

Summer Training
At

HEALTHARK

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**Comparative Evaluation of Mental Health Disease Burden
and Digital Mental Health Market In India and South Korea**

A Report

By

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Date: 13th July, 2021

Whom So Ever It May Concern

This is to certify that **Dr. Ishita Sawhney** worked with Healthark Insights Wellness Solutions LLP as an Intern Consultant from 10th May 2021 to 10th July 2021. During her internship she conducted market assessment involving secondary research and basic excel modelling across Latin American, Russian, and Saudi Arabian markets. She supported her seniors in preparing client deliverables in form of PowerPoint presentation and excel formats.

She has always shown responsible attitude towards the tasks assigned to her and completed them within time with utmost sincerity. She has been a good team player and was supportive to her other colleagues in the organization.

We wish her a bright future and success in her future endeavors.

Purav Gandhi

Sincerely,
Dr. Purav Gandhi
Founder & CEO
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Abbreviations/ Acronyms

ADHD	Attention Deficit Hyperactivity Disorder
IDID	Idiopathic Developmental Intellectual Disability
ASD	Autism Spectrum Disorder
DALY	Disability Adjusted Life Years
PTSD	Post- Traumatic Stress Disorder
IHME	Institute of Health Matrix and Evaluation
GBD	Global Burden of Disease

Part 1

Observational Learnings

Organization Profile

Healthark Insights is a boutique consulting firm founded in 2016, to solve the most complex healthcare problems through scientific precision, profound field expertise, and diverse skills in a most appropriate manner. Its headquarter are located in Ahmedabad Gujrat, and it was established by a team of consultants from elite strategy firms, with a collective experience of more than 100 years. With a shared vision to cater to the healthcare and life sciences industry, and a persistent focus on delivering executable solutions, Healthark has developed a team of experts from diverse fields such as consulting, pharma, medicine, medical devices, and digital health, along with public health and management. Healthark helps its customers make critical decisions daily through proficiency that combines deep knowledge, meticulous research, analysis, insight into markets, technology, and experience. They provide insights and work closely with their clients to implement the strategy they helped in creating. Healthark has worked on more than 250 projects for clients across 60 countries. They have served several global clients, including Abbott, Johnson & Johnson, Roche, Gilead Sciences, Pfizer, Eli Lilly, Boehringer Ingelheim, and Novartis.

Services provided by the company include Strategy & Research, Digital Health, Modelling & Forecasting, Real World Evidence, Medical Writing, Artificial Intelligence, Business Intelligence & Reporting, Claims Analytics, KOL Identification & Mapping. Healthark has expertise in both primary and secondary research. Healthark leverages partnerships with Atheneum, Guidepoint, GLG, etc., apart from its network to deliver primary research. They have a strong desk research capability with experience in conducting assessments in multiple global markets. Apart from the US, Healthark has done numerous projects in the Middle East, Africa, and the Asia Pacific regions.

Various types of analysis conducted by Healthark include new product launch, BD/ licensing assessments, market sizing assessments, market landscape assessments, country/company profiling, competitive intelligence. They offer digital landscape analysis to help companies understand innovation in specific areas of focus. Healthark has created a proprietary database of 1,500+ digital health companies covering details like company a overview, digital segments, revenue and funding info, partnership details, product differentiator, therapeutic area focus.

The company's Modelling & Forecasting service includes sales & business analytics, multi-channel marketing analytics, forecasting & sizing, and market research analytics. Healthark has a unique approach to handle multiple sources, structured & unstructured data, inconsistency, variability & complexity within an ever-changing regulatory environment. They perform data due diligence, data abstraction, data curation, data modelling in depth, to facilitate high-quality real-world data analysis. Healthark aids MNCs in scientific writing, supporting CME/ meetings, developing patient education materials, and supporting physicians.

The focus of Healthark is on using niche data sources & advanced machine learning techniques to solve healthcare challenges. They also provide NLP & sentiment analytics, voice analytics, image analytics and IOT based analytics. They develop insightful dashboards and interactive reports with Power BI and Tableau as desired by Business Unit Heads or Decision Makers, while managing periodic updates. They hold experience in addressing a series of pharma use cases based on claims and data analytics. Verticals covered by the company under analytics and big data capabilities are data management, predictive analysis, machine learning, data integration and reporting dashboards. Healthark aids its customers in identifying right KOLs to maximize their profit.

Insights 10 is a vertical of Healthark Insights that focuses on providing its clients with exhaustive market research reports for various disease and healthcare service markets of countries and regions all over the world. It includes market overview, segmentation, competitive landscape, and other aspects. **Overnite**, by Healthark is a proprietary PPT generator of Healthark Insights, is based on deep research algorithms powered by AI that creates a pre-formatted ppt and offers insights within 12-16 hours.

Healthark is equipped with an excellent core team, which comprises people with diverse backgrounds like doctors, engineers, MBAs, PHDs, biostatisticians, researchers and many more. They believe that the best vision is insight. Their delivery model supports quick turnarounds with agile approach and cost-efficient model ensuring value for clients, making Healthark one of the best players in its field.

Mode Of Data Collection

- Secondary method of data collection was undertaken for the purpose of the study.
- Data collection included identifying relevant secondary sources of data and gathering, sorting, and organising information relevant to the study.
- Sources of data included Research Gate, PubMed, Google Scholar, market reports etc.

Learnings

- Training sessions on basics of excel, slide making, formal mail writing and secondary research tips and tricks.
- Making syndicate market reports on South Korea healthcare market on topics ranging from therapeutic market, rare diseases, oncology to healthcare services. Completed more than 65 syndicate reports on topics like Digital Healthcare Market, Pharmaceutical Market, Dental Care Market, Cardiovascular Therapeutics Market, Diabetes Therapeutics Market, COPD Therapeutics Market, NASH Therapeutics Market, SMA Market, Pompe Disease Market, Fabry Disease Market, Lung Cancer Market etc. in South Korea.
- The reports required a thorough study of the market, which included an overview of the market, segmentation, key company profiles, competitive landscape, new trends and developments, future opportunities etc.
- Training session on working of Insights 10 website and uploading the syndicate reports on the insights 10 website for it to be available in public domain.
- Sample presentation and final presentation making for the syndicate reports on client demand after an exhaustive secondary market research. It included elaborate explanation and research of market segments, market drivers and restrains, key companies, future opportunities, access, and reimbursement scenarios etc.
- Training sessions on forecasting in excel and making forecasting models for various companies.
- Studied three companies and their products to make initial assessment reports about the product description, advantages, pros, cons etc to be presented to the client as a part of an ongoing project at Healthark for a middle eastern company ALJ.
- Worked on another live projects "Digital Innovations in Mental Health". The task allotted was to write the interview insights of a head psychiatrist of Mpower Minds an initiative by Birla Group.
- The last assignment allotted was to study, summarize and give Insights on a Preview Report for 2021 by Evaluate Vantage on Biopharma Market.
- Lastly, I presented my learnings and highlights of the internship in front of the company's directors'.

Limitations

- Time constraints as the duration of training were limited to a period of two months.
- I was compelled to work remotely due to the ongoing pandemic.
- Gathering data was challenging, and it was difficult to source data relevant to the study.
- Limited information was available on South Korea Digital Mental Health Market.

Part 2

Project Report

Introduction

Mental illness has been proclaimed to have the most dominant disease burden in most advanced countries by WHO. It is known that mental diseases' social and economic cost would surpass that of cardiac and cancer conditions in the coming time. The awareness level towards mental health is rising all around the world¹. Nearly 970 million people across the globe suffer from mental health disorders and every year around 8 million deaths or approximately 14.3% of deaths occur due to mental health disorders.

With a median life expectancy loss of 10.1 years the death rate of those with mental disorders is reported to be remarkably higher than the general population². Anxiety affects around 284 million people and is regarded as the most common mental illness in the world. Depression is another common mental affecting about 264 million people worldwide. Women around the globe are comparatively more affected by depression than men. One of the significant contributors to the overall global burden of disease is depression in younger population aged 15-27. Bipolar disorder and Schizophrenia affect 45 million 20 million people all over the world³.

WHO in 2013 set an aim to upsurge the administration of the mentally ill by 20 percent in all the countries by 2020 with an inclusive mental health action plan. The importance of health for all people was recognized. Chief objectives of the plan include effective leadership and governance for mental health; the delivery of complete, unified mental health and social care services in community-based settings; the execution of strategies for promotion and prevention; and reinforced information systems, evidence, and research⁴. Only 68 percent of the countries evaluated had mental health guidelines and plans, and 51 percent passed laws on mental health as mentioned in a WHO report. Efforts to develop new remedies through research and development, implementation of novel therapies and innovative delivery modes are essential to get better mental health facilities¹.

Deficiency of resources, constrained access to healthcare facilities and associated social stigmas are the three main barriers in the mental health treatment market⁵. According to WHO indicators, one out of four people battle with mental health problems, and two-thirds of those affected do not seek help for their problems. Most of the mental health conditions are both treatable, and in some cases, preventable but patients fail to approach for help due to the prevailing barriers. However, these barriers have turned out to be the driving factors for the emerging digital mental health market⁶. Need for faster healthcare is required with the increase in the number of patients suffering from mental illnesses incessantly. To address this issue, digital healthcare tools are likely to scale up the treatment at a lesser price. There are presently over 300,000 health applications worldwide and the mental health segment accounts for the largest growth in the market. The benefits of this platform are that it increases access to care, at the fingertips, and can hopefully personalize care to one's exact needs. There is the potential to provide care that is more reasonable, customized, and approachable. Mostly the digital mental health

space comprises of direct-to-consumer applications. Mental health apps provide access to up-to-date information with enhanced patient-provider communication. They encourage self-monitoring by the patients and health-promotion⁷. Biggest benefit being that they are accessible 24/7 and are versatile in nature. In this report we have tried to compare the mental health status and digital mental health market in India and South Korea.

Rationale

After a thorough review of literature, it was observed that there are a lot of gaps in the conventional mental health delivery system and that the emerging digital mental health platform can overcome the prevailing barriers and provide solutions for the mental disorders to a larger group of people. The rationale of this study is to compare the prevailing disease burden of common mental disorders in India and South Korea and understand the digital mental health delivery market in both the countries.

Research Objective

- To compare the mental health situation and disease burden in India and South Korea.
- To understand the digital mental health market and its opportunities in both the countries.

Research Question

- What are the differences in the burden of common mental disorders in India and South Korea?
- What is the market size and scope of the digital mental health markets in India and South Korea?

Methodology

Mode Of Data Collection: Secondary Sources

Data Sources: Research Gate, Google Scholar, Articles, Market Reports, IHME

Study Period: 2 Months

Type Of Study: Descriptive Study

Sungwon Roh et al. (2016) This study assessed the constraints and future potential of mental health facilities in South Korea, as well as their research and development status. They proposed three initiatives to better understand mental health promotion facilities and to increase national mental health research and development. The actions recommended were create a mental health system, evaluate the requirement for mental health and improve mental health professionals¹.

David Mohr et al. (2017) This article focuses on three misconceptions with current digital mental health research and their possible solutions. First misconception that the article addresses is that mental health technologies are treated as products rather than technology enabled services. Second that efficacy trials provide the needed validation and third that mental health technologies are the novel ways to deliver psychotherapy rather technology can revolutionize the mental health care⁸.

J A Naslund et al. (2017) They found 49 studies utilising digital technology in over 20 low- and middle-income countries, such as India, Brazil, Pakistan, South Africa, and Chile, for the entire management of mental diseases or the provision of mental health training to health practitioners. They found telepsychiatry achievable and satisfactory for direct clinical sessions for diagnosis or follow-up care to patients with mental disorders in counties like Somaliland, South Africa, and India⁹.

Koushik Sinha et al. (2018) A total of 176 people were involved in the trial, including 88 patients and 88 care givers. This study looked at the feasibility, design challenges, and constraints of implementing a mobile technology-based intervention for treating severe mental diseases in low-resource settings. They concluded that in a limited resource country like India the possibility of providing mental health services through technology is huge¹⁰.

De Leo et al. (2019) Because of the obstacles that traditional mental health treatments confront, this article illustrates how the COVID 19 situation strengthened digital interventions. They talked about how screening and tracking with real-time automation and machine learning can help enhance psychological first-aid resources while also allowing interventions to be targeted. However, a careful assessment of these new prospects in terms of intervention quality, efficiency, and privacy is required¹¹.

Kiona Weisel at al. (2019) The use of standalone applications for treating mental health problems was examined in this study, which included 19 meta-analyses. In February 2018, a comprehensive review of the literature was undertaken on randomised controlled trials comparing the efficacy of specific mental health apps on persons with severe symptoms versus a control group. When there were insufficient assessments, data was presented in a narrative mix. Assessments of mental health condition symptom severity, which were expressly addressed by the application, were among the outcomes¹².

R Sagar et al. (2019) The study compares the prevalence of mental diseases in India's states from 1990 to 2017. They also used the Global Burden of Disease comparative risk assessment approach to determine the coverage of risk factors for mental illnesses as well as the disease burden associated with them¹³.

Ga Eun Kim et al. (2020) The frequency of depression led to the increasing risk of suicide in South Korea during the last decade, according to this study, which examined a large representative sample of data. The suicide rate of those with depressive disorder was much higher than that of people without the disorder, according to the overall incidence of suicide¹⁴.

Balcombe L et al. (2021) This article focuses on risk prediction in mental health, predictive technologies, artificial intelligence in mental health, HCI and emerging aspects of digital mental health. It also demonstrates how a hybrid style of care incorporates digital mental health. In a hybrid model of care, technology-enabled services are more likely to be beneficial if professionals use them for prevention or moderate cases of mental illness rather than severe cases. The main advantage of digital mental health services is that they serve as a supplement to the urgent demand for mental health services¹⁵.

Mental Health In South Korea

In South Korea, three out of ten persons suffer from mental illness at some point in their lives. The mental diseases accounted for 6.39 percent of total DALYs in 2019, compared to 5.13 percent in 1990. The lifetime prevalence rate for mental illnesses is estimated to be around 27.6% and of these people suffering from various mental disorders only 14% of the people have been reported to use the mental health hospitals and only 0.68 % of people the community residential facilities¹.

Suicide is frequently used as a substitute indicator when assessing a population's mental health. Korea has the highest suicide rate among OECD nations, with a rate that is 2.4 times higher than the OECD average. The suicide rate in Korea has decreased from 33.3 fatalities per 100,000 in 2011 to 26.9 in 2017. This transformation is very promising, but still very high and a cause of concern. Studies have shown that 75.3 % of those who had tried suicide had more than one mental disorders. This emphasises the relevance of mental health in tackling grave social issues like suicide. A department for prevention of suicide was formed along with a program to increase mental health centres, with an aim to diminish the suicide rate over five years from 26.5 per 100,000 people to 17. However, the budget for the new department was only \$9.7 million¹⁶.

The First Five-Year Plan for National Mental Health Promotion was established by the government in 1998. Furthermore, the Mental Health Act Amendment contained a rule requiring central and local governments to develop mental health service plans every five years, allowing for accurate mental health care planning at the national level. Treatments at medical facilities, community-based psychosocial rehabilitation, and housing, occupational, and economic assistance are all part of Korea's mental health promotion programmes. Following the introduction of the Mental Health Act in 1995, mental health services in Korea saw significant improvements.

Occupational therapists account for 0.08 per 100,000 persons in Korea, with 5.79 psychiatrists, 13.66 mental health nurses, 1.59 mental health clinical psychologists, and 8.40 mental health social workers. The mental health budget should be around 50~15 % of health care costs as recommended by WHO. However, in Korea it stands at an average of 3 %, which is far less than the recommended level. As of 2018, Korea's mental health budget was only 3.8% of its health budget¹.

South Korea was able to effectively manage the blow-out of COVID-19 without country level lockdowns or radical social distancing efforts. However, psychological outcome related to the pandemic among the common people were severe. Similar to other countries, COVID-19 has worsened the mental health situation of Koreans. Government statistics show that the suicide rate of South Korea in the first half of 2020 increased by almost 36% as compared to the same period last year. The rate of depression treatment increased by 5.8% as compared to the first six months of 2019. Suicide among young women was up an alarming 17.9% in April, the month when the pandemic was rampant in the South Korea. Rise in the incidence of mental health issues was seen

despite the fact that the Korean government has provided mental health services since the early stages of COVID-19 based on its previous experience with MERS.

South Korea Disease Burden

Mental health disorder burden is found to be higher in females than males in South Korea. The DALY rate for all the mental disorders for females is higher by 1.66% than males. Depressive disorders had the highest burden among mental disorders in South Korea with a total DALY of 252.04 per 100,000 in 2019. The burden is higher in females than males with a difference of 1.01%. Bipolar disorder prevalence was 0.2 %, with constantly higher rates in females. The prevalence of BP increased from 0.11 % in 2008 to 0.20 % in 2018.

Lifetime prevalence of schizophrenia in Korea is around 0.28%. Its burden in males was 276.06 per 100,000, which was higher than females in 2019. Autism prevalence rate in South Korea is around 263 per 10,000 which is second highest globally. ASD has a mean annual incidence of 8.4 to 13.7 per 100,000 people, while PTSD has a mean annual incidence of 4.2 to 8.3 per 100,000 people. Females are shown to have a higher incidence of ASD than males. In addition, the female group had a higher rate of PTSD. DALY for ADHD in 2019 was 118.66 and 34.07 per 100,000 for males and females, individually.

Table 1: DALY Rate Of Mental Health Disorders In South Korea For The Year 2018 and 2019 2019 (Both Sexes and All Ages)

Disorders	2018			2019		
	Males	Females	Total	Males	Females	Total
Mental Disorders (All Causes)	1374.51	1611.71	1492.03	1378.45	1599.86	1487.98
Schizophrenia	274.02	227.66	251.05	276.06	227.51	252.04
Depressive Disorders	327.15	528.31	426.81	332.96	519.37	425.18
Bipolar Disorder	127.7	130.85	129.26	127.81	130.84	129.31
Anxiety Disorder	220.31	448.59	333.4	228.34	448.32	332.25
Eating Disorders	50.38	85.04	67.55	50.23	85.53	66.7
Attention Deficit Hyperactivity Disorder (ADHD)	19	5.04	12.09	18.69	4.99	11.91
Autism Spectrum Disorders	119.29	34.21	77.14	118.66	34.07	76.81
IDID	3.88	6.4	5.13	2.89	5.48	4.18

Table 2: DALY Percentage Of Mental Health Disorders In South Korea For The Year 2018 and 2019 (Both Sexes and All Ages)

	2018			2019		
	Males	Females	Total	Males	Females	Total
Mental Disorders (All Causes)	5.69	7.44	6.5	5.61	7.27	6.39
Schizophrenia	1.14	1.06	1.1	1.13	1.04	1.09
Depressive Disorders	1.35	2.44	1.86	1.35	2.36	1.82
Bipolar Disorder	0.53	0.6	0.56	0.52	0.59	0.55
Anxiety Disorder	0.91	2.07	1.45	0.89	2.04	1.43
Eating Disorders	0.21	0.39	0.29	0.2	0.38	0.29
Attention Deficit Hyperactivity Disorder (ADHD)	0.078	0.023	0.052	0.076	0.023	0.051
Autism Spectrum Disorders	0.49	0.16	0.34	0.48	0.15	0.33
IDID	0.016	0.029	0.022	0.012	0.025	0.018

South Korea Digital Mental Health Market

In 2020, the Korean digital healthcare industry was approximately worth \$ 6.08 billion. Due to an increase in the prevalence of chronic disease and a fast-ageing population (nearly 40% of whom are anticipated to be over 65 by 2060, compared to an OECD average of 2.1%), Korea's medical costs are rapidly growing (6.8% vs an OECD average of 2.1%). To address growing expenses, the government has taken a number of steps to expand the digital health business. Increasing investments in innovative technology development and improving laws surrounding digital healthcare goods and services are two examples. Many companies are deeply interested in the problem of individual mental health, which is increasingly emerging as a modern social issue, and are developing solutions to solve this problem. However, despite the importance of mental health, the utilization of mental health services in Korea is low due to preconceived notions about mental treatment. Psychological and physical barriers to psychiatric treatment are high enough that approximately only 15% of depressed patients visit a hospital, and the professional workforce is also at the lowest level in the OECD. Although late but there are many new start-ups coming up in this space in Korea. The Silicon Valley trade office of KOTRA recently announced that the number of start-ups developing digital treatment solutions for cognitive behavioural therapy applied to mental disorders are rapidly increasing.

Market Drivers:

Increasing prevalence of mental disorders is the primary factor that boosts the growth of this market. The digital platform provides improved access and services at much more affordable prices. Novel inventions in software and services, a rapidly aging population, increase in funding and investment, rising understanding amongst people regarding the significance of mental health are additional factors propelling the market's growth. Additionally, due to the pandemic, the demand for digital mental health services has increased tremendously. Digital treatment solutions related to mental health include telemedicine and games for therapeutic purposes, which are being provided in the form of mobile applications or combined with various technologies such as VR, chatbot, and AI.

Competitive Landscape:

South Korea digital mental health market is quite fragmented with limited domestic players operating in the market currently. Affluent players in this market include Gideb, Ybrain, Trost, Pibo, Fortify, Calming Blue and others.

Gideb, established in the year 2019, is a platform that connects people in Korea to mental health care choices, from healthcare professionals to online therapy, for mental disorder and addiction support. The 'Mindd,' a wearable headband that employs transcranial direct current stimulation to send a stream of electricity to the frontal cortex, was introduced by Ybrain as a novel technique for treating depression. As the electromagnetic pulses travel through their heads to the brain region, where reduced activity is linked to depression, users experience a tingling feeling. Patients may track their sleep, exercise, and medical treatment using a smartphone app that connects to the gadget. The 'Mindd' is already in use at a dozen hospitals in South Korea. This year, it is projected to grow by 150 people to treat at least 3,000 patients. Humart Company's 'Trost' founded in 2016, allows people who want to receive psychological counselling. Circulus, a startup established in September 2016, is a company that produces AI social robot Pibo that can interact with users. It is a humanoid companion robot that helps emotional care by analyzing emotional data in single-person households and nuclear households, such as single-child households, single households, and the elderly living alone. Blue Signum is trying to provide a solution that allows users to manage their mental health on their own through a mobile application based on psychotherapy techniques. The first half of 2021 will officially launch 'Calming Blue' and other solutions will be developed for anxiety, insomnia, burnout, and addiction. It plans to develop into a personalized mental health service based on a digital biomarker in the longer term.

Funding:

Funding received by these startups has recently been increasing. For Instance, digital mental health care startup Fortify, established in 2020 announced that it had attracted a seed investment of \$ 4.42 Lakhs from Attraction Ventures. DHP recently invested in 'Blue Signum', a start-up for mental health digital treatment. Samsung Next,

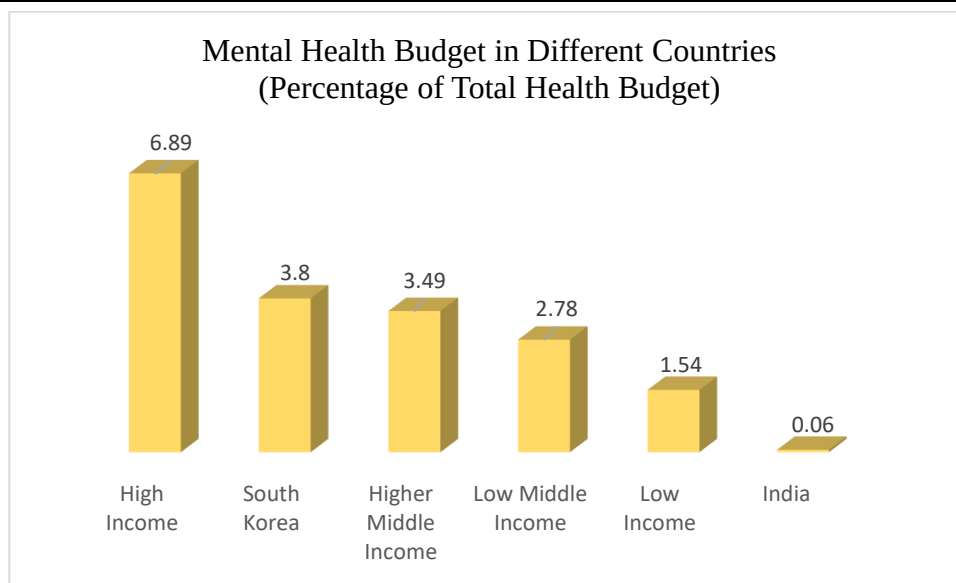
an investment subsidiary of Samsung Electronics recently announced that it has decided to invest in 'Big Health'. This digital treatment platform solves mental health problems such as insomnia and anxiety. It will be investing \$39 million (about 47.3 billion won) jointly with 'Gilde Health' and 'Morningside Ventures'. The number of downloads of mental health management applications has shown a sharp increase due to the COVID -19 pandemic.

Mental Health In India

Mental illnesses are one of the most common diseases in India, ranking 10th in the country and 7th globally in 2019. Nearly 1 in every 7 Indians suffers from mental illnesses of different severity. In India, the frequency of mental diseases has roughly doubled since 1990. In 2017, approximately 197.3 million persons in India had mental illness which accounted for 14.3% of the country's entire population. In India, mental illnesses accounted for 4.67 percent of total DALYs in 2019, compared to 2.31 percent in 1990.

Despite gains in several health indices, India contributes disproportionately to the worldwide burden of disease, including mental health. The treatment gap, which is defined as the absolute difference between the prevalence of mental disorders and the proportion of the population who has been treated, has been found to be between 76 and 85 percent. Inadequate funding is one of the significant factors contributing to such an extensive treatment disparity. Both infrastructure and human resources are in short supply. According to the World Health Organization, India's mental health workforce is inadequate. There is a severe shortage of mental healthcare professionals in the nation compared to the country's mental health population. There are 0.3 psychiatrists, 0.12 psychologists, and 0.07 social workers per 100,000 population in India, when the desired ratio is three psychiatrists and psychologists per 100,000 population¹³.

According to a British Charity Mental Health Research UK survey, 42.5 percent of employees in India's business sector suffer from depression or anxiety disorders. This indicates that nearly every second employee suffers from depression or anxiety. According to government data, over a third of India's population is between the ages of 15 and 34, with suicide being the primary reason for mortality among the younger population. According to the National Crimes Record Bureau's annual report on suicides in India, the number of suicides climbed by 3.4 percent to 1.4 lakh in 2019, up from 1.3 lakh in 2018. In India, the age-adjusted suicide rate is 21.1 per one lakh population. Mental illnesses cost a lot of money; the country loses lives and valuable work hours due to them. On a human level, it is challenging for the individuals who are suffering and their caretakers, who are usually direct relatives in India. The worrisome state of mental illness in India can be ascribed to a lack of mental health financing. Despite the world's fifth-biggest economy's significant incidence of mental health issues, India has spent just 0.06 percent of its yearly health budget on mental health in recent years, far less than the average spending of low-income nations, which is about 0.5 percent¹⁶.



In 2014, India's first National Mental Health Policy was released, followed by a revamped Mental Healthcare Act in 2017. Both recognized the importance of mental illnesses in decreasing the total disease load. The goal was to give affordable mental health care to people all around the world. The 2017 Revised Mental Healthcare Act contained a clause under the right to equality and non-discrimination that said that insurers must offer medical insurance for mental illness treatment on the same basis as physical sickness treatment. Introducing this policy was to pave the way for a change in people's mental health perspectives. Mental health has been positively linked to a country's economic success. According to the World Health Organization, India's economy will lose more than \$1 trillion between 2012 and 2030 because of mental health crisis.

The state of mental health in India before COVID 19 was already concerning, but the condition has worsened since the pandemic outbreak. Mental health issues usually tail off when the constrained resources are focused on the containment of the pandemic. History indicates that any infectious disease outburst brings it a key impediment in the mental health space¹⁷. COVID-19 outbreak caused a lot of psychological distress in people. In India, the pandemic has increased anxiety, sadness, post-traumatic stress disorder (PTSD), domestic abuse, drug addiction, and suicide ideation.

India Disease Burden

Among the major mental disorders, the burden of depressive disorders was around 1.8%, and anxiety disorders were 0.84%, whereas bipolar disorders had DALY of 0.23% and schizophrenia 0.55%. Depressive disorders were the most prevalent among all the mental disorders in both the years across both sexes. The burden of anxiety disorders and IDID reduced in 2019 when compared to 2018. IDID had the highest prevalence rate of 4.5% among all the mental disorders in India. In contrast, the prevalence rate of both anxiety and depressive disorders was around 3.3%. Overall, females had higher mental health disorders burden in both years.

Table 3: DALY Rate Of Mental Health Disorders In India For The Year 2018 and 2019 2019 (Both Sexes and All Ages)

	2018			2019		
	Males	Females	Total	Males	Females	Total
Mental Disorders (All Causes)	1496.19	1661.59	1576.75	1497.1	1655.47	1574.27
Schizophrenia	207.51	158.68	183.73	207.83	159.4	184.24
Depressive Disorders	506.3	712	606.48	509.66	711.6	608.04
Bipolar Disorder	82.2	70.73	76.61	82.8	71.31	77.2
Anxiety Disorder	230.48	349.07	288.24	218.61	342.15	283.79
Eating Disorders	23.07	37.63	30.16	23.5	30.11	30.62
Attention Deficit Hyperactivity Disorder (ADHD)	10.81	4.17	7.58	10.73	4.15	7.52
Autism Spectrum Disorders	62	25.62	44.28	61.88	25.56	44.19
IDID	168.52	174.01	171.19	167.11	173.44	170.2

Table 4: DALY Percentage Of Mental Health Disorders In India For The Year 2018 and 2019 (Both Sexes and All Ages)

	2018			2019		
	Males	Females	Total	Males	Females	Total
Mental Disorders (All Causes)	4.39	4.9	4.63	4.44	4.92	4.67
Schizophrenia	0.61	0.47	0.54	0.62	0.48	0.55
Depressive Disorders	1.49	2.1	1.78	1.51	2.12	1.8
Bipolar Disorder	0.24	0.21	0.23	0.25	0.21	0.23
Anxiety Disorder	0.68	1.03	0.85	0.68	1.02	0.84
Eating Disorders	0.068	0.11	0.089	0.07	0.11	0.091
Attention Deficit Hyperactivity Disorder (ADHD)	0.032	0.012	0.022	0.032	0.012	0.022
Autism Spectrum Disorders	0.18	0.075	0.13	0.18	0.076	0.13
IDID	0.49	0.51	0.5	0.49	0.51	0.5

Digital Mental Health Market In India

India is one of the fastest-growing digital economies in the world. The Indian healthcare system has undergone a digital revolution to increase quality and accessibility. In 2018, India's digital healthcare industry was valued at \$116.61 billion, with a CAGR of 27.41% anticipated to reach \$485.43 billion by 2024. Many Indian health-tech startups focus on this sector to harness technology applications due to India's growing prevalence of mental illnesses. Precisely, technology aids in creating a structured care continuum for patients by providing them with a 24/7 interface with the healthcare system outside of doctor appointments. This interface is usually a mobile application that collects personal health data that is necessary for illness monitoring.

Mental health startups exploit the opportunity by mediating when most need their help and have found returns and user growth. Mental health startups say the concealment offered by online counselling and digital platforms creates a securer space for individuals compared to physical clinics where the stigma element is higher.

Market Drivers:

When treating mental health problems in India, the stigma combined with a lack of mental health services has created a broad gap in care. Indian market is primarily driven by the factor that the digital platform increases access and affordability and there are no geographic barriers. The incidence of mental health disorders is continuously rising in the country. The digital platform provides the consumers a sense of authority, and there is provision for data driven feedback. Other factors propelling the market include innovations in applications and services, boosted funding and investment, and rising understanding among

people regarding the significance of mental health, especially during the pandemic. The launch of numerous mental wellness applications and rising demand for mental health services also positively impact market growth.

Competitive Landscape:

Indian Android users have more than 278 applications for mental health at their disposal. Indian mental health applications provide a broad spectrum of services ranging from prevention, identification, diagnosis, treatment to recovery, and support. Wysa is one of the most famous mental health app in India. It provides an AI-based chatbot capable of answering most of the questions regarding mental health and wellbeing. Customers can further choose from options like self-care and therapist depending on their needs. Some of the other famous and dominating mental health startups in the Indian market are PsyCuration, Full Circle, YourDost, Peas, Good Apps, Headspace, Sparc, Moodlytics, Innerhouse, Zen Lounge, CareMe Health, Happy Mynd, Mindhouse, MindFit, and others. To improve health and wellness in India, the Indian government has developed a prototype version of the Mental Health and Normalcy Augmentation System (MANAS) smartphone app. It is an all-inclusive national digital wellness platform aimed at improving Indian residents' mental health. The CBSE board launched 'CBSE Dost For Life' Android app for its students with over 80 volunteer counsellors and school principals onboard to offer counselling sessions during pandemic. There are apps like sattva, which have a more traditional Vedic approach to dealing with mental wellbeing.

Funding:

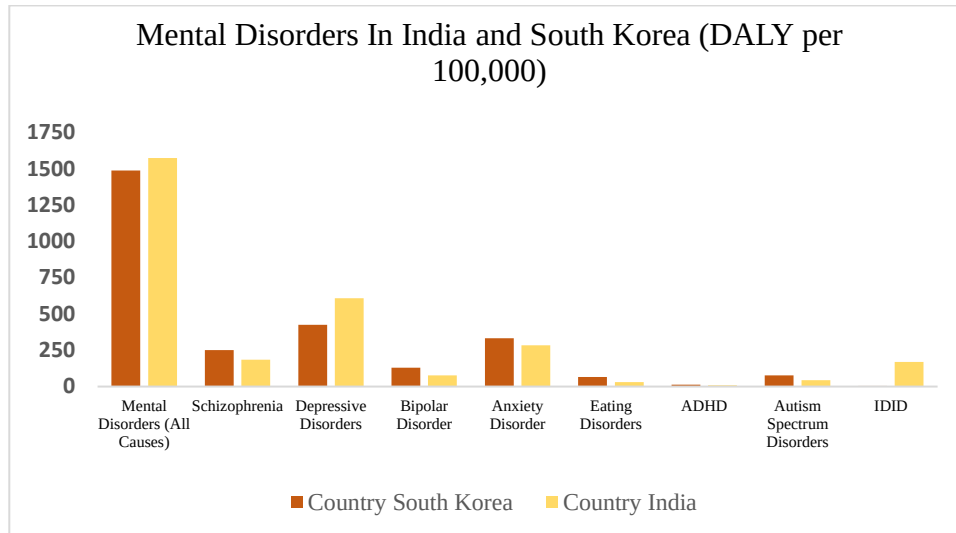
With mental health issues snowballing, financiers are very keen on backing up the entrepreneurs by creating novel scalable mental health solutions.

- Wysa, an AI-enabled mental health application, has recently secured an undisclosed amount of investment from the Google Assistant Fund and also raised funding of \$3.9 M from investors like Kae Capital and pi Ventures.
- Mumbai-based Mental health startup InnerHour has raised \$5.2 M from venture capital firm Lightbox.
- CureFit that owns MindFit has raised \$75 M in a recent funding round, a year after it raised \$120 M.
- ACT Grants awarded Rs 95 lakh to three online mental health service providers in 2020 to work on COVID-related anxiety issues: Dost, ePsyclinic, and Mind Piper.

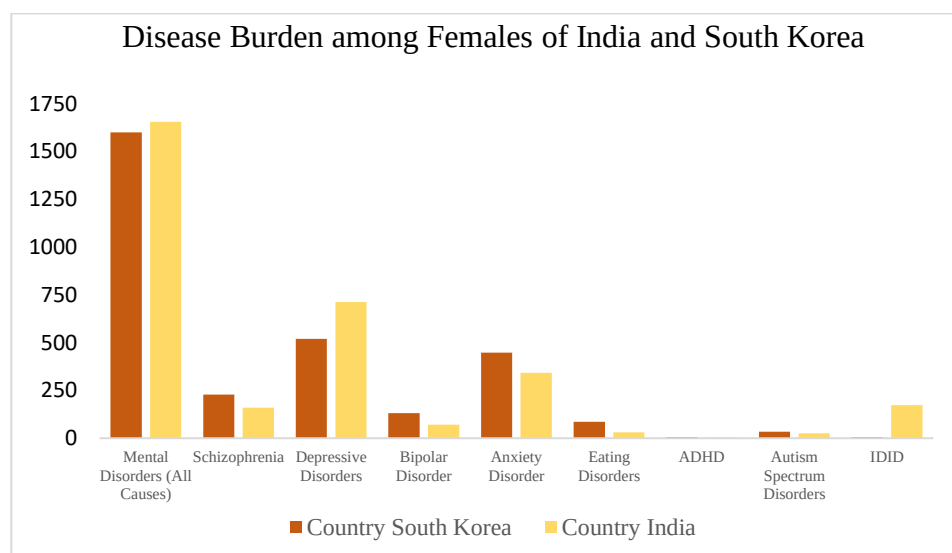
Both the demand and supply sides of the digital mental health ecosystem are expected to see a massive increase in the future. If the focus is on developing a technology-aided healthcare environment as the basis, India will profit and tackle existing issues.

Comparing The Mental Health Disease Burden In India And South Korea

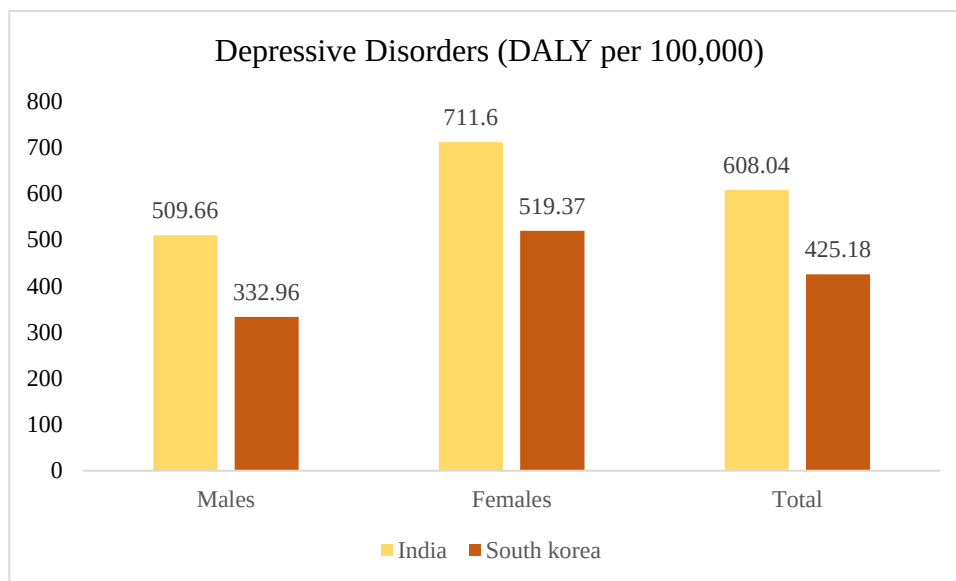
Graph 2: Shows the total burden (including both sexes and all ages) of most prevalent mental health disorders in India and South Korea. The overall responsibility is higher in India. The burden of schizophrenia, bipolar disorders, anxiety disorders, eating disorders, ADHD, autism spectrum disorders was higher in South Korea in the year 2019. Women in both countries had higher DALY as compared to men (all ages).



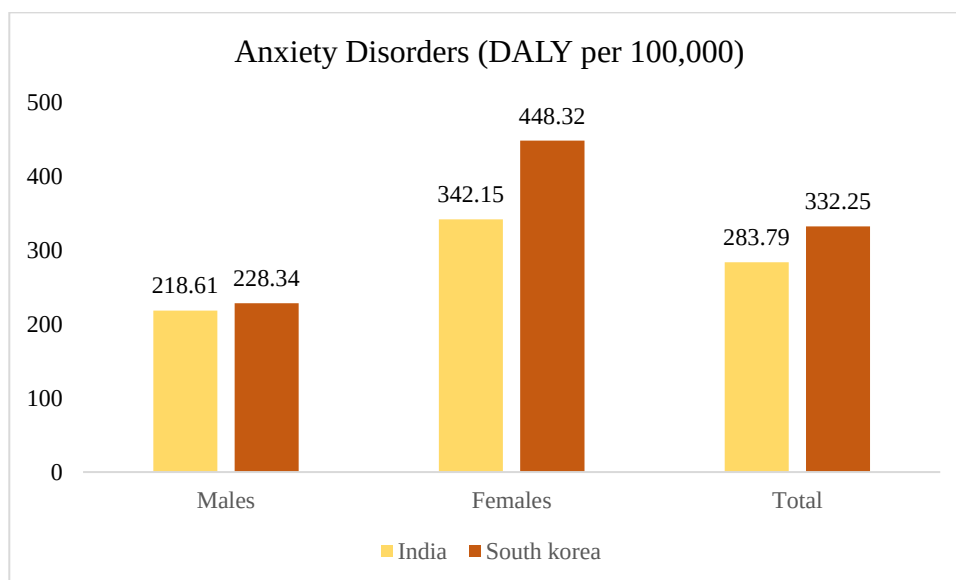
Graph 3: Illustrates the mental health disease burden among the female population (including all ages) of India and South Korea. Females in India had a higher mental health disease burden than the females in South Korea because the burden of depressive disorders and IDID were significantly higher in Indian females. However, the burden of schizophrenia, anxiety disorders, bipolar disorders, and eating disorders was higher among South Korea women.



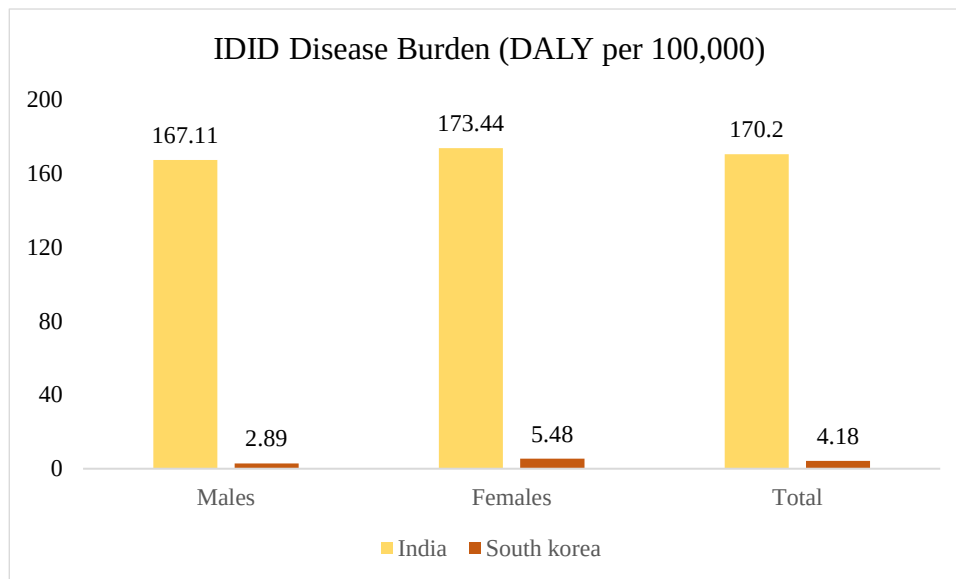
Graph 4: The burden of depressive disorders in India and South Korea for 2019 has been depicted in this graph. The burden was found to be higher in India for both males and females.



Graph 5: Shows the burden of anxiety disorders in India and South Korea in total and across both genders. The burden of anxiety disorders was overall more in South Korea; the burden was significantly higher among Korean women.



Graph 6: Illustrates the disease burden of idiopathic developmental, intellectual disability in India and South Korea. IDID burden is noticeably higher in India than South Korea across both genders.



Comparing The Digital Mental Health Market In India And South Korea

Though the disease burden of mental health disorders is high in both countries, India's digital health market is more significant compared to South Korea. The drivers for both industries are nearly the same. However, limitations differ since telemedicine is still illegal in Korea, and telemedicine as a segment has yet to expand due to the Medical Services Act's restrictions. Furthermore, Korea has been slow to recognize the value of healthcare data. The current administration is working hard to capitalize on big data and associated applications such as precision medicine and artificial intelligence. India has a bigger market due to the significantly greater number of applications available for the population. Indian Android users have more than 278 applications for mental health at their disposal, while in South Korea there is only a handful. Indian mental health applications provide a broad spectrum of services ranging from prevention, identification, diagnosis, treatment to recovery, and support which is not the case in South Korea. The Indian government has recently launched its app called MANAS targeting all major mental health disorders whereas the Korean government has been focusing primarily on suicide reduction.

Conclusion

Mental health disorders are widespread in both India and South Korea. The number of people getting treated are far less than those affected due to the similar stigmas that prevail in both these countries. In order to combat the spread of these disorders, both countries need to take firmer actions, regulate the existing policies, and take advantage of the upcoming digital platform.

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