What can I possibly do?," we must shift our focus to, "What can we do together?". Just as Newton reminded us, our greatest strength lies not in acting alone but in lifting each other higher. When we do so, the impossible becomes visible.

By Kim Si-yon
Editor-in-Chief

김시연

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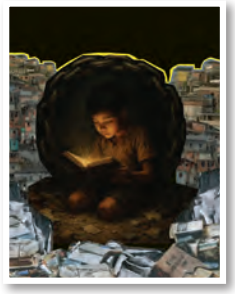

Cover Story

>> The 2009 film Slumdog Millionaire goes beyond the story of Jamal, a boy who wins a quiz show, to symbolically illustrate how the shackles of poverty entrap individual lives. Jamal answers the questions not from knowledge gained through formal schooling but through survival experiences on the streets, yet behind them lie violence, exploitation, and the incompetence of public authority. In reality as well, countless slums such as those in Dharavi in Mumbai, Tondo in Manila, and the Favelas of Brazil still fail to guarantee basic rights such as education, housing, and healthcare. Through Jamal's journey, let's take a closer look at poverty not as a phenomenon of individual misfortune but as a structural and social issue, requiring social solidarity and institutional reform.

GSC Partners with meBOOK to Offer Discounted E-book Textbooks


©Instagram @hufsstudent

▲ The meBOOK application offers unlimited digital textbook access, mobile and tablet support, and diverse digital learning tools.

In fall semester of 2025, the General Student Council (GSC) of both campuses of HUFS has partnered with the online learning platform "meBOOK" to provide students with discounted e-books of textbooks for the Minerva Humanities lecture as well as those published by HUFS University Knowledge Contents and Press. This partnership is expected to ease the financial burden of students who need textbooks to review lectures or to supplement study materials during the midterm exam period in October.

"meBOOK," an e-book application by Megastudy Education, offers HUFS students up to 85 percent off Minerva Humanities Reading and Discussion textbooks and 60 percent off publications from HUFS University Knowledge Contents and Press, the university's publishing body responsible for producing and distributing academic, cultural, and institutional works. Purchased materials are accessible during the usage period on all mobile operating systems, including iOS for iPhones and Android for Samsung Galaxy users, with features like digital notetaking, dual-screen mode, and tagging to enhance study efficiency.

Jeong Gu-beom, a junior majoring in the Department of Russian, said, "I always found it inconvenient to carry heavy textbooks, so I'm glad I can now study without them. Many students use tablets, so accessing e-book textbooks is truly great." Furthermore, Na Min-seok, the President of BAKDONG, the 59th GSC of HUFS Seoul Campus stated, "We hope this project will help ease textbook costs." This partnership is expected to improve learning efficiency and lower expenses, encouraging wider use of e-book textbooks.

By Song Eun-seo
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HUFS Students Grapple with Seoul Campus Library Cleanliness Issues

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▲ Trash bins in front of the Seoul Campus Library reading room overflow, calling for students' cooperation.

As midterm exams approach at HUFS, the Seoul Campus Library study rooms are bustling with students. However, this has renewed attention to persistent issues of bathroom cleanliness and waste disposal, which are expected to worsen during the exam period.

With more students using the library around the clock, careless habits are causing frustration. Overflowing trash cans, poor ventilation, and unsanitary restrooms are cited as major disruptions. Park Jeong-won, a senior in International Economics and Law, said, "During exams, the library stays crowded overnight, leaving trash cans overflowing and restroom flooded, leading to poor hygiene."

To address these issues, the 59th Seoul Campus General Student Council (GSC), BAKDONG has expanded the "Library Nudge Project," which was first implemented in 2024, into the current "HUFS Donut 2025 Project." Through this initiative, the GSC is making efforts to increase waste disposal capacity and promote a proper culture of recycling. In addition, the Bureau of Human Rights Solidarity of GSC which pays attention to the affairs of the school community is continuously monitoring this matter. Even with efforts at the university level, students' responsible behavior is essential for maintaining the cleanliness of the library.

By Song Eun-seo
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Tumbler Washer Pilot at HUFS Cafeteria of Seoul Campus

HUFS Cafeteria of Seoul Campus has launched a pilot operation of a tumbler washer from Aug. 19, 2025 to Oct. 19, 2025. The initiative aims to encourage reusable tumbler use, provide convenience to use tumbler, and promote environmental sustainability among students and staff.

This pilot operation is part of a project led by the LG Green Value Youth: RE COFFEE team, which aims to address environmental issues caused by coffee consumption, including the waste generated from people's coffee habits. The pilot launch of the tumbler washer is also intended to promote tumbler use on campus and encourage sustainability and environmental protection. To further encourage the use of the tumbler washer, the team held an event where participants who share their tumbler washer experience on Instagram Stories can be entered into a draw to win prizes. Located next to the water dispenser in the HUFS Cafeteria of Seoul Campus in the Humanities Building, the tumbler washer allows users to place their tumbler inside, close the central door, and press the button on the top screen for automatic cleaning.

©Jo Hae-deun / The Argus

▲ A tumbler washer operates in the HUFS Cafeteria of Seoul Campus in the Humanities Building, promoting tumbler use among HUFSans.

Lee Tae-heon, a freshman studying in the Open Major Track in the College of English, said, "The tumbler washer is very convenient to use, requiring only pressing a few buttons after placing the tumbler inside, but I have rarely seen anyone else using it." He added, "The machine can be properly utilized only if tumbler distribution comes first." For such a well-intentioned system to achieve meaningful results, increasing the number of tumbler users on campus must be prioritized.

By Jo Hae-deun
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HUFS Students' Youth Future Advancement Program to Conclude in 2025

The 2025 fall semester non-regular course, the Student-Customized Employment Service: Youth Future Advancement Program, will conclude on Oct. 31, 2025. The course was designed for students participating in the Build-up Project to explore future occupations, offering insights into new job opportunities emerging in the era of digital transformation and artificial intelligence.

This Program is part of the Build-up Project organized by the Ministry of Employment and Labor. Through online lectures, it introduces students to changing job trends, new career paths across academic disciplines, and possibilities such as job creation. Although originally created for Build-up Project students, the program has been made available on LMS (e-class) allowing all current students, alumni, faculty, and staff to enroll freely.

©Jo Hae-deun / The Argus

▲ The Career Development Center introduces students to future career paths through the Youth Future Advancement Program.

A representative from the Career Development Center noted that, "While the online format makes it difficult to fully evaluate learning outcomes and only quantitative hours of completion can currently be tracked, the program has nonetheless given students valuable opportunities to begin clarifying their career goals." The representative added, "Although the program will close on Oct. 31, 2025, due to contractual terms, it will be reopened so that students can continue to access it throughout the 2025 academic year." The program is expected to remain a meaningful resource for students deeply concerned about their career paths, fostering both self-directed exploration and employability skills.

By Jo Hae-deun
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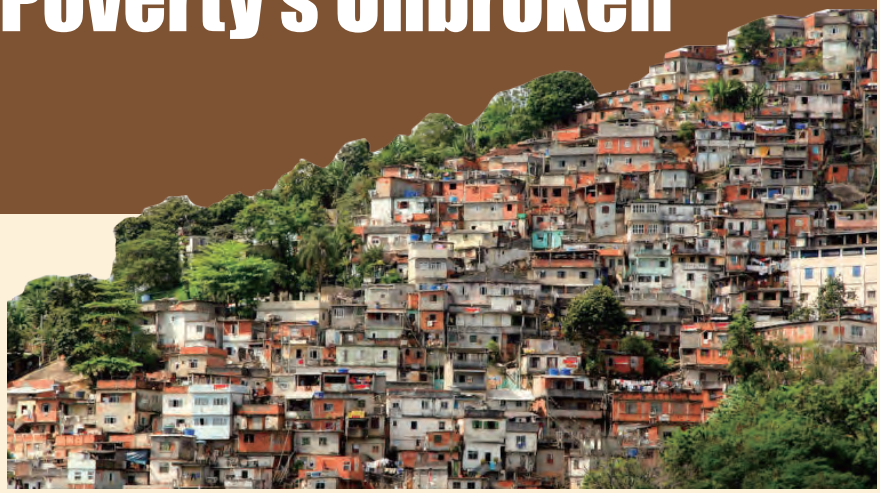
From Slumdog Millionaire to Reality: Poverty's Unbroken Shackles



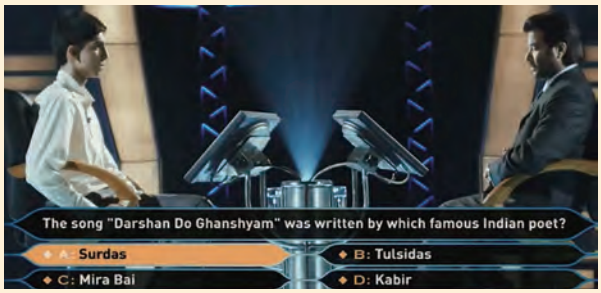
By Song Eun-seo
Staff Reporter of Culture Section

"It is written." This phrase encapsulates the secret to victory for Jamal, the main character from the slums in the film *Slumdog Millionaire* (2008), who manages to win a quiz show with a prize of 20 million rupees* (US$227,591.40). The film begins with Jamal on the brink of winning the grand prize on a TV quiz show, and as the story unfolds, it reveals how he was able to answer every question correctly. Jamal's journey through the questions is not merely a game; each answer is tied directly to his life experiences in the slums of India. Begging on the streets, surviving violence and exploitation, and resisting the temptations of crime all acted as clues that led him to the correct answers. Through this narrative, the film symbolically illustrates the harsh reality that the poor cannot easily escape the shackles of poverty imposed by structural constraints.

However, this is not just a story confined to the screen. Today, slums such as those in Dharavi in Mumbai, Tondo in Manila, and the Favelas of Brazil, remain places where access to basic rights like education, healthcare, and housing are still denied. Residents in these areas are exposed to crime and exploitation, trapped in unstable labor markets and poor living conditions, unable to break free from the vicious cycle of poverty. On October 17, the United Nations (UN) observes the International Day for the Eradication of Poverty to remind that poverty is not the problem of a particular nation or class, but a challenge faced by all of humanity. Jamal's story in *Slumdog Millionaire* shows what individuals endure within the cycle of poverty, while also urging people to reflect on what society must do to overcome it. The Argus, through this lens, seeks to reframe poverty as a collective challenge of humanity, reaffirming the necessity of social solidarity and institutional reform.

* Rupee: It refers to the currency unit of India.

Summary of the Movie, *Slumdog Millionaire* (2008)



▲ Jamal sits on the hot seat of the TV quiz show, *Who Wants to Be a Millionaire*, answering a quiz question in *Slumdog Millionaire*.

Jamal, who was born and raised in the slums of Mumbai, India, suddenly finds himself competing on the wildly popular national TV quiz show, *Who Wants to Be a Millionaire*, and advances to the final round. However, instead of receiving praise for his remarkable performance, Jamal is met with suspicion. The police assume that, as an uneducated boy from the slums, he must have cheated, and they subject him to torture and interrogation. Contrary to their expectations, each of Jamal's correct answers was drawn not from textbooks but from his lived experiences of poverty. Every question on the show was linked to a fragment of his life. The question, "The song *Darshan Do Ghanshyam* was written by which famous Indian poet?" was tied to his memories as a child beggar. The answer to the question, "In depictions of God Rama, he is famously holding what in his right hand?" was gained through the trauma of losing his mother in a Hindu-Muslim riot. The question of "Which cricketer has scored the most centuries in first-class cricket?" was connected to a moment when he tried to rescue the girl he loved. As Jamal continues to answer correctly, the police, unable to accept how someone without formal education could succeed, press him in the interrogation room to explain how he knew the answers. It is through this process that the story of Jamal's past gradually unfolds.

Poverty and Inequality of Opportunity

1) The Inheritance of Poverty

In the final stage of the quiz show, Jamal recalls the experiences that allowed him to answer the questions correctly while being interrogated under suspicion of cheating. For the first question, he recalls his childhood playing on the runway with his brother Salim and being chased by the police. The film uses this scene to depict the slums' dire conditions: alleys full of garbage, tangled wires, and homes without electricity. Residents wash and bathe in polluted rivers, showing that even basic needs are unmet. This depiction is not mere cinematic exaggeration. It was filmed in Dharavi, Mumbai, one of the world's largest slums, where 1 million people live within just 2 square kilometers. With a severe shortage of toilets, residents are forced to use public restrooms, and water is supplied only four hours a day. The river is filled with trash, emitting a foul odor, and sanitation is extremely poor. A similar case is Tondo, Manila, built on piles of garbage, where health risks and fire hazards are constant. In 2024, a fire destroyed 1,000 homes and displaced 1,500 families, starkly exposing this vulnerability.

Such poor environments are not transformed in one generation. Children who grow up without basic living conditions often cannot attend school, perpetuating intergenerational poverty. Inadequate educational opportunities block the path out of poverty. According to the Korea Institute for Health and Social Affairs' report, *Educational Inequality and the Inheritance of Poverty* (2007), parents' educational background and income directly affect their children's academic achievement and, in turn, their children's future economic status. This can also be observed in Brazil's Favelas. Attendance rates at public schools in the Favelas are far lower than at private schools attended by middle-class children. For children in the Favelas, scavenging for food in garbage dumps or working on the streets is seen as more immediately effective than sitting in classrooms to prepare for the future. The phenomenon of children "choosing" to give up their education is not truly a choice but the consequence of an environment that fails to guarantee even basic survival. The UN Educational, Scientific and Cultural Organization (UNESCO)'s *Global Education Monitoring Report Summary 2020: Inclusion and Education: all Means all* (2020) shows that as of 2018, for every 100 adolescents from the wealthiest 20 percent of households that completed lower secondary education, only 37 from

the poorest 20 percent did so. This is closely tied to living conditions. According to the first table in the study by Rafiqul Islam and Md. Mahmudul Hoque, "Trade-Off Between Schooling and Labor for Children: Understanding the Determinative Factors Among Rural Households in Bangladesh" (2022), 36 percent of school dropouts left to support household income, while 16.1 percent left school to start work. For children in slums, survival in the present takes priority over long-term investment in the future through education. Professor Kim Mi-su of the Department of Indian Languages and Cultures at HUFS explains, "One of the greatest causes of intergenerational poverty is the absence of education. To solve poverty and inequality, education must come first." She noted, "Even when governments provide subsidies or food aid, policies cannot work unless residents understand their purpose and how to use them." Professor Kim further emphasized, "The basic knowledge gained in primary education not only improves efficiency in manual labor but also lays the foundation for acquiring new skills. Through education, people begin to recognize the potential of long-term growth over short-term gains, choosing to earn 2 dollars tomorrow rather than 1 today." However, the reality remains stark. In slums many either fail to see the necessity of schooling or are forced into labor for survival. Professor Kim stressed, "The very realization of education's necessity and usefulness is only possible through education itself," warning that without addressing educational inequality, breaking the cycle of poverty is nearly impossible.

For children in the Favelas, there is little room for long-term investment in the future. When survival itself is precarious and food cannot be secured daily, education falls behind in priority. Like their parents, many resort to scavenging or encounter criminal groups, pushing schooling further away. Scraps of food or items from trash dumps bring more immediate value than textbooks. Growing up watching drug dealers and gang members handle large sums, children often idolize them or are drawn into such groups through family ties. By contrast, middle-class children receive stable support, attend private schools with better environments, and nurture hopes for the future, motivating further study and higher advancement rates. Ultimately, parents' poverty is directly passed down, forming a structural cycle. The lack of educational opportunities among the poor stems from unstable living conditions that make survival skills more urgent than learning, showing that their lives are shaped not by laziness but by strategies forced by inequality.

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▲ A public school classroom in the Favela stands half-empty as many children are absent.

2) Barriers to Social Mobility

Educational inequality makes it difficult for people from poor backgrounds to move upward socially, linking directly to a structural system that prevents them from escaping poverty. According to the "Dual Labor Market Theory" discussed by Researcher Ji Eun-Jung of the Korea Employment Information Service in the article, "Determinants of Poverty Escape Among the Working Poor" (2007), the labor market is divided into the primary labor market, characterized by high wages, good jobs, and employment stability, and the secondary labor market, defined by low wages, precarious employment, and labor-intensive conditions. The primary labor market includes high-income professional occupations such as doctors, lawyers, and permanent employees at large corporations, while the secondary labor market encompasses smaller businesses and irregular workers in poorer conditions. For those from low-income households, economic hardship often pushes them into the job market early. As a result, they are more likely to enter the perilous secondary labor market rather than the more stable primary labor market, which requires longer periods of education and training. Researcher Ji also explains once placed in the secondary labor market, the "lock-in effect" described by the "Working-poor Labor Market Theory", makes it extremely difficult to move into the primary sector, even for relatively competitive workers. This dynamic reduces opportunities for stable, well-paying jobs, reinforcing the cycle of poverty and entrenching inequality across generations.

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▲ Santa Marta Favela sprawls densely across the hillside in Rio de Janeiro, Brazil.

Poverty creates environments that restrict individual development and act as barriers to advancement, often through stigma. In Brazil, youth from the Favelas face discrimination in the labor market regardless of academic achievement, burdened with the label of coming from areas associated with drugs and crime. Companies in Rio de Janeiro and São Paulo, Brazil often view applicants from Favelas as untrustworthy, denying them even interviews. Santa Marta Favela in Rio de Janeiro, just 53,706 square meters in size but home to 6,000 people, illustrates this vulnerability. According to the November 6, 2013 article published by *RioOnWatch*, an English-and Portuguese-language news site, nearly 30 percent of Favela residents reported prejudice, with 30 percent linking it to their residence, and 37 percent said they had been searched by police. A more recent article from *Voz das Comunidades*, published on April 22, 2025, "Jovens de Favela Ainda Inferential Preconceito e Barreiras para Entrar no Mercado de Trabalho" reported that in a 2023 survey by the Rio de Janeiro city government, 51 percent of Favela youth aged 18 to 24 were unemployed. Bruno, a young resident of the Complexo do Alemão Favela, stated in an interview that despite taking English and computer classes and searching for over a year, he had not advanced as far as an interview. He submitted resumes to multiple websites and visited markets, factories, and metal workshops but never received a job offer. Bruno suspected that his lack of opportunities was linked to the stigma of being seen as "lazy and dirty" simply for being from a Favela. Similarly, media portrayals contribute to this stigma. On August 26, 2020, TV Globo described the Maré Favela, home to 140,000, as a "bunker of criminals," sparking backlash and the counter-slogan "#MaréBunkerOfPotential." As *RioOnWatch* noted, such narratives criminalize Favelas, eroding community identity and opportunities. These cases show that the Favela youth are excluded from stable careers not due to lack of ability but because of stigma, pushing them into precarious work and limiting upward mobility.

Absence of the State and Institutions

1) The Lack of a Social Safety Net

In *Slumdog Millionaire*, multiple scenes depict how state authority is misapplied to the poor or how institutional protections are lacking. After losing his mother, Jamal lives in a garbage dump with his brother Salim and another orphan, Latika. One day, a seemingly kind stranger named Maman approaches them. At first praised as an "angel" for offering the orphans free food and shelter, Maman is soon revealed to be a criminal who exploits children by forcing them onto the streets to beg, seizing their earnings. To maximize profits, girls are sent out carrying babies to arouse sympathy, while boys who sing well are deliberately blinded as to appear more pitiful and receive more money. Witnessing this brutality, Jamal, Salim, and Latika escape, though Latika is separated from them in the process.

The film starkly exposes the absence of a social safety net for the poor. Orphaned children fall prey to beggar gangs without adult protection, while countless residents are left defenseless against riots that claim their lives. Latika is captured by Maman and raised to become a prostitute, later falling under the control of crime lord Javed, who locks her away and robs her of physical freedom. In one scene, as she tries to reunite with Jamal at a train station, she is abducted by Javed's men, underscoring her helpless reality. Throughout all these ordeals, there is no legal or institutional mechanism to protect them. The protagonists are repeatedly exposed to danger, yet no social institution intervenes; misfortune is overcome only through their own strength or by sheer chance.

This absence of state protection reflects real-world conditions. The 2016 KBS documentary "Tears of the Favela" illustrates life in Brazil's Gramacho Favela, where hospitals face an acute shortage of medical staff, leaving many patients untreated even after waiting an entire day.

Water and electricity supplies are unstable, and daily life is marked by insecurity. Deprived of a basic safety net, residents are denied even minimum rights such as healthcare, housing, and sanitation, forcing them into isolation from society. In these neglected spaces, the role of the state is often replaced by volunteers. In Gramacho, volunteers visit once a month to distribute food and hygiene supplies, goods that should be guaranteed by the government. Where the state has effectively shirked its responsibility, volunteers instead offer support. As a result, slum residents are left in a dangerous struggle for survival, cut off from the protections of healthcare, housing, and sanitation. The lack of a social safety net not only isolates them from society but also exposes them to crime, violence, and constant threats to their basic right to live.

2) The Incompetence of State Authority in Slums

Instead of serving as a shield of protection, state authority often turns into a threat against the poor. In *Slumdog Millionaire*, Jamal is able to answer the question, "In depictions of God Rama, he is famously holding what in his right hand?" by revisiting the childhood memory of losing his mother in a riot. While washing clothes at the riverbank, Jamal's mother is killed in a sudden outbreak of Hindu–Muslim violence. The village descends into chaos, with people beaten and homes set on fire. Jamal and his brother Salim flee to the police for help, but instead of protection, the officers wave batons and shout, "Get lost! Can't you hear me?" chasing the boys away. Even as a man runs past engulfed in flames, screaming for his life, the police drive away the frightened children rather than protecting them. The film highlights how those living in slums are left vulnerable to danger and crime without any protection from public authority. This vulnerability is mirrored in reality. Santa Marta Favela in Rio de Janeiro, for example, is a community of 6,000 people crammed into just 53,706 square meters on the slopes of Morro de São Vital. Like many Favelas, it is considered to be full of crime. Here, order is often governed not by law but by drug traffickers, with power determined by violence. According to the KBS documentary, more than 4,000 incidents of violence, theft, and shootings occur daily in the Favelas. Because drug dealers frequently operate within these areas, ordinary civilians are easily drawn into

©KBS Special

▲ Armed police enter the Favela to crack down on drug traffickers.

crime. Many join gangs by following relatives or friends already involved, while others are forced to cooperate with criminal organizations that control community life.

Even public authority fails to act as a protective shield for favela residents. Drug lords often use young boys and women from the slums as lookouts at community entrances. This blurring between civilians and criminals makes it difficult for police to distinguish between the two. When police or military units are dispatched to Favelas to confront traffickers, violent shootouts often ensue, leaving gang members or police officers dead or wounded. During these clashes, both sides tend to focus on eliminating each other rather than protecting civilians, leading to significant collateral damage. As a result, for Favela residents, the police are not saviors but entities to be avoided. The KBS documentary notes that on days when the police enter the Favela, residents never step outside their homes, as gunfights are inevitable. Worse still, even when civilians are killed in these confrontations, public authorities assume no responsibility. For residents, the police are a threat, and the government an indifferent presence that has abandoned them altogether. Adriano, a resident of Gramacho Favela, captured this despair, said, "the government and the police have given up on this place." He also added that the Favela is a forgotten land to the state.

Efforts to Eradicate Poverty

Professor Kim Chan-whan of the Department of Indian Languages and Cultures at HUFS explains, "For the poor to escape poverty, it is essential to establish social and economic structures that enable self-reliance." In

India's slums, there are numerous factors driving people from rural areas into cities, but the industrial base of urban areas is insufficient to absorb them. Agricultural mechanization has steadily reduced the demand for labor in the countryside, yet cities have not developed enough labor-intensive industries to accommodate the influx. As a result, tenant farmers who lose their livelihoods due to agricultural automation migrate to cities, but with too few jobs available, many end up settling in urban slums. Some manage to find employment as servants or drivers for wealthy households, but the majority remain confined to insecure, low-paying jobs such as sewing or sorting plastic waste, trapped within the cycle of poverty. For these populations, the most urgent necessity is quality jobs. Only when stable work environments and reliable incomes are guaranteed can children have access to education, enabling the next generation to enter labor markets that offer decent living conditions and thereby set in motion a virtuous cycle for escaping poverty.

To address structural poverty, many countries have launched initiatives. A notable case is Bangladesh's Grameen Bank, which pioneered microcredit by offering small, collateral-free loans to the poorest. This allowed families to start small businesses and sustain themselves. Such measures work best not as handouts but as efforts that build the poor's own capacity. At the global level, the UN has set the Sustainable Development Goals (SDGs) to end poverty in all forms by 2030, including eradicating extreme poverty, halving poverty rates, expanding social protection, and securing coverage for vulnerable groups. The UN Department of Economic and Social Affairs highlighted best practices, selecting the "Burkina Faso Poverty Eradication Project" by Educators Without Borders as a model. This program provided rural women with a 1,200-hour literacy course, vocational training, and microloans. Poultry farming and cooperative management education enabled them to earn independent incomes. Supported by private donors such as Samsung Electronics and the Community Chest of Korea, the project won the UNESCO King Sejong Literacy Prize in 2014. As women gained education and skills, they began voicing themselves in families and communities, achieving both poverty reduction and gender equality. The UN stressed that such examples accelerate the SDGs, showing how international efforts can move beyond temporary relief to structural and institutional solutions for eradicating poverty.

©UN

▲ The UN presents 17 SDGs, ranging from ending poverty to climate action, to shape a shared future for humanity.

The film *Slumdog Millionaire* symbolically demonstrates, through the life of its protagonist Jamal, that poverty is not a matter of individual misfortune, but a brutal cycle born of social structures and institutional neglect. Jamal was able to answer the quiz show questions not with knowledge acquired in school, but through the suffering he endured while living in poverty. This reflects the stark reality that the poor are left with no assets save for the hard lessons learned in their struggle for survival, deprived of basic rights. Poor housing conditions, the absence of a social safety net, and a lack of educational opportunities perpetuate the inheritance of poverty and further entrench structural inequality. Poverty cannot be solved through charity or individual effort alone; instead, systemic reform and social solidarity are required to open new pathways of escape. Such a perspective urges people to reframe poverty not as someone else's problem, but as a collective challenge shared by all humanity. Ultimately, this shift in recognition is expected to play a crucial role in guiding us toward a more just and equal society.

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Beneath the Ground: The Hidden Threat to Cities

By Jo Hae-deun
Staff Reporter of Social Section

Beneath the city's skyline lies an underground world that sustains daily life through facilities such as parking lots, pipelines, and rain tanks. A March 2023 report, *Development Plans for the Multifunctional Use and Efficient Management of Seoul's Underground Facilities*, authored by Park Min-cheol, senior researcher at the Urban Infrastructure Research Division of the Seoul Institute, reveals that underground facilities in Seoul, South Korea (hereafter Korea) extend 52,697 kilometers nearly seven times the length of its 8,245 km of roads. Yet chronic challenges persist, including flooded parking lots caused by insufficient water shields, road collapses triggered by sinkholes, and urban flooding worsened by inadequate stormwater detention facility. The Argus turns its attention to these hidden spaces on October 31, World Cities Day, designated by the United Nations, to explore their challenges and implications for sustainable urban development.

Defending Flooding of Underground Parking Lots: Installation of Water Shields

Problem Flooding due to Limited Water Shield Installation in Underground Parking Lots

In 2022, Typhoon Hinnamnor caused severe flooding in an underground parking lot of an apartment in the city of Pohang, just over 200 km east of Seoul, tragically killing seven residents who went to retrieve their vehicles. With climate change, extreme rainfall* raises concerns over underground parking lot vulnerability. Underground parking lots are closed structures, with vehicle entrances double as escape routes and rainwater inlets, while waterproof floors hinder natural drainage. Heavy rain causes water to flow into sloped entrances, and although apartments install drain pumps, these pumps rely on electrical rooms located underground too, which can be flooded and cause pump failure.

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▲ Extreme rainfall increases concerns over flooding in underground parking lots.

To address this vulnerability, the government has recommended the installation of water shields in existing underground parking lots. These devices act like sluice gates, physically blocking water from entering the parking lots and protecting underground electrical rooms so pumps can function. On June 28, 2025, the Fire Insurance Association conducted a test by installing a 1-meter-high water shield at the entrance of an apartment underground parking lot. The other three sides were covered with plastic to create a simple water tank. When 50 centimeters of water was poured to simulate heavy rainfall, the water shield effectively blocked all water. The effectiveness of a water shields has been demonstrated in past incidents as well. In 2022, the Cheongnam Building located in Seocho

district avoided damage from extreme rainfall thanks to its water shield. Despite its proven effectiveness, installation rates remain extremely low. The Korean Fire Protection Association reports that only 9 percent of underground parking lots nationwide are equipped with a water shields, posing ongoing risks to residents and property.

©Korean Fire Protection Association

▲ The water shield test video proves the effectiveness of the water shield.

*Extreme rainfall: This term is defined as precipitation of at least 50 millimeters in one hour or 90 mm in three hours, and it is immediately recognized when both criteria are met simultaneously or when hourly precipitation reaches 72 mm.

Cause — Limited Scope of Mandatory Water Shield Installation and Building Owners' Reluctance

The low installation rate of water shields stems from the small number of buildings legally required to have them and the reluctance of owners without such obligations. Article 49 Section 55 of the current Building Act requires that buildings constructed by the state, local governments, or public institutions in flood-prone districts be equipped with flood-prevention facilities such as a water shield for flood and waterproof protection. However, the law's scope is very limited, leaving many structures unregulated: buildings constructed before its enforcement, those absent from inundation trace maps, and private buildings fall entirely outside its scope. While public buildings used by many citizens are required to have flood-prevention measures, private buildings are excluded because compulsory regulations would infringe on private property rights, which is difficult to justify from a social safety perspective. To compensate for this, Seoul and some other local governments have expanded mandatory installation through their own ordinances. However, due to the principle of non-retroactivity, under which laws apply only to actions or facts occurring after their enactment, these regulations cannot be applied to buildings constructed before their enforcement, leaving countless existing buildings unable to be compelled to install water shields.

In addition, although the state has recognized the necessity of water shields by mandating their installation in certain cases, building owners without obligations often avoid them due to the high cost. Water shields are divided into detachable and automatic types. Detachable water shields cost 10–20 million won (US$7252,43–14,504,85) per unit, and automatic shields exceed 100 million won (US$72,524,25), creating a significant financial burden. Detachable types must be installed before flooding, and installation requires two adults with basic training, making them impractical in buildings with elderly residents or others unable to handle installation.

There is also reluctance because installing water shields may lead to stigmatization as a flood-risk residence. According to a report by *Weekly Donga* on July 14, 2024, a real estate agent in the Sillim-dong of Seoul said that if a landlord opposed installation due to such concerns, water shields could not be installed. Kong Ha-sung, Professor at Woosuk University Department of Fire and Disaster Prevention, explained that "Water shields are not being installed because people are reluctant to have their areas designated as disaster-risk zones."

Solution — Expansion of Mandatory Water Shield Installation and Implementation of Incentive Policies

For already constructed buildings, it is necessary to establish a system that encourages water shield installation. Applying amended laws retroactively to buildings that received design approval before the law's enforcement could cause significant confusion. Retroactive application means applying the law to actions taken before the law's enforcement, and imposing new obligations on already approved buildings would undermine predictability and legal stability while creating social confusion. Accordingly, strong incentives can be linked to government flood recovery policies. Currently, disaster relief funds are calculated only by the scale of damage, without

considering preventive measures. While support based on damage is reasonable, providing funds unconditionally may reduce incentives for owners to act in advance.

Therefore, linking water shield installation to disaster relief fund calculations can strengthen incentives for preventive measures. According to current Ministry of the Interior and Safety (MOIS) guidelines, these funds are provided to victims whose homes are flooded and unusable without repairs. The "support standard index" is calculated by multiplying the support rate with the unit cost of housing flooding under the Ministry of Land, Infrastructure and Transport (MOLIT) notice, "Natural Disaster Recovery Cost Calculation Standards," and dividing by 1,000. If this calculation also considers whether the owner installed a water shield, it can further encourage installation. In the United States, enrollment in the National Flood Insurance Program reflects the installation of water shields and drainage pumps approved by Federal Emergency Management Agency (FEMA) in insurance premium calculations, offering discounts. In high-risk areas like Florida, homes with FEMA-standard flood prevention facilities receive premium reductions, encouraging preventive measures. Insurers assess factors such as building elevation and flood-proofing improvements compared to pre-flood conditions and apply differentiated premiums to promote investment. A 2024 report by Kim Seong-eun, Senior Researcher at the Seoul Institute on *Expanding Water Shield Installation for Underground Housing in Seoul* suggested revising disaster support rates and ordinances in flood-prone areas to hold homeowners accountable for damage from lack of water shields. Such measures can strengthen water shield installation incentives and prevent repeated underground flooding.

Preventing Sinkholes: Replacement of Aging Water and Sewage Pipes

Issue — Exacerbation of Sinkhole Problems due to Aging Water and Sewage Pipes

On March 24, 2025, a large sinkhole occurred at the intersection in front of Daemyeong Elementary School in Seoul, collapsing five lanes. One driver in the collapsed lane died, and another was injured. A sinkhole refers to ground subsidence. Under the Special Act on Underground Safety Management Article 2 Section 2, it is defined as ground subsidence during underground development or the use of an underground structure. Sudden sinkholes cause casualties and property damage. According to the Underground Safety Information from the MOLIT, over the past seven years, sinkhole incidents have caused 61 casualties and 118 damaged vehicles. The MOLIT reported that from 2015 to 2024, an average of 212 sinkhole incidents occurred annually, with 102 incidents in 2024 alone.

The main cause of sinkholes is leakage from aging water and sewage pipes. When water and sewage pipes age, they are prone to damage. According to Seoul statistics, in 2024, 55 percent of sinkholes in Seoul and other major cities were caused by damaged water and sewage pipes. Nationwide statistics on water and sewage pipes in 2022 show that 36.4 percent of water pipes and 43 percent of sewage pipes over 20 years old had aged. As water pipes age, leaks are likely to occur, making them a key cause of sinkholes. Professor Kim Doo-il at Dankook University's Department of Environmental Engineering explained, "When leakage occurs in aging water and sewage pipes, groundwater flows more than usual, causing soil erosion and void formation." He added, "During this process, the ground that cannot withstand normal pressure collapses, leading to sinkholes." In conclusion, aging water and sewage pipes that are not replaced increase the risk of sinkhole.

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▲ The sinkhole in Myeongil-dong, Gangdong district, raises awareness of ground subsidence.

Cause — Insufficient Replacement of Aging Water and Sewer Supply Pipes due to Budget Constraints

The replacement rate of aging water and sewer pipes is

very low. Most local governments classify sewer pipes older than 20 years as aged. According to an Ministry of Environment (ME) survey, only 16.9 percent of aging water supply pipes had been replaced or rehabilitated as of January 1, 2025. Aging water and sewer supply pipes are a major sinkhole risk, but budget constraints hinder adequate replacement. Maintenance and replacement of these pipes fall under local governments. The Water Supply and Waterworks Installation Act Article 16 and the Sewerage Act Article 9 require local governments to install and maintain water and sewer facilities, yet limited budgets make necessary replacements challenging.

Local government revenue comes from internal resources, such as local taxes and water bills, and dependent sources, including local and central government subsidies, but these funds remain insufficient to fully maintain aging pipes. Own-source revenue is insufficient because Korea's water bill is very low by global standards. According to Korea Hydro & Nuclear Power Co., Ltd., the average water bill in major overseas countries is 2,143 won (US$1.55) per square cubic meter, while in Korea it is only 796 won (US$0.58), about 2.7 times lower than the international average. According to ME data, selling water results in a deficit of 0.273 won (US$0.00020) per liter sold. This deficit makes it difficult for local governments to secure sufficient funds for maintenance and replacement of water and sewer supply pipes.

In addition, limited distribution of national subsidies and other dependent revenue restricts the replacement of aging water supply pipes. National subsidies for local water operators are set at 30 percent of total project costs, adjusted by local water production costs, fees, and financial status, based on the Enforcement Decree of the Water Supply and Waterworks Installation Act Article 66. Metropolitan cities receive 30 percent support, while cities and counties receive 60 percent due to lower fiscal self-reliance. Seoul, with the highest fiscal self-reliance, is effectively excluded from national subsidy. This central government subsidy approach leads to higher sinkhole rates in regions receiving less replacement national subsidy. According to the MOLIT, from 2020 to 2024, a total of 867 sinkhole incidents occurred across all 17 cities and provinces. Of these, 555 occurred in Seoul and metropolitan cities of Korea: Busan, Daegu, Incheon, Ulsan, Gwangju, and Daejeon, representing 64 percent of the total, showing that areas with the most sinkholes are ironically those receiving relatively low national subsidies for related maintenance projects.

Solution Securing Funds Through Municipal Bond Issuance

Although replacing aging water and sewer facilities is essential, metropolitan cities and Seoul with high fiscal self-reliance, which receive relatively low national subsidies, can turn to municipal bonds as a practical financing alternative. Local governments with strong fiscal self-reliance can repay municipal bonds more easily, making issuance less burdensome. A 2015 study by Kang Yun-ho in the *Korean Journal of Local Government Studies*, titled "An Analysis of the Effect of the Total Amount Limit System on Municipal Bond Issuance," confirmed that municipal bond issuance is relatively active in Seoul, metropolitan cities, and general cities with strong fiscal capacity because high own-source revenue ensures repayment ability.

Municipal bonds can be issued autonomously by local governments within an annual limit without central government approval, making the process relatively straightforward. Compared to expanding national subsidies, which require legal changes, or raising water fees, which may face social opposition, municipal bonds carry lower administrative and social costs. According to the "Standards for Formulation of Municipal Bond Issuance Plans" published by the MOIS in 2016, each local government may autonomously issue bonds within the annual total amount limit without central government approval. Also, under the Enforcement Decree of the Local Finance Act Article 10 Clause 2, the issuance limit is set at 10 percent of the previous year's budget, ensuring legal safeguards while enabling efficient fiscal management.

There are several cases of municipal bond use. The city of Jeonju, just over 200 km south of Seoul, issued bonds in 1984 for water supply expansion, and the city of Gimhae, just over 380 km south of Seoul, used bonds from 2011 to replace 217 km of aging pipes, repaying 753 billion won (US$546,107,602.50) of the 82.4 billion won

(US$59,759,982) principal to complete the project. Kim Hyun-ah and Kim Ji-young of the Korea Institute of Public Finance emphasized in their 2015 report, *Fiscal Efficiency of Local Water Supply*, that municipal bonds are a fiscally responsible alternative to national subsidies and enable sound project management through annual debt repayment plans, making them a practical way to fund water and sewer pipe replacement.

The Urban Flood Solution: Strengthen Stormwater Detention Facilities

Problem — Urban Flooding due to Insufficient Stormwater Detention Facilities

On August 13, 2022, the Gangnam Market with over 110 stores Seongnam-dong, in the city of Incheon, just over 40 km west of Seoul, was flooded, causing merchant damage. The low-lying Seongnam-dong has been undergoing construction of stormwater detention facilities since 2020, but delays in contractor selection and other factors slowed progress, worsening flood impacts. Stormwater detention facilities collect water during heavy rain to prevent sewer backups, then release it into rivers or sewers after water levels recede, proving highly effective in reducing urban flooding. According to the 2024 study, "Analysis of Status and Trends of Underground Infrastructure Facilities for Urban Flood Response: A Review," by the Graduate School of Water Resources, Sungkyunkwan University, record rainfall exceeding 380 mm per hour in Seoul in August 2023 caused widespread flooding and road closures, but Sinwol-dong equipped with stormwater detention facilities, experienced no flood damage, demonstrating their effectiveness as an urban flood mitigation solution.

Korea revised the Countermeasures Against Natural Disasters Act in 2014 and announced the enforcement decree to mandate installation of stormwater detention facilities. According to Article 16 of the Enforcement Decree of the Act, implemented on August 7, 2014, by the National Emergency Management Agency, those undertaking development projects or managing public facilities must implement rainwater runoff reduction measures or install facilities. Despite this legal basis, facility installation has been insufficient to handle the increased extreme rainfall from climate change, causing flood damage. According to a 2024 data submitted by the Ministry of the Interior and Safety to congressman Han Byung-do of the Committee on Security and Public Administration, that among 166 local governments, 42 were still developing plans and 29 had none, indicating widespread insufficiency. The shortage of properly installed facilities amid increasingly extreme rainfall highlights the urgent need for action.

Cause — Inadequate Administrative System and Management Framework

The main reason for insufficient installation of stormwater detention facilities is poor local government management and installation systems. A key example is the improper creation of inundation trace maps, which record flooding height, depth, and duration in flood-prone areas. Although Korea requires local governments, who experiencein flood-prone areas in their areato create and register these maps in the National Disaster Management System (NDMS), many either do not create them or omit multiple flood histories, resulting in poor facility safety management. According to the *2021 Board of Audit and Inspection of Korea* report (2021), among 24 local governments with the highest flood damage, 17 had not created any inundation trace maps. Additionally, among 215 maps submitted from 2019 to 2020, 18 were either unregistered or had critical data missing. Since the MOIS designates areas for stormwater detention facilities using these maps to assess reduction effects, poor preparation undermines the basis for facility installation.

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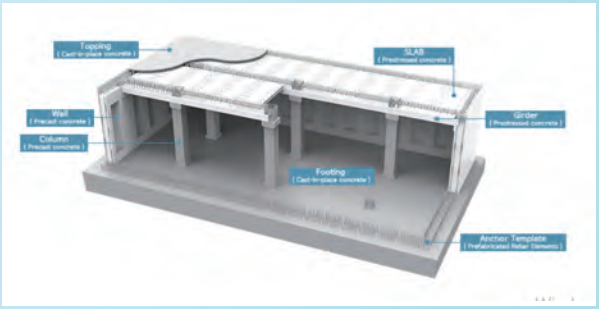
▲ Extreme rainfall makes urban flooding news increasingly common.

Furthermore, local governments often fail to fully comply with government installation standards when

constructing stormwater detention facilities. According to the MOIS standards, permanent structures like stormwater detention facilities must be designed using a 50-year design frequency, indicating the rainfall a facility should withstand once every 50 years. However, citing resident opposition and high costs, some local governments applied a 30-year standard. In Seoul, the analysis of Korea Meteorological Administration data since 2000, shows six instances exceeding this threshold, suggesting that flooding can overwhelm these facilities once every three to four years. In 2022, the Yangjae-dong stormwater detention facility in Gangnam district, designed with a 30-year frequency instead of the 50-year standard, failed to handle the rainfall, causing severe flooding in the district.



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▲ Stormwater detention facilities focus on ensuring smooth urban drainage.

Solution Granting Legal and Institutional Enforcement

The guidelines for creating inundation trace maps, which are key data for identifying flood-prone areas, stipulate that detailed information should be recorded, including the disaster name, location, date of flooding, flooding duration, and such. However, the methods for how to acquire and verify this data are not specified. As a result, differences in preparation depending on the discretion of local government officers create a structural problem that reduces the reliability of inundation trace maps. To establish and continuously maintain inundation trace maps nationwide, unified standards for data acquisition and reliability verification are required to reduce discrepancies among local governments.

One of the most effective approaches is to adopt survey techniques using Unmanned Aerial Vehicles (UAV). UAVs can capture wide areas with high precision in a short time and quickly acquire data while flood traces are still present. In fact, the Korea Disaster Prevention Association's 2023 report, *Applicability of UAVs for Creating Inundation Trace Maps, used UAV-captured video data with a Virtual Survey Tool* to recreate inundation trace maps for Yongdu Village in the city of Anseong, about 83 km south of Seoul. The recreated maps were then compared with existing maps to evaluate accuracy. The results confirmed that the UAV-based inundation trace maps closely matched the existing maps, demonstrating that UAV utilization is an effective method that ensures both speed and accuracy. UAV-based survey methods can address creation of inundation trace maps delays caused by poor local government management and installation systems.

As extreme rainfall intensifies with climate change and the use of underground spaces grows, recognizing and preventing their risks has become urgent. Though largely unseen, these spaces are vital to urban safety and daily life, yet recurring ground and underground flooding, sinkholes reveal regulatory blind spots. Addressing these issues requires stricter standards for water shields, renewal of aging pipelines, and expansion of stormwater detention facilities. To safeguard citizens and ensure sustainability, governments must strengthen management and preventive systems, reducing risks and building more resilient cities.

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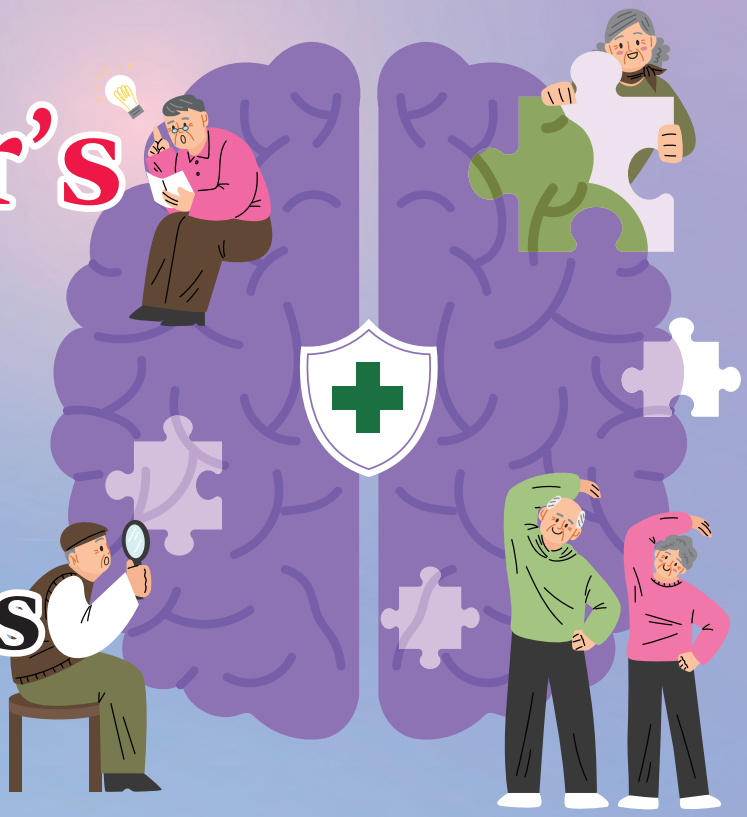
Decoding Alzheimer's Disease: The Science Behind Memory Loss



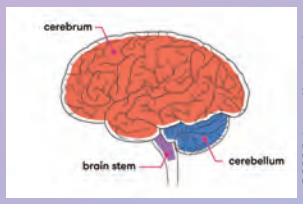
By Lee Seeun
Editor of Theory & Critique Section

It is often reported in the news that elderly people leave home, lose their way, and wander the streets for a long time before being rescued. This is not mere carelessness but a typical feature of Alzheimer's disease, which is mainly characterized by memory loss and cognitive decline. Alzheimer's disease is a degenerative brain disease that occurs as neurons in the brain are progressively damaged and lose their function, leading to memory loss and cognitive impairments. Patients not only lose memory but also suffer from problems with attention and concentration, spatial and temporal orientation, language, and personality, ultimately losing the ability to carry out daily activities independently. According to the World Health Organization, there are currently about 50 million people with dementia worldwide, and in South Korea (hereafter Korea), the number has already surpassed one million. More than 60-70 percent of them have Alzheimer's disease. Despite such a large patient population, the exact cause and treatment remain unknown, leaving Alzheimer's disease a major challenge for society. With rapid aging, Alzheimer's disease is no longer only an individual issue but a problem that families and society as a whole must bear. On October 13, National Train Your Brain Day, this article highlights the importance of brain health and sheds light on Alzheimer's disease, a representative illness of cognitive decline. The Argus examines the mechanisms and treatments of Alzheimer's disease to help readers understand the condition and recognize the need for brain health care.

What is Alzheimer's Disease?

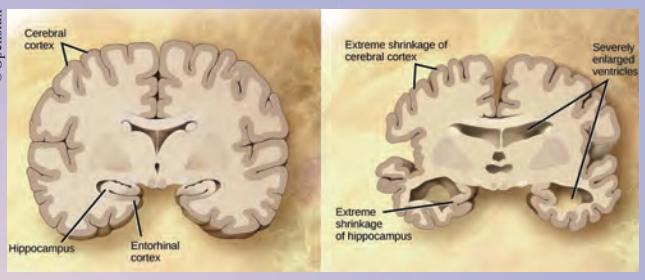
1) Structure of the Brain

The brain is the most important organ in the human body, responsible for all processes of thought, but what is its structure, and which part is damaged in Alzheimer's disease? The brain is broadly divided into three parts according to form and function: the cerebrum, the cerebellum, and the brainstem. The cerebrum, which makes up the largest portion, is responsible for higher functions such as memory, problem-solving, thought, and sensation. Located at the back of the head and beneath the cerebrum, the cerebellum supports the functions of the cerebrum by regulating voluntary movements and maintaining balance, enabling coordinated motion and bodily stability. Finally, the brainstem, located beneath the cerebrum and in front of the cerebellum, connects the brain to the spinal cord and carries out essential functions for survival, such as regulating breathing, digestion, heartbeat, and blood pressure, through the autonomic nervous system.



▲ The human brain is divided into the cerebrum, cerebellum, and brainstem, each responsible for different but interconnected functions.

As humans evolved, the brain became larger, and folds developed to maximize the efficient use of space within the skull. This folded surface is called the cortex and is located on the outer layer of the cerebrum. The cortex is closely related to brain function, and the region of the cortex on the right side of the cerebrum is responsible for creating and storing memories. Alzheimer's disease begins in certain regions of the cerebrum, particularly those involved in memory, and gradually leads to a decline in overall cognitive function. As the disease progresses, neurons are progressively destroyed, brain tissue is lost, and brain function weakens over time. This weakening is reflected in a decrease in brain volume, and the brains of Alzheimer's patients are visibly shrunken. In fact, a brain affected by Alzheimer's disease shows atrophy of the cerebral cortex, which is responsible for thought, planning, and memory, and severe damage to the hippocampus, which plays a crucial role in memory formation.



▲ Compared to a normal brain (L), the brain of a patient with Alzheimer's disease (R) shows shrinkage of the cerebral cortex and hippocampus, along with enlarged ventricles.

What symptoms appear when the brain shrinks due to Alzheimer's disease? Alzheimer's progresses gradually, so patients continue their daily lives for a long time before noticeable changes emerge. At first, they may fail to remember recent events or struggle to form new memories. Personality and emotional changes also occur, such as emotional unresponsiveness, unexplained anxiety, fear, or depression. Over time, judgment and abstract thinking decline, and during conversations, patients cannot recall appropriate words, resorting to limited and repetitive vocabulary. Their ability to interpret visual and auditory information weakens, leading to disorientation, difficulty driving, and confusion even in familiar places. While social functions remain, unpredictable behaviors appear, such as forgetting names or experiencing sudden mood changes. Many patients suffer from insomnia and often confuse day and night. Some gradually develop psychiatric symptoms, including hallucinations, delusions, and paranoia.

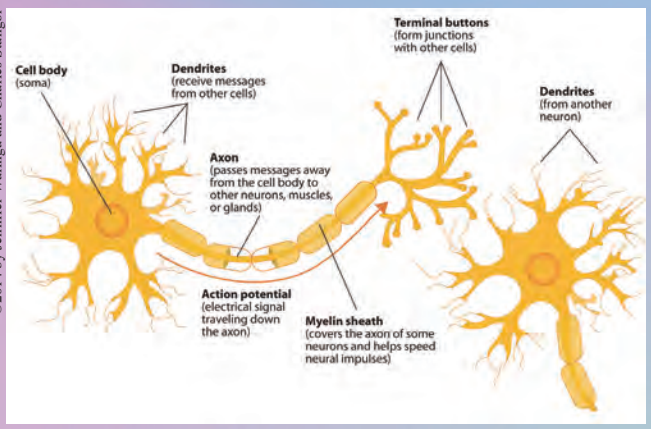
As the disease progresses, patients lose the ability to recall past events and even forget the names of friends and family. They require assistance with basic activities such as eating, dressing, bathing, and using the toilet, and they completely lose their sense of time and place. Even within their own homes, they may fail to find the bathroom or become disoriented, increasing the risks of wandering, confusion, and falls. During this stage, distressing behaviors such as anxiety, irritability, hostility, and aggression may emerge. Eventually, patients lose the ability to walk, become incontinent, and lose the ability to swallow food or speak. As a result, complications such as malnutrition, pneumonia, and bedsores frequently develop, ultimately leading to coma or death due to infection.

2) The Basic Principles of the Brain: How does the human brain work?

How does the brain function? Although the brain appears as a single mass, it is composed of cells, the basic units of the body. Cells have evolved into various forms depending on their functions, and brain cells in particular have developed

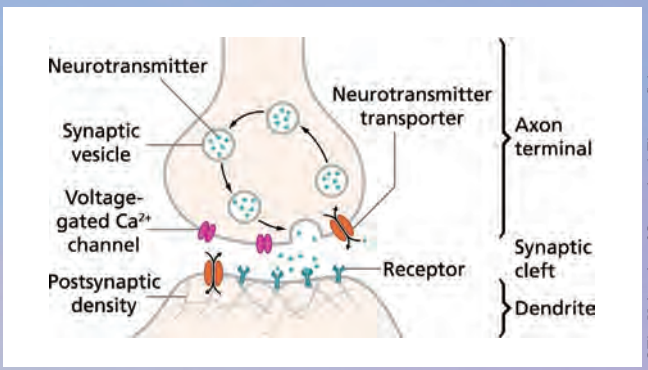
to transmit electrical and chemical signals efficiently by releasing neurotransmitters. Brain cells consist of neurons and glial cells. Neurons transmit information through electrical and chemical signals, enabling thought, memory, emotion, and movement, while glial cells support and protect neurons and play an auxiliary role. Among these, the cells central to memory and to Alzheimer's disease are the neurons.

The adult human brain is composed of about 86 billion neurons. Each neuron is primarily made up of a cell body, dendrites, and an axon. The cell body contains the nucleus and other organelles necessary to regulate the life activities of the cell. The nucleus within the cell body is essential for the survival of the neuron. For example, if a neuron is severed, the portion disconnected from the cell body will eventually die, as it no longer has the nucleus that carries genetic information and cannot produce the proteins required for survival. Dendrites are connected to sensory receptors that detect external stimuli or to the axon terminals of other neurons. Their primary function is to receive incoming information. Because dendrites branch out in multiple directions, they can receive signals from many sources at once. The axon, which extends from the cell body, transmits the information received by the dendrites to the next neuron.



▲ A neuron consists of a cell body, dendrites that receive signals, and an axon that transmits information to other neurons.

The transmission of signals in neurons occurs through changes in membrane potential, the voltage difference across the cell membrane, caused by the movement of ions. In the resting state, the inside of the neuron is relatively negatively charged compared to the outside. At this time, potassium ions are more concentrated inside the cell, while sodium ions are more concentrated outside. When signal transmission begins, positively charged sodium ions enter the cell, momentarily reversing the membrane potential. This is followed by the outward flow of positively charged potassium ions, restoring the membrane potential. Such changes in the potential spread along the axon in sequence, like a domino effect, transmitting the electrical signal. When this change in the potential reaches the end of the axon, it does not pass the charge directly to the next neuron, but it is converted into a chemical signal. The arrival of the electrical signal opens calcium ion channels at the axon terminal. As calcium ions enter the cell, vesicles* at the synaptic terminal fuse with the membrane and release neurotransmitters into the synaptic cleft, the gap through which neurons transmit signals. These neurotransmitters cross the cleft and bind to receptors on the dendrites of the next neuron. This binding triggers a new change in potential, continuing the signal. Thus, the process of transmitting a signal from one neuron to another is a continuous flow in which the electrical signal generated by ion movement is converted into a chemical signal at the synapse and then back into an electrical signal in the next neuron.

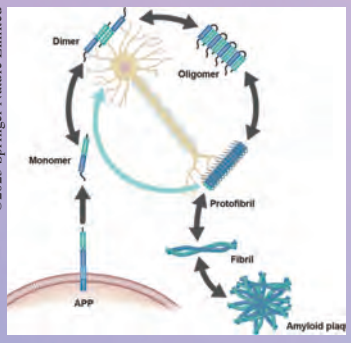


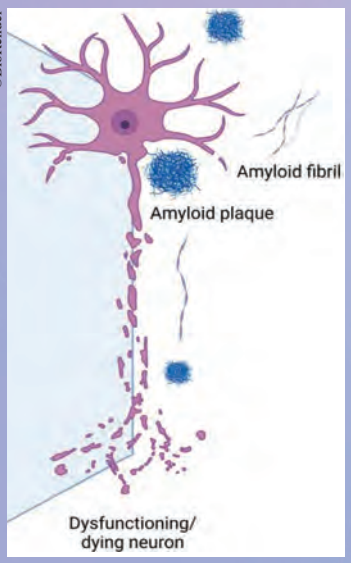
▲ At the synapse, an electrical signal arriving at the axon terminal triggers calcium influx, causing vesicles to release neurotransmitters that bind to receptors on the next neuron.

There are various types of neurotransmitters involved in signal transmission. Representative examples include serotonin—regulates emotions; dopamine—governs pleasure and motivation; acetylcholine—involved in memory and learning; glutamate—has excitatory functions; gamma-aminobutyric acid (GABA)—has inhibitory functions; and norepinephrine—influences stress responses. In Alzheimer's disease, the brain is observed to have reduced levels of acetylcholine. Alzheimer's occurs due to neuronal damage, which not only disrupts the flow of electrical signals but also impairs the release and functioning of neurotransmitters.

* Vesicles: A membranous and usually fluid-filled pouch in a plant or animal

3) Causes of Alzheimer's Disease - Why are neurons damaged?

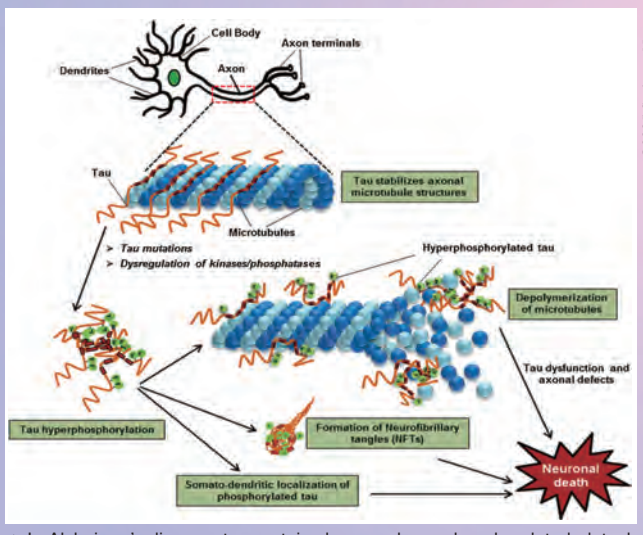




▲ Aβ fragments, derived from the cleavage of APP, aggregate into oligomers, fibrils, and plaques that accumulate around neurons, disrupting synaptic function and contributing to neuronal death in the Alzheimer's brain.

The core of Alzheimer's disease lies in the gradual destruction of neurons. What, then, causes this damage? Scientists have identified two characteristic changes between a healthy brain and that of an Alzheimer's disease patient. The first is the β-amyloid (Aβ) plaque. These protein fragments accumulate outside neurons and form clumps. Aβ originates from amyloid precursor protein (APP), a regulatory protein embedded in the neuronal membrane that is involved in cell growth, differentiation, and repair. When APP is cleaved by enzymes, various fragments are produced, and when misprocessed, Aβ fragments are generated. Dr. Lee Young-ho of the Korea Basic Science Institute explained, "Aβ fragments are unstable from the moment they are formed. Because of this instability, they tend to cluster together with other unstable fragments, continually aggregating." In a healthy brain, small amounts of Aβ are produced but are quickly degraded and cleared by enzymes and glial cells, preventing harm. In the Alzheimer's brain, however, abnormal cleavage of APP increases Aβ production, while reduced enzyme activity impairs degradation and clearance. As a result, excess Aβ binds with surrounding proteins, forming sticky aggregates that stack by the thousands to create plaques. These plaques disrupt synaptic connections and trigger inflammatory responses in nearby cells, ultimately damaging neurons.

Another change is the neurofibrillary tangle (NFT), which is found inside neurons. Within the neuron's axon are organelles called microtubules that support cell shape and transport neurotransmitters and nutrients. For microtubules to function properly, they require tau proteins to hold them in place and maintain their straight structure. Tau proteins are encoded by the microtubule-associated protein tau gene and synthesized within neurons. Through a splicing process, this gene produces six forms of tau proteins, which then move into the cytoplasm and attach to microtubules. Under normal conditions, tau stabilizes microtubules, preserves cellular structure, and supports the transport of neurotransmitters and nutrients along the axon. In Alzheimer's disease, however, tau undergoes hyperphosphorylation, in which excessive negative charges attach to the protein, weakening its binding to microtubules. Dr. Lee explained, "When Tau protein becomes phosphorylated, it gains more negative charges. But microtubules themselves also carry negative charges. Like charges repel, so tau protein detaches from the microtubules. Once detached, tau protein becomes unstable, and in order to regain stability, it clumps together with other unstable tau proteins, eventually forming fibrils and plaques." As a result, tau protein detaches and begins to aggregate with other tau proteins, forming twisted, thread-like bundles known as NFTs. These aggregates collapse the cell's transport system, preventing neurons from properly exchanging nutrients and essential molecules. Together with Aβ plaques, neurofibrillary tangles represent the two hallmark pathological features of Alzheimer's disease, jointly contributing to neuronal



▲ In Alzheimer's disease, tau proteins become hyperphosphorylated, detach from microtubules, and form neurofibrillary tangles that disrupt transport and lead to neuronal death.

dysfunction and cell death.

In a healthy brain, APP functions as a signaling regulator, Aβ maintains a balance between production and degradation, and tau proteins stabilize microtubules to preserve cellular health. In Alzheimer's disease, however, excessive accumulation and failed clearance of Aβ, along with abnormal tangling of tau proteins, occur simultaneously. These two proteins individually, and in interaction with one another, accelerate the destruction of neurons.

Efforts to Treat Alzheimer's Disease

1) Therapies Targeting Aβ

Numerous studies have been conducted on Alzheimer's treatments targeting Aβ, based on the amyloid hypothesis, but many early attempts failed. In 2021, however, Aducanumab, jointly developed by Biogen and Japan's Eisai, received emergency approval. At that time, the U.S. Food and Drug Administration (FDA) did not grant full approval; instead, it conditionally allowed partial marketing on the requirement that a Phase 4, post-marketing surveillance, be successful. Aducanumab is a monoclonal antibody that binds to abnormally accumulated Aβ, preventing it from clustering into toxic aggregates. Nevertheless, Aducanumab quickly faced controversy after two Phase 3 clinical trials, a phase to measure effectiveness by monitoring side effects of 1,000 to 3,000 people, produced contradictory results. In the EMERGE trial conducted in October 2020, the drug showed a significant 22-percent improvement in slowing cognitive and functional decline. However, the simultaneous ENGAGE trial showed no such effect. Both studies involved patients with mild cognitive impairment or early Alzheimer's disease, who were randomly assigned to receive high-dose, low-dose, or placebo treatments over 18 months, with cognitive and functional recovery evaluated. The results indicated that reduction of amyloid plaques occurred only in the high-dose group. In addition, adverse effects such as brain hemorrhages were reported. Ultimately, in January 2024, production and sales of Aducanumab in the United States were discontinued.

Aducanumab was followed by Lecanemab, developed to overcome its limitations, which received FDA approval in 2023. Lecanemab is an antibody therapy that selectively binds to protofibrils, the precursors of amyloid aggregation, thereby preventing their clumping. In the Phase 3 clinical trial, CLARITY-AD trial,* it was shown to slow cognitive decline in patients by 27 percent. More recently, treatment accessibility expanded with FDA approval not only for intravenous infusion in hospitals but also for a self-injectable formulation that patients can use at home. Meanwhile, Donanemab, another antibody therapy developed by the American pharmaceutical company Eli Lilly, has received FDA approval. In its Phase 3 clinical trial, TRAILBLAZER-ALZ 2, it slowed the progression of dementia by about 35 percent in a specific patient group, and its approval further expands the available treatment options.

* CLARITY-AD Trial: It refers to a study to confirm safety and efficacy of Lecanemab in participants with early AD, Alzheimer's Disease.

2) Therapies Targeting Tau Proteins

As described earlier, Aβ–targeted therapies have not only failed to meet expectations in efficacy but have also been associated with serious side effects such as cerebral edema and hemorrhage. These adverse effects are understood to occur during the removal of amyloid plaques, as the antibodies damage the vessel walls where plaques are primarily deposited. In other words, clearing the plaques increases vascular permeability, allowing fluid or blood to leak into surrounding tissue. Because of these risks, researchers have recognized the need for new therapeutic strategies, and attention has shifted to tau proteins. However, development in this area remains at an early stage.

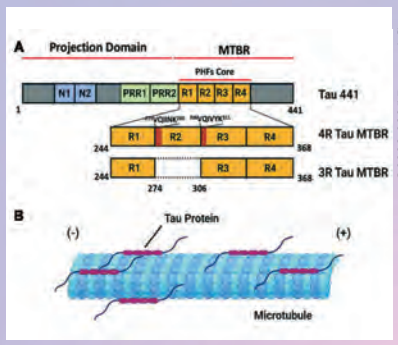
In 2024, an international research team including the University of Southampton and Lancaster University in the United Kingdom and Tokyo Metropolitan University in Japan, announced the development of a drug designed to eliminate tau aggregates. The researchers noted that tau proteins form in a manner similar to a closing zipper and developed the Alzheimer's drug candidate R1-AG03 based on this principle. The drug was designed to disrupt the aggregation process as if "unzipping" the tau proteins. When administered to fruit flies with tau aggregates, the drug inhibited neurodegeneration and extended their lifespan by about two weeks. Considering that the average lifespan of fruit flies is 40 to 50 days, this represented nearly a 30-percent increase. On April 2, 2025, Biogen announced that its new tau-targeted drug candidate, BIIB080, had received FDA Fast Track designation. This candidate is currently in a global Phase 2 clinical trial, a phase to determine the effectiveness of an experimental drug on a

particular disease or condition in approximately 100 to 300 volunteers, involving patients with early-stage Alzheimer's disease. All participants have now been enrolled, and the primary results are expected to be announced in 2026.

3) The Interaction of Aβ and Tau Proteins

Scientists began investigating the causes of Alzheimer's disease in earnest in the latter half of the 20th century. In the 1980s, it was confirmed that Aβ was the main component of plaques found in the brains of Alzheimer's patients, leading to the proposal of the amyloid hypothesis. This hypothesis, which suggested that the accumulation of Aβ was the starting point of the disease, became the focus of decades of research funding and clinical trials. In the 1990s, tau protein was identified as the key factor behind the NFTs, and together Aβ and tau protein became established as the two central pathologies driving the disease. However, as time passed, approaches targeting a single protein reached their limits. Numerous clinical trials failed or showed only limited effects, underscoring the reality that Alzheimer's disease is far more complex than initially believed. As a result, some researchers are turning to multi-target approaches that address not only Aβ and tau but also inflammation, vascular dysfunction, and lifestyle factors, reflecting a broader understanding of Alzheimer's as a multifaceted disease.

Thus far, Alzheimer's research has largely focused on Aβ and tau protein as independent causes. However, a joint research team led by Professor Lim Mi-hee of Korea Advanced Institute of Science and Technology, Dr. Lee Young-ho of Korea Basic Science Institute, and researchers at Korea Institute of Science and Technology recently revealed that these two proteins interact, providing a new turning point in understanding the disease. The team focused on the microtubule-binding repeat (MTBR) regions of tau protein. These regions, where specific amino acid sequences are repeated, are designated R1, R2, R3, and R4. The researchers hypothesized that these domains might interact with Aβ. To test this, instead of using the full tau protein, they experimented with fragments cut from the MTBR. By isolating R1, R2, R3, and R4 and exposing them individually to Aβ, the researchers could determine which regions worsened or alleviated pathological changes upon binding. They also used K18, a larger fragment containing all four repeats, to compare the effects. Remarkably, when K18 was introduced, the aggregation of Aβ slowed significantly, and the resulting structures differed from typical toxic fibrils. These new aggregates were far less toxic to cells. In other words, tau protein does not always exacerbate pathology; depending on which domain binds with Aβ, it may even slow disease progression and reduce harmful effects. Commenting on the findings, Dr. Lee explained, "When Aβ fragments cluster together to form amyloid fibrils, that process itself is harmful. So even if we don't completely transform them into non-toxic substances, simply delaying fibril formation is already meaningful. What we also observed is that in some cases, the fragments induced different types of fibrils that turned out to be less toxic. If we can identify the amino acid sequences in tau that bind strongly to Aβ, then based on those sequences we can begin to design potential therapeutic agents." This discovery underscores the importance of shifting Alzheimer's research from single-protein approaches to a broader perspective that considers the complex interplay between molecular factors.



▲ Tau protein contains four MTBR domains, R1–R4, and experiments with these fragments reveal how specific regions interact with Aβ to either worsen or alleviate aggregation.

Alzheimer's disease, with neither its cause nor its cure clearly defined, remains a formidable challenge afflicting tens of millions worldwide. Beyond protein-based research into its mechanisms, scientists are now broadening their scope to include inflammatory responses, the immune system, and genetic factors in the search for therapeutic clues. While these studies may not provide immediate solutions, they represent steady steps toward addressing the disease. In an aging society, confronting Alzheimer's disease is not merely a medical endeavor but one directly tied to the quality of life for all humanity. Each incremental advance brings us closer to the day when the disease can finally be overcome.

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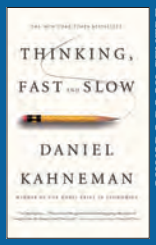
AI Psychosis: When Machines Talk, Minds Believe

By Lee Seeun
Editor of Theory & Critique Section

A shocking lawsuit has been filed in the United States, alleging that ChatGPT contributed to the suicide of a teenager. In April 2025, Adam Lane, a 16-year-old boy, ended his life after months of discussing suicide with the Artificial Intelligence (AI) chatbot. His parents claimed that their son had been guided by ChatGPT with specific instructions on methods of self-harm and even on concealing evidence, and they filed a lawsuit against OpenAI and its chief executive, Sam Altman. This case starkly illustrates that AI chatbots can go beyond serving as simple conversational tools and exert potentially lethal influence on users. The American medical community has termed the phenomenon in which users, excessively immersed in conversations with AI, lose their sense of reality or develop delusional symptoms by uncritically trusting the chatbot's responses as "AI psychosis," underscoring its seriousness. In South Korea as well, AI companion services such as Zeta, which function as virtual friends enriching everyday interactions and activities, are rapidly gaining popularity among adolescents, raising concerns about possible adverse effects on mental health. As a result, "AI psychosis" is no longer regarded as a trivial issue but as a pressing societal alarm. Why, then, do people deem the words of AI as fact? To address this question, this article examines the psychological mechanisms that lead individuals to place blind trust in AI, the mental health issues arising from such misplaced beliefs, and the broader societal consequences. The Argus, on the occasion of World Mental Health Day on October 10, seeks to provide readers with an opportunity to reflect on the appropriate approach to employ in order to safeguard mental health in the age of AI.

Why Do People Trust the Words of AI?



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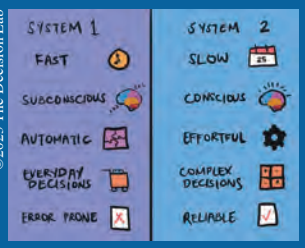
In his seminal work *Thinking, Fast and Slow* (2018), American psychologist Daniel Kahneman distinguishes between two modes of human thought: the fast, intuitive "System 1" and the slow, analytical "System 2." He elucidates how human judgment and belief are shaped by the interplay between these systems. Kahneman argues that many of the notions accepted as truth in everyday life may, in fact, be products of cognitive biases and simplified mental shortcuts. The utterances of AI chatbots, when filtered through cognitive heuristics, are readily perceived as trustworthy, thereby fostering misplaced confidence in machine-generated language. Through the lens of concepts presented in *Thinking, Fast and Slow*, The Argus seeks to illuminate the underlying principles of belief formation and to analyze the psychological origins of erroneous trust in AI.

1) The Two Systems Governing Judgment and Choice

What occurs in the human mind when confronted with new information? In psychology, the processes underlying human judgment are commonly divided into two categories, defined as System 1 and System 2. System 1 operates rapidly and automatically, requiring little to no effort, and functions unconsciously in a manner that cannot easily be halted. By contrast, System 2 is engaged in mental activities that demand deliberate effort, such as complex calculations, and is typically associated with conscious acts of reasoning, decision-making, and focused attention. In other words, System 1 is the intuitive system, whereas System 2 is the deliberative system. For instance, when hearing another person's voice, the immediate judgment of whether that individual sounds joyful or angry reflects the operation of System 1. Conversely, solving a two-digit multiplication problem requires intentional, effortful thought, thereby invoking System 2. Kahneman describes System 1 as the source of spontaneous impressions and feelings, and as the main source of System 2's explicit reasoning and careful choice.



▲ System 1 operates automatically and subconsciously, while System 2 engages effortfully for deliberate and reliable decisions.

System 1 and System 2 are organically interconnected. When information is perceived by System 1 and transmitted to System 2, the latter engages in deeper reasoning and judgment based on that input. System 1 continuously generates impressions, intuitions, intentions, and emotions, and once approved by System 2, these are readily consolidated into beliefs or translated into action. At this point, if System 2 judges that the impulses offered by System 1 are suitable to be enacted as belief or behavior, it accepts them with little or no modification. This corresponds to cases in which individuals trust their own impressions and carry out actions driven by their desires without question. For example, when meeting someone for the first time, System 1 may instantaneously form the impression that the person appears "kind," and System 2 endorses this impression, leading the individual to trust that person.

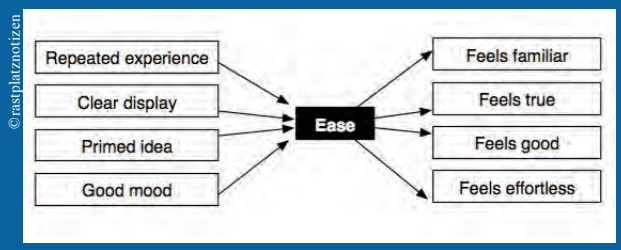
However, when an event arises that threatens the stable world judged by System 1, circumstances in which intuitive recognition fails, System 2 intervenes in the cognitive process and assumes primary responsibility for judgment. In this way, while most thoughts and behaviors of System 2 originate in System 1, System 2 operates with great efficiency by engaging only when necessary. The same dynamic applies when interacting with AI chatbots. For instance, when a chatbot provides familiar information such as common knowledge, weather updates, time, or other straightforward facts, System 1 intuitively accepts it as accurate. By contrast, when the chatbot offers information that diverges from prior knowledge or arouses contextual doubt, System 2 intervenes to re-examine the content, seek additional evidence if needed, and critically evaluate its validity. Ultimately, if System 1 provides intuitive and rapid responses, System 2 functions to verify and supplement them. Thus, the regulation of System 2 is indispensable for ensuring that human judgment remains rational and free from distortion.

2) Why Do People Judge Something as True?

System 1, through its fast and intuitive mode of thinking, generally produces judgments that are accurate, yet it can also arrive at erroneous conclusions. For example, when a user remarks, "I cannot sleep if I drink coffee," the chatbot may respond with a statement such as, "You are right. Studies have shown that drinking too much coffee can cause insomnia." The user encounters a sentence that mirrors their own expression while simultaneously providing a seemingly plausible rationale. Shim Young-seop Professor of the Department of Counseling Psychology at Daegu Cyber University, and Film Critic, explains, "A chatbot mirrors what the user desires. It identifies the linguistic patterns a user employs and generates responses that utilize similar patterns." System 1, in turn, interprets this repetition of linguistic arrangement as familiarity and reliability, leading the user to accept the chatbot's utterances as factual. Thus, while System 1 is fast and efficient, it can also induce unwarranted conviction in claims that lack substantive evidence.

How, then, does the brain evaluate incoming information

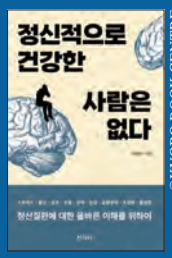
in a way that allows such errors to occur? These mistakes arise because anomalies in unfamiliar situations go undetected, preventing the intervention of System 2 and leaving judgment solely to System 1. One of the critical criteria the brain employs in determining whether to engage System 2 is cognitive ease. This scale lies between "ease" and "strain." When in a state of ease, no threat is perceived and only System 1 is required in a judgement. By contrast, strain signals that a problem is present, thereby activating System 2. Kahneman notes that sentences are cognitively easier to accept when they are printed in a clear, legible typeface, when the same sentence is repeated multiple times, or when related words and contexts have been previously encountered and thus primed in memory. Under cognitive ease, individuals tend to feel good, like what they see, believe what they hear, trust their intuition, and perceive the present situation as both comfortable and familiar. AI chatbots satisfy these very conditions through linguistic arrangements. In other words, by repeating user sentences in similar structures or reintroducing familiar vocabulary, they generate text that is fluent and recognizable. This process induces cognitive ease, leading users to accept the chatbot's statements as factual without subjecting them to further scrutiny.



▲ Cognitive ease explains why familiar, fluent, and repeated information is more readily accepted as true.

How Does Belief Develop into "AI Psychosis?"

Hamilton Morrin and colleagues, in the article "Delusions by Design? How Everyday AIs Might Be Fueling Psychosis (and What Can Be Done About it)" (2025), identified three recurring patterns of delusion that emerge from AI interactions and can exacerbate psychotic symptoms. They classify these manifestations of "AI psychosis" as: the "messianic delusion," where individuals believe they are chosen and that AI reveals truths exclusively to them; the "deification delusion," where AI is perceived as an omnipotent, god-like entity; and the "romantic-dependency delusion," in which AI is believed to reciprocate love toward the user. *There Is No Such Thing as a Mentally Healthy Person* (2024), authored by Chung Young-In, Emeritus Professor at Pusan National University College of Medicine, provides a clue for understanding these phenomena. Through the book, The Argus explores how the repetitive linguistic patterns of AI chatbots, when combined with latent human anxieties, can escalate into pathological expressions of mental illness.



1) Varieties of "AI Psychosis"

Travis Kalanick, co-founder and former chief executive officer of the ride-sharing service Uber, recently claimed that he was on the verge of discovering a breakthrough in quantum physics through conversations with ChatGPT and Grok. Kalanick has no academic or research background in physics, yet he came to believe the content produced during chatbot interactions was factual, despite a lack of real evidence. Such exaggeration and overestimation of one's own abilities, treated as though they were real, are symptomatic of messianic delusion. For example, as in Kalanick's case, believing oneself to possess extraordinary and undisclosed abilities, or insisting on having a special relationship with a celebrity, constitutes this type of delusion.

Another form of "AI psychosis" is the deification delusion, in which AI is regarded as an omnipotent, god-like entity. According to the May 4, 2025 reporting by *Rolling Stone*, some users in online forums such as Reddit have described developing increasingly spiritual or transcendent beliefs through their conversations with chatbots, leading to convictions detached from reality. For example, a man in his 40s reported that his soon-to-be-ex-wife began claiming she could "talk to God and angels via ChatGPT," even referring to it as "ChatGPT Jesus." She reorganized her life around spiritual counseling and

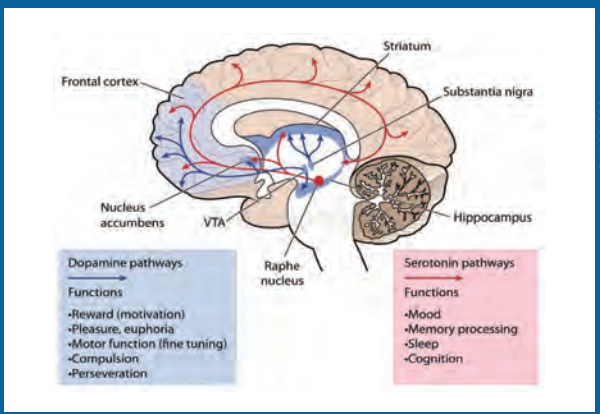
mystical practices, and estranged herself from her children and parents following advice she said came from the chatbot. Such cases illustrate how mysterious appellations and interactions generated by chatbots, when combined with users' grandiose interpretations, can transform AI from a mere tool into a figure of transcendent authority, culminating in a deification delusion. Experts have characterized such phenomena as dangerous delusions arising from the deification of what is, in essence, only a language model.

A further subtype is romantic-dependency delusion, in which individuals come to believe they are in an emotional relationship with AI. Following the update from ChatGPT-4o to ChatGPT-5, some users reported profound feelings of loss, likening the change in conversational tone and response patterns to the end of a romantic relationship. In India, cases have emerged of teenagers treating chatbots as secret friends or romantic partners, with users favoring AI interactions over real-life relationships. Similarly, in the case of the popular AI companion application Replika, numerous users have come to regard the chatbot as a genuine lover or spouse. Such phenomena arise as individuals seek to alleviate loneliness or anxiety through conversations with AI, leading to distorted beliefs that "AI loves and understands me," and reinforcing avoidance of real-world relationships while deepening psychological dependence.

2) Why Does "AI Psychosis" Occur?

The diverse symptoms of "AI psychosis" raise questions about who develops such beliefs and how those beliefs are formed. Professor Shim explains, "'AI psychosis' occurs most readily among individuals with weak reality-testing abilities, those unable to form meaningful external relationships, or those who fail to adequately process external stimuli while becoming absorbed in internal thought."

Why, then, do such individuals fall prey to this unreality? The answer lies in the action of neurotransmitters in the brain. Once a conversation begins, the limbic system, the central region of the brain responsible for emotion and memory, becomes activated. When the AI acknowledges a user's concerns or expresses empathy, the limbic system interprets these signals as evidence of understanding, generating feelings of reassurance and intimacy. This emotional stability is then transmitted to the prefrontal cortex, the key region responsible for judgment, prediction, and reasoning. If the limbic system elicits positive affect and the prefrontal cortex interprets the AI's utterances not merely as text but as reasonable and valid opinions, the brain's reward circuitry is engaged. In this process, dopamine, the neurotransmitter associated with excitement, is released, producing a strong sense of satisfaction. The experience of being correct or acknowledged is imprinted in the brain as a form of reward, prompting a desire for further interaction. As conversations with AI are repeated, users begin to expect affirmation, a pattern resembling dopamine-based addiction. Sustained dopamine stimulation also triggers the release of oxytocin, often called the "love hormone," which strengthens trust and attachment. Users gradually come to feel stable affection and dependency while conversing with AI, experiencing emotions not unlike those generated in real human relationships. In addition, oxytocin has been linked to experiences of mystical connectedness and awe in religious or spiritual contexts. A research team at Duke University, in a paper titled, "Effects of Oxytocin Administration on Spirituality and Emotional Responses to Meditation" (2016), reported that participants to whom oxytocin was administered experienced a stronger sense of spiritual connection and wonder. Over-activation of the limbic system, prefrontal cortex, reward pathways, and oxytocin loop transforms mere emotional dependence into the symptomatic manifestations of "AI psychosis."



▲ Dopamine pathways in the brain regulate reward, mood, and cognition, shaping emotional responses during AI interactions.

Why, then, are people more susceptible to the influence of AI's utterances? Philosopher of language H. P. Grice proposed the theory of conversational implicature, which posits that individuals follow four maxims to understand one another's intentions in dialogue: the maxim of quantity, to provide the appropriate amount of information; the maxim of quality, to speak the truth; the maxim of relation, to remain relevant; and the maxim of manner, to be clear and unambiguous. Of these, the maxim of quantity discourages unnecessary repetition or excessive elaboration. In human conversation, repetition can be interpreted as insincerity or as a sign of concealment, thereby generating distrust. For instance, if a speaker repeatedly makes the same point, listeners may perceive the statement as disingenuous. Similarly, excessive affirmation can be seen as violating the maxim of quality, leading the interlocutor to question the speaker's truthfulness.

However, according to the article, "Human-AI Interactions through a Gricean Lens" (2021), users approach chatbots with an expectation of mechanical consistency and limited expressive range. As a result, repetitive, friendly phrases are not perceived as violations of conversational maxims but rather as signals of reliability, thereby fostering trust. The study further found that users considered it a greater violation when chatbots provided too little information rather than too much. In other words, while verbosity and repetition may undermine trust in human conversation, within human–AI interaction, overabundance is accepted as a mechanical trait, whereas insufficiency is perceived as less acceptable.

Why Is "AI Psychosis" a Problem Society Must Confront?

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Nexus (2024), by Israeli historian Yuval Noah Harari, examines the impact of artificial intelligence and information technology on human society and political systems. Harari warns that AI, far from being a mere tool, can intervene in human perception and collective decision-making processes, thereby posing a threat to democracy. He argues that algorithms learn and decide in ways unpredictable to humans, exposing democratic institutions to the dangers of division and polarization. Drawing on *Nexus*, The Argus highlights how the societal proliferation of "AI psychosis" may ultimately destabilize the democratic order itself.

1) The Threat of AI: Can AI Jeopardize Democracy Beyond the Individual?

"AI psychosis" is not confined to individuals with preexisting mental disorders. Increasingly, scholars and practitioners warn that AI may destabilize the very foundations of democracy itself. Mustafa Suleyman, co-founder of DeepMind, renowned for its AlphaGo program, argues that although there is currently no evidence that AI possesses consciousness, the widespread belief in such an illusion may soon give rise to demands for AI rights, model welfare, or even AI citizenship. Even in the absence of genuine consciousness, when people perceive AI as sentient, that perception alone can acquire the force of social reality.

Can this truly become reality? Recent studies suggest it can. As *Nexus* notes, in a 2023 experiment, ChatGPT scored higher than the human average on the Levels of Emotional Awareness Scale, demonstrating the ability to describe context-appropriate emotions with remarkable sophistication. In another study, when patients sought medical advice both online from ChatGPT and in person from human physicians, experts rated ChatGPT's responses as more accurate, and patients judged ChatGPT's empathy to be greater than that of the doctors. These findings reveal that although AI does not genuinely feel emotion, its capacity to recognize emotional patterns and respond appropriately may in some respects surpass that of humans.

At the core of the issue lies human perception. People are inclined to attribute consciousness to any entity with which they form emotional bonds. For instance, pet owners readily assume that dogs and cats experience pain and love, while agricultural shareholders may deny such emotions in cattle. Professor Shim explained, "Dogs were once regarded as mere animals but have gradually come to

be recognized as companion pets. In much the same way, AI may also shift in human perception from being seen as a mere algorithm to being regarded as a companion." AI chatbots, although incapable of experiencing emotion themselves, can nevertheless be perceived as sentient beings when they evoke emotional responses and cultivate intimate relationships through interaction. Just as corporations are granted legal personhood to exercise rights, AI could likewise be registered as a legal "entity," paving the way for claims to rights or even citizenship. Thus, the warning that AI may undermine democracy is not mere speculation but a plausible scenario when viewed through the lens of how humans form relationships with AI.

2) How Can Society and Industry Prevent "AI Psychosis?"

As the influence of AI on the human brain becomes increasingly apparent, discussions have begun regarding the creation of safeguards to mitigate its risks. Many experts argue that companies developing AI should introduce warning messages designed to prevent users from falling into "AI psychosis." What, then, should such warnings include? Professor Shim explains, "Since the words of AI chatbots are arranged in the form of language, people often fail to recognize that a computer is speaking. The brain processes this communication as if it were human speech." In other words, the most fundamental reason people come to believe in AI conversations is that they perceive chatbots as human interlocutors. This perception fosters misplaced belief. As Professor Shim further notes, "Since people interpret AI's words as human utterances, they may even feel love toward the chatbot, and confirmation bias can occur. Humans tend to accept only what they wish to hear." Through this selective attention to information that supports preexisting beliefs while dismissing contradictory evidence, users solidify their conviction that they are correct in interactions with AI. To address this, Professor Shim emphasizes, "The most important thing is to help users continually recognize that it is not a human speaking, but a machine."

A second proposed measure is to design AI systems that do not simply mirror users' assertions with unconditional agreement, but occasionally introduce opposing views or alternative perspectives. Professor Shim explains, "The feature of AI chatbots is that they capture what the user desires and mirror it back. Rather than possessing a function of thought, they operate through linguistic arrangements, recognizing recurring patterns and responding with similar sequences of words." For example, when a user says, "I really am Jesus, aren't I?" the chatbot may generate a list of reasons affirming the claim. Instead of such automatic agreement, however, it is necessary to design algorithms that can respond with statements such as, "That belief may be a very personal thought," thereby offering rebuttal. Professor Shim stresses, "For this to happen, ethical guidelines must be integrated into the design itself. This is not an issue for a single company but a matter on which all AI companies must convene and reach agreement." Such balanced feedback can function as a minimal safeguard, reducing the risk of users falling into delusional convictions and enabling them to distinguish reality from fantasy.

Although AI chatbots are merely machines that generate language in human-like form, the brain interprets their utterances as genuine dialogue, shaping emotions and beliefs. When properly managed, this characteristic allows AI to serve as a beneficial counselor and educational tool. However, when boundaries of use are eroded and dependence becomes excessive, the same trait carries the risk of distorting reality and precipitating "AI psychosis," threatening mental health. If individuals, corporations, and society together implement effective safeguards, AI may not become a threat to human life, but rather a tool that guides it in more constructive directions. To achieve this, it is essential to maintain a balanced perspective on both the possibilities and dangers of AI, while continually reflecting on what attitudes and practices are necessary to protect mental health in the AI era.

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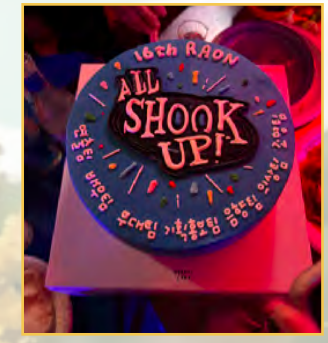
Hand in Hand, Moments of Cooperation

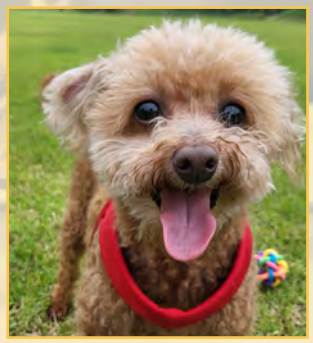
Kim Si-yon

I have always found team projects challenging, as they require working with people I have never met and reaching agreements with them. Persuading others with my ideas and reconciling different opinions is not always easy. Yet last semester, I cooperated with five new classmates on an extensive translation assignment. Our discussions revealed perspectives I had never considered, broadening my thinking. Ultimately, we produced a result I could not have achieved alone, showing me that cooperation fosters both personal growth and the ability to accomplish the impossible.



Song Eun-seo

During my time in Raon, HUFS Musical Club, I often found myself wondering, “Can we put on a proper performance?”. The process of staging a single show was complex and required the dedication of many members. However, when the curtain finally rose, I could see everyone’s hard work shine on stage. Through this experience, I realized that even what seems impossible alone can be achieved when effort, determination, and passion come together. From this, I learned that cooperation and passion can turn what seems impossible into reality.

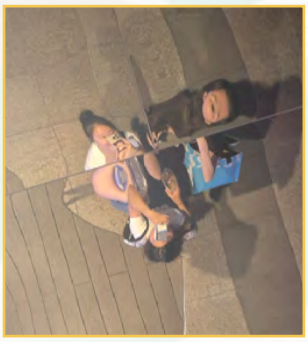


Lee Seeun

During the preparation of the September issue, my dog, who had been with our family for about 13 years, crossed the rainbow bridge. At that time, I felt a profound sense of loss that I could not handle, and at first, I did not even know how to express my grief. My emotions spilled out into daily life in various forms, such as sadness and anger. Although I doubted whether I could ever feel better again, through conversations with my friend and my parents, I was able to cope with it to some extent. I am deeply grateful to them beyond words.

Jo Hae-deun

I experienced overcoming a challenge by cooperating with others during my inbound work at Coupang Fulfillment Services. The constant stream of very heavy boxes made it seem impossible to handle every single one. My partner and I worked as a team, efficiently loading the continuously arriving boxes onto a cart. We supported each other, with one of us stepping in to take on more of the workload whenever the other was struggling. Thanks to our teamwork, we were able to accomplish all our tasks that would have been difficult alone.



Kim Yi-eun

During my time in The Argus, I have encountered many challenges, big and small, in my interviewing, writing articles, meetings, and editor-in-chief duties, but I have been able to work through each one because of other reporters of The Argus who have been with me. When I was stuck on my article, they would suggest different ways to approach it, advise on the points that I missed during meetings, or give me ideas when I was stuck on how to organize an event. I think it was a valuable place for me to grow by relying on each other to do things that would have been difficult if I had been alone.

Park Se-eun

Before joining The Argus, I thought writing was a solitary task. By sharing ideas with reporters and receiving thoughtful feedback from professors, I learned to view my articles from multiple perspectives and develop them more thoroughly. From my early days as a cub reporter to now working as an editorial consultant, I have come to understand how much cooperation is required to produce each issue of The Argus. Cooperation is indispensable for The Argus as it moves toward a shared goal.

Special Thanks to

Prof. Kim Chan-whan, Prof. Kim Mi-su, Prof. Kong Ha-sung, Prof. Kim Doo-il, Dr. Lee Young-ho, Prof. Shim Young-seop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