EVALUATING THE CURRENT FEASIBILITY OF ADOPTING A HOLISTIC ALGORITHM OF PSYCHIATRY FOR TREATING SCHIZOPHRENIC PATIENTS IN REGION FOUR DIVISION IX OF THE UNITED STATES

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ABSTRACT

Cartesian dualism, manifested in the biomedical model of medicine, is found to be ineffective in treating patients in the modern day due to its strict focus on physiological determinants. This mind-body dichotomy is especially limited when used to treat patients with a psychiatric illness, particularly schizophrenic patients in the United States (U.S.). The researcher proposes adopting a new holistic algorithm, that is individualized, proactive, interdisciplinary, and takes into account patient behavior and knowledge/attitudes. It is unknown, however, which specific location in the U.S. is currently the most feasible to adopt this method. In order to assess the feasibility in adopting the new holistic algorithm for treating schizophrenia, data on indicators of patient accessibility, being availability, proximity, and cost was organized by Region Four Division IX states to determine location of greatest feasibility. The information was based strictly on the services/modalities of the algorithm, which are long-acting injection antipsychotics (LAI), healthcare practitioners (HCPs) who use shared decision making (SDM), case management systems, rehabilitation programs, and compulsory treatment by law. This data was compiled and measured. Ultimately, this paper aims to contribute to the knowledge regarding the viability of the push away from Cartesian dualistic methods in the medical field.

INTRODUCTION

Cartesian dualism can be defined as a philosophical theory that regards the mind and the body as distinct substances. Cartesian dualism is attributed to the seventeenth century French philosopher René Descartes, who rationalized that the mind and the body were two separate entities in his treatise titled *Passions of the Soul*. He understood desires, feelings, and passions as

being products of the soul, in which the soul was viewed as being synonymous to the mind, whereas the body was mechanistic.[1] In another of his philosophical treatises, *Meditations of First Philosophy,* Descartes states, "I have a clear and distinct idea myself, in so far as I am simply a thinking, non-extended thing; and on the other hand I have a distinct idea of body, in so far as this is simply an extended, non-thinking thing", concluding that there is a bifurcation of the mind and the body, where both entities could exist and are not dependent on the presence of each other.[2]

Negative Sentiment in the Medical Field

It is necessary to prove that there is a widespread scrutiny of the integration of dualistic thinking amongst the scholars in the medical field due to the emphasis on physiological factors within the model. This point is important to prove as it will indicate the one-dimensionality of Cartesian dualism when treating patients, ultimately showcasing its neglection of external factors not limited to the physical body, such as patient behaviors and attitudes.

Over time, Cartesian dualistic thinking became intertwined in medicinal practice. This is particularly seen with the biomedical model, the leading and dominant model in Western medicine. The biomedical model is utilized in all branches of contemporary Western medicine. However, the incorporation of dualistic thinking into the medical field has been subject to negative response in regards to the treatment of patients. Donna M. Orange, Ph.D., Psy. D, argues that the consequence of Descartes' "I think, therefore I am" realization is that empirical science became an exemplar of validity, seen particularly with the dominating Cartesian dualism

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[1] Descartes, René. *Passions of the Soul.* Indianapolis: Hackett Publishing Company, Inc, 1989.
[2] Descartes, René. *Meditations on First Philosophy.* Indianapolis: Hackett Publishing Company, Inc, 1993.

in the medical field.[3] Ergo, the mind-body dichotomy has prompted a dehumanizing effect on patients. Jeffrey Gold, BDS, presents this phenomena, affirming that employment of the biomedical model on patients gives rise to their objectification or reduction to being the Cartesian "object-body", encouraging medical professionals to treat a patient as such, isolating and focusing primarily on the physical body and turning to physiological determinants as the central locus of a pathology, consequently disregarding moods, expressions, and thoughts as factors in diagnosis.[4]

While mind-body dualism has been subject to critique, its survival in the medical field persisted. Doctor Neeta Mehta, Associate Professor of the Department of Psychology at V.G. Vaze College, assessed the role of Cartesian dualism in the medical field with this model, particularly in the context of "disease, health, and treatment," as well as forming a comprehension of the firm endurance of Cartesian dualism in healthcare. Mehta asserts that diseases that seem to arise from more personable factors are more difficult to treat. Thus, the dimensions of medicine have become so narrow, limiting the focus of diseases to biological or physical factors.[5] With physicians accustomed to the dualistic medical model, predominantly, this leads to an assumption that all diseases are viewed as diseases of the body, in which a single, underlying pathology can be treated.

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[3] Orange, M Donna. *A Pre-Cartesian Self.* New York: International Journal of Psychoanalytic Self Psychology, 2013.
[4] Gold, Jeffrey. "Cartesian dualism and the current crisis in medicine - a plea for a philosophical approach: discussion paper." *Journal of the Royal Society of Medicine.* 78 (August 30, 1985): 663-666
[5] Mehta, Neeta. "Mind-body Dualism: A critique from a Health Perspective." Mens Sana Monographs. 2011. Accessed October 22, 2017. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3115289/.

LITERATURE REVIEW

Varying Perspectives of Psychiatric Illness Classification

The biomedical model is the prevailing paradigm of contemporary Western medicine. This is partly due to the relative simplicity of diagnosing and treating illnesses, as well as its success regarding the utilization of the empirical scientific method. The use of this model suggests that every pathology contains a sole genesis regardless of whether a disease is classified as either a psychiatric or physical disorder. This leads to a flaw of the paradigm, however, as psychiatric ailments exhibit manifestations that are difficult to simply explain using the model. For example, physicians prescribe selective serotonin reuptake inhibitors (SSRIs) to patients diagnosed with major depressive disorder as an attempt to treat the illness. If, according to the biomedical model, each disease has a root physical cause, then SSRIs should effectively treat depression. This is not the case, however, as this fails to amalgamate both the biological, as well as patients behaviors and attitudes, in turn eliciting issues of intolerability to the prescription, deficient efficacy, impeded physician intervention, and resistance to treatment.[6] This phenomena has lead to varying perspectives of how psychiatric illness is classified as, being a disease of either the mind or body.

Derick T. Wade, professor of neurological rehabilitation at the Oxford Centre for Enablement, and Peter W. Halligan, professor of psychology at Cardiff University, interprets the classification as psychiatric illness being a disease of the body, and that, using this model, an illness can be reduced to a singular causation. Further, pathology is determined as this causation,

[6] Penn, Elizabeth and Derek K Tracy. "The drugs don't work? antidepressants and the current and future pharmacological management of depression". *SAGE Journals.* 2012. Accessed April 1, 2018.

and by removing the pathology, the health of the patient will be restored. This also entails the belief that mental states are emotional abnormalities and are not related to a physical illness. Hence, it is much easier for a physician to label a diagnosis on a patient while strictly focusing on the biological factors. However, in consequence, physicians tend to ignore that state of mind always affects a patient's function and presentation of physical symptoms, viewing the illness as a disease of the body.[7]

R.E Kendell, affiliated with the British Journal of Psychiatry, has provided a counter-perspective to the general interpretation, in which he interprets the general classification of illness as classifying psychiatric illness as a disease of the mind, a consequence of the usage of the term "mental disorders". According to Kendell, the World Health Organization's *International Classification of Diseases* (ICD) and the American Psychiatric Association's *Diagnostic and Statistical Manual* (DSM) usage of the term "mental disorders" has perpetuated the assumption that all mental illnesses are diseases of the mind rather than the body, isolating the umbrella of psychiatric illnesses as different from other illnesses implying a distinction between psychiatric and physical illnesses. This mind-body dualism had the unfortunate effect of "mental" disorders, if not explained by a somatic pathology, being excluded by Western medicinal concerns.[8] The separation of institutions of "physical" illness and psychiatric

[7] Wade, T Derick. "Why physical medicine, physical disability and physical rehabilitation? We should abandon Cartesian dualism".*US National Library of Medicine National Institutes of Health.* 2006. Accessed October 22, 2017. https://www.ncbi.nlm.nih.gov/pubmed/16634337
[8] Kendell, R.E.. "The distinction between mental and physical illness". *The British Journal of Psychiatry.* 2001. Accessed January 27, 2018. https://www.cambridge.org/core/journals/the-british-journal-of-psychiatry/article/distinction-between-mental-and-physical-illness/5FA9AC9A9A8F7D6395BF41B3CD004305

institutions indicates that there is confusion on whether or not psychiatric illness is a disease of the body.

Concerns with the dualistic biomedical model engendered the response to, instead, use a model that treats psychiatric illness holistically. In 1977, George Engel proposed the biopsychosocial model in an effort to counter the biomedical model, attacking the model for being dualistic in the treatment of patients. Engel then suggested that both biological and psychological factors should be analyzed when deciding how to treat a patient. However, according to Michael J. Schneider, associate professor at the University of Pittsburgh, mental health, or psychiatric health, is grouped as "psychological".[9] Although the model does not immediately turn to physiology of being the central root of the illness, this model still, ironically presents dualism, as Engel separates the mind (psychological factors) from the body (physiological factors), but in the case of psychiatric illness, treating the patient only based on psychological factors.[10] The model also does not indicate how the factors, biological and psychological, interact with each other, which displays a seperation of the two. Furthermore, the model confuses the etiology of the illness, rather than attempting to treat the patient, revealing the model's inability to successfully treat the individual.[11] The biopsychosocial model only

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[9] Schneider, J Michael. "The biopsychosocial model and chiropractic: a commentary with recommendations for the chiropractic profession". *Chiropractic & Manual Therapies.* 2017. Accessed February 13, 2018. https://chiromt.biomedcentral.com/articles/10.1186/s12998-017-0147-x

[10] Duncan, Grant. "Mind-Body Dualism and the Biopsychosocial Model of Pain: What Did Descartes Really Say?" *Journal of Medicine and Philosophy.* 2010. Accessed February 27, 2018. https://www.ncbi.nlm.nih.gov/pubmed/10916180

[11] Pilgrim, David, Kindermann Peter, and Sara Tai. "Taking Stock of the Biopsychosocial Model in the Field of 'Mental Health Care". *Journal of Social and Psychological Sciences.* 2008. Accessed February 12, 2018. https://www.questia.com/library/journal/1G1-191857207/taking-stock-of-the-biopsychosocial-model-in-the-field

serves as a point in illuminating the idea that the issue with the biomedical is not the looking at physiological factors strictly, rather, the treatment of a patient dualistically rather than wholly, as the biopsychosocial model only treats psychiatric illness psychologically. It is, then, ineffective in combating dualism, as it still incorporates hidden dualistic tendencies.

A number of psychiatric disorders are poorly managed with physicians simply relying on the biomedical model, employed regardless of the physician's beliefs. Varying discussion regarding the classification of psychiatric illness as a disease of the mind or body eventually leads to confusion on how to effectively treat a patient. Essentially, the use of Cartesian dualism is often inconsistent or uncertain in treating certain psychiatric disorders, particularly schizophrenia.

The Case with Schizophrenia

Schizophrenia is defined as a psychotic, long-lasting, mental disorder that is "characterized by thoughts or experiences that seem out of touch with reality, disorganized speech or behavior, and decreased participation in daily activities."[12] With the incorporation of dualism in the treatment of psychiatric patients, patients diagnosed with the illness schizophrenia are particularly negatively affected. For example, about 10% of schizophrenic patients remain severely ill for a long duration of time and never return their previous state of mental well-being, in which there is immense difficulty transitioning back into society, thus prompting low return rates to their hospitals.[13]

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[12] Gstatic. "Schizophrenia". *Gstatic.* 2017. Accessed February 24, 2018. https://www.gstatic.com/healthricherkp/pdf/schizophrenia.pdf

[13] National Center for Biotechnology Information. "Information about Mental Illness and the Brain". *National Institutes of Health.* 2007. Accessed December 5, 2017. https://www.ncbi.nlm.nih.gov/books/NBK20369/

A study conducted by the *American Mental Journal of Psychiatry* discovered that medical practitioners continue to utilize mind-body dualistic methods when analyzing clinical cases.[14] Moreover, this in turn precipitates the impression of schizophrenic patients as more "responsible for their actions", therefore dangerous, increasing social distance, as discovered by Dr Matthias C. Angermeyer from the Department of Psychiatry at the University of Leipzig. Comparatively, individuals diagnosed with the psychiatric illness depression experience no negative stigmatization, highlighting the especial effects of dualism on schizophrenic individuals.[15]

Furthermore, patients diagnosed with schizophrenia were found to have high relapse rates. A 2010 research report, modified in 2016, was completed by the Agency for Healthcare Research and Quality in order to increase awareness of medical professionals to potentially ameliorate issues in quality of care, cost of care, and care transitions. The findings particularly accentuated that at least one in five cases for the most frequently treated conditions in the U.S. experienced hospital readmission within 30 days. In the study, schizophrenia is at 22.3%, the highest out of all psychiatric illnesses and ranking second amongst all conditions, a 2.4% difference behind congestive heart failure (24.7%).[16] In addition, about 75% of these patients will

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[14] Miresco, J Marc and Laurence J Kirmayer. "The Persistence of Mind-Brain Dualism in Psychiatric Reasoning About Clinical Scenarios". *The American Journal of Psychiatry*. 2006. Accessed February 17, 2018. https://ajp.psychiatryonline.org/doi/full/10.1176/ajp.2006.163.5.913

[15] ibid

[16] Fingar, R Kathryn, Barrett L Marguerite, and Joanna Jiang. "A Comparison of All-Cause 7-Day and 30-Day Readmissions". *Agency for Healthcare Research and Quality.* 2017. March 1, 2018. https://www.hcup-us.ahrq.gov/reports/statbriefs/sb230-7-Day-Versus-30-Day-Readmissions.jsp

choose to discontinue their antipsychotic therapy within two years.[17]

Those diagnosed with schizophrenia also report higher levels of patient dissatisfaction or perceptions of ineffectiveness with their treatment compared to other psychiatric illnesses. A cross-sectional study was conducted on patients at the United States Department of Veterans Affairs hospitals that were diagnosed with schizophrenia and bipolar disorder to assess patients perceived satisfaction and effectiveness with healthcare, which discovered that those diagnosed with schizophrenia were less satisfied with the process of care, particularly noting difficulties in thoroughness and explanation of problems by the provider.[18] In other words, the current provisions of healthcare do not stress patient-healthcare professional relationships, prompting lower levels of knowledge and insights on their disorder and treatment. Also, a cross-sectional study using 5500 adult schizophrenic patients, published in the academic journal *Schizophrenia Research*, was conducted to determine which factors in treatment were correlated with higher levels of treatment satisfaction. The results showed patients were more satisfied with new antipsychotics and treatment targeting individual thoughts and behaviors.[19] This indicates a desire for treatment that fuses the mind and the body together.

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[17] Weiden, PJ and A. Zygmunt. "Medication noncompliance in schizophrenia: Part I. Assessment". *J Prac Psych Behav Health.* (1997):997;3:106–110

[18] Hollikati, C Prabhakar, Kar, Nilamadhab, Mishra, Ajaya, Shukla, Rajnikant, Swain, P Sarada, and Samrat Kar. "A study on patient satisfaction with psychiatric services". *Indian Journal of Psychiatry.* 2012. Accessed March 1, 2018. https://www.researchgate.net/publication/233966355_A_study_on_patient_satisfaction_with_psychiatric_services

[19] Nordon, Clementine, Rouillon, Frederic, Barry, Caroline, Gasquet, Isabelle, and Bruno Falissard. "Determinants of treatment satisfaction of schizophrenia patients: Results from the ESPASS study". *Schizophrenia Research.* 2012. Accessed March 2, 2018. https://www.schres-journal.com/article/S0920-9964(12)00317-9/references

The Proposed Algorithm

In 2015, a group of over 30 expert psychiatrists came to the consensus of a new algorithmic design for successful schizophrenia treatment. They constructed a framework apropos to the treatment of schizophrenic patients based on observations made in modern clinical settings. This new algorithm uses an interdisciplinary consideration to the treatment of said individuals. The following modalities stipulates necessary services needed for a successful workaround of obstacles present in treatments, placing de-emphasis on antipsychotics, that had a "fixing the person, not the environment" affect, and instead, fixating attention on both physical ailments and attitudes/knowledge and behaviors of a patient, (See Fig 1.). The following modalities are services that play a necessary role in the function of the algorithm:

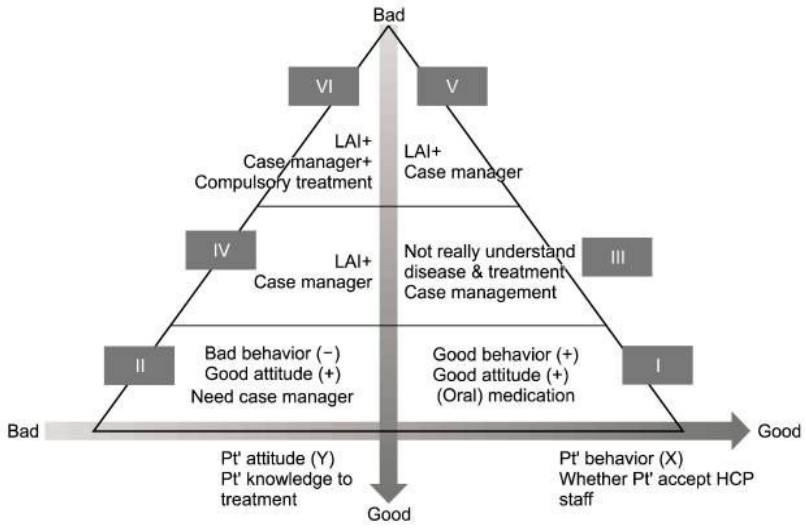

Fig.1 Holistic Algorithm *Paradigm based on patient behavior, which is reflected in the X-axis, and knowledge/ attitudes, which reflected in the Y-axis. Patient is indicated as "Pt'".*

LAI

Analyzing the role of patient responsibility when administering medication is a key component of the new algorithm. The first modality suggests accessibility to LAI, which plays a role in the algorithm by targeting patient behavior. Several studies have been conducted, which concludes that availability to LAI maintains medication adherence because patients receive injections from the psychiatrist in two to four week periods. This highlights its importance in modern day settings because new alternatives provide updated means of taking medication. As for the latter, due to being oral medication, the lack of LAI places responsibility of medication intake on the patient, which may precipitate relapse. LAI would combat the issues of patient noncompliance and relapse. These are issues present in the previous model.

SDM

The presence of SDM in the treatment process emphasizes the HCP and patient relationship. This case focuses specifically at the awareness of schizophrenia. Insights were split into three levels: no cognitive deficit, partial deficit, and complete lack of knowledge. Frequent HCP interaction prompts heightened patient understanding of an illness and medication adherence, thus increasing the effectiveness of treatment. This modality plays a significant role in inpatient care. SDM also allows for monitoring of patient behavior, as well as attitude/knowledge towards treatment.

Case Management Systems

Access to a case manager (CM) that offers specialization in schizophrenia acts a necessary component in analyzing an overall effective psychiatric treatment due to their essential role in fostering continuity of care, stated as being “essential for patients with schizophrenia in all stages of the disease.” In addition to ensuring adherence, they act as a social support and a

social resource when easing the patients during the transition back into society. In brief, the CM assists in out-patient care. This plays a role in the algorithm's targeting of both behavior and attitude/knowledge.

Rehabilitation

The role of rehabilitation availability is similar to the previous modality.

Compulsory Treatment by Law

The presence of legally obligated compulsory treatment was found to be necessary in having a successful model. Compulsory treatment allows for, by law, intervention when a patient appears to be a danger to his or herself and/or others. This allows for patients to receive psychiatric treatment that is necessary in treating their illness. On the other hand, lack of such treatment is in tangent to a decrease in success of treatment.[20] This service plays a role in the algorithm by targeting behavior and attitude/knowledge.

Gap in the Knowledge

Synthesizing the presented literature, it is apparent that the dualistic nature of the biomedical model, despite its wide usage, is both generally limited and ineffective when treating patients with schizophrenia. This necessitates a more proactive approach to counteract the issues of the dualistic biomedical model. Various questions are raised: *How can the effects of dualism used in the treating of schizophrenic patients be effectively ameliorated ? To what extent is a true holistic approach currently feasible?*

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[20] Lee, Lan-Ting, Chen, Kao Chin, Chung, Wei Hung, Chen, Po See, Lee, Hui, and Yen Kuang Yang. "Holistic Consideration of Patients with Schizophrenia to Improve Medication Adherence and Outcomes". *Clinical Psychopharmacology and Neuroscience.* 2015. Accessed March 12, 2018. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4540040/

Because the new algorithm also focuses on behaviours and attitudes/ knowledge of treatment and biological processes, done by improving patient and HCP relationship, maintaining medication adherence, increasing knowledge of illness, fostering continuity of care, and targeting issues of noncompliance and relapse, the researcher proposes that the algorithm detailed above is holistic is a fitting approach of ameliorating the effects of dualism, as it does not separate faculties of psychology and physiology, and takes into consideration the patient as a whole, both in diagnosis and treatment. However, the algorithm above has yet to be applied clinically, and there has been no research conducted on adopting a true holistic approach, even more so this algorithm particularly, to combat the effects of Cartesian dualism in modern day. Before the application of the algorithm can occur, there must be an analysis of feasibility in adopting the approach, which has yet to be conducted. Therefore, the researcher will be analyzing the degree of current feasibility of adopting the new holistic model in Region Four Division IX of the U.S in order to assess whether the push away from Cartesian dualistic methods is viable within the near future.

METHODOLOGY

The researcher conducted their methods through extensive content-analysis regarding three indicators to assess patient accessibility on the modalities: availability of the service, proximity to the service, and cost of the service.

The researcher used information from the following databases: National Community Pharmacists Association, Treatment Advocacy Center, US National Library of Medicine National Institutes of Health, National Association of Chain Drug Stores, Psych Central

Professional, RUPRI Center for Rural Health Policy Analysis, NAMCP Medical Directors Institute, HealthGrades, and GoodRx. The researcher particularly used these services because the services provide information regarding, for example, the amount of physicians in a state or city, as well as the national amount of physicians that pertain to the search words. Further, the databases provide treatment methodology of individual physicians, specialization, state and city of practice, and medications used for treatment, which are all necessary data that pertain to the modalities. The researcher also telephoned outpatient CMs and inpatient HCPs specializing in schizophrenia who use SDM in order to ascertain what the average yearly cost a patient pays for their service. Before asking the HCP about information regarding the cost, the researcher asked if he or she employed SDM techniques.

In order to obtain data related specifically to this study using these websites, first, a general search was done. Search terms included: 'schizophrenia', 'shared decision making', 'long-acting injectable antipsychotic', 'case managers', 'rehabilitation', and 'legally obligated compulsory treatment', reflective of the modalities. Next, data published from March 2017 to March 2018 were included in the study, as my time frame narrowed the parameters to determine the degree of current feasibility.

Sample

It is necessary to defend the reason as to why the sample was focused on the United States. The researcher investigated both the case of schizophrenia and psychiatric treatment in the U.S.. According to a 2018 statistical report published by the SARDAA, out of the population of 325.7 million, about 3.5 million Americans are diagnosed with the psychiatric illness schizophrenia, making it one of the leading causes of disability in the U.S.. Furthermore, the

same report discovered that 50% of Americans diagnosed with schizophrenia are not properly treated. Also, 25% of persons diagnosed with schizophrenia reported complete recovery, while the remaining 75% continued to suffer from the illness.[21] From that data, it can be concluded that the leading, dualistic biomedical model is especially ineffective in treating schizophrenic patients, particularly in the U.S. This reveals an urgency for a new treatment approach, which the researcher then hypothesized could be the proposed holistic model.

Next, the researcher determined whether it was necessary to narrow the sample further to simulate which location the new approach would be best implemented. The researcher examined known statistics or researcher calculated statistics regarding various regional divisions of the U.S. using the Office of Research and Public Affairs at the Treatment Advocacy Center from the U.S. Census Bureau.[22] The researcher discovered that the U.S. Division that contains that largest concentration of patients with schizophrenia was Division IX, with states including Alaska (AK), California (CA), Hawaii (HI), Oregon (OR), and Washington (WA), totalling 453,006 diagnosed.[23] The researcher determined that this sample, states in Region Four (West) Division IX (Pacific) would be ideal and narrow parameters when analyzing feasibility because highest concentration indicates greater needs for immediate attention in adopting a new approach to ameliorate the effects of dualistic methods. Data was individually collected from all five states.

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[21] Shattering Stigma Destroying Discrimination Schizophrenia and Related Disorders Alliance of America. "About Schizophrenia". *SARDAA*. 2018. Accessed March 20, 2018. https://sardaa.org/resources/about-schizophrenia/

[22] U.S. Department of Commerce Economics and Statistics Administration U.S. Census Bureau. "Census Regions and Divisions of the United States". *U.S. Census Bureau*. Accessed March 24, 2018. https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf

[23] Office of Research and Public Affairs at the Treatment Advocacy Center. "Prevalence Chart". *U.S. Census Bureau.* Accessed March 24, 2018. http://www.treatmentadvocacycenter.org/storage/documents/smi-prevalence-chart.pdf

Coding

Coding was used to organize the weight of data and percentages for each modality. Each modality was assigned a whole number from one (1) to five (5) based on the results. The larger the number, the more superior the ranking. The smaller the number, the poorer the ranking.

The modalities refers to a characteristic of the algorithm that is correlated with a more successful treatment. Five modalities are discussed in this study. Each modality was assigned a numerical score and the scores of each modality was summed. A higher score indicates higher feasibility in adopting the model, due to greater access to the modalities. A lower total score indicates lower feasibility due to limited access to the modalities. Total scores indicate the following:

1. Scores 3-4: Significantly low feasibility
2. Scores 5-7: Relatively low feasibility
3. Scores 8-10: Neither low nor high feasibility
4. Scores 11-13: Relatively high feasibility
5. Scores 14-15: Significantly high feasibility

Matrix

Data were organized into several charts. Specifically, these charts are printed maps of Region Four Division IX which list information pertaining to data, such as exact number of HCPs utilizing SDM versus general overall number of HCPs, or mileage covered from the most populated city to the city with the largest concentration of the modality services. The data was transferred to a table indicating major findings, which list the average percentage of availability, proximity in miles, and cost per patient per month (PPPM) in United States dollars (USD). These

were assigned a numerical code, which the researcher took the summation of in order to draw a conclusion.

Indicators of Accessibility

The following indicators of accessibility were assessed regarding the five modalities: proximity, availability, and cost,. The average of percentages of availability of the modalities, average distances from the modalities, and PPPM for each state was calculated.

It is important to elaborate on the purposes of evaluating accessibility and how that is in relation to feasibility. Accessibility was used to ascertain feasibility. Patient accessibility is directly related to feasibility because in order for the proposed treatment to be successfully implemented, enough patients must be able to have the services provided, as well as reach a facility that utilizes the treatment. It also would be considered a waste of funds to develop a treatment that does not reach the specific number of patients that warrant the financial resources used. In order for a model to be viable, the amount of revenue gained from the treatment must be greater than than total expenses used in creating the treatment. Reaching few patients will result in the model of treatment to not be feasible in the long term. In short, the patient must possess direct physical access to the treatment for the treatment to be administered to the patient.

DISCUSSION OF FINDINGS

State	Average Total Availability (%)	Average Total Distance (miles)*	PPPM ($)
AK	62%	72.12 mi	8,679.93$
CA	50%	56.68 mi	8,942.21$
HI	56%	21.70 mi	9,006.82$

OR	56%	31.84 mi	7,745.60$
WA	75%	55.78 mi	6,152.48$
TOTAL AVERAGE	**59%**	**47.62 mi**	**8,105.41$**

Fig 2: Major Findings Statistics *Findings depict data corresponding to the five modalities that were compiled into an organized table.* ******* *Compulsory treatment by law was not applicable to this indicator. The other four modalities were used for this column.*

State	Availability	Proximity	Cost	**TOTAL SCORE**
AK	4	1	2	**7**
CA	2	2	1	**5**
HI	3	5	3	**11**
OR	3	4	4	**11**
WA	5	3	5	**13**

Fig 3: Matrix *Data from Fig. 2 was then transcribed into the following matrix to achieve a medium for comparison.*

Compared to the total average of availability of the Pacific states, WA, at 59%, presents a significantly higher average availability, averaging 75%, higher by 16%. Compulsory treatment by law averaged 100%, which was due to the fact that WA was one of the 45 states in the U.S. to implement involuntary treatment. Because WA had much more average of availability than the other Pacific, WA earned the highest possible score (5).

Compared to the total average of proximity of the Pacific states, being 47.62 mi, WA is found to have a the third highest score (3), averaging 55.78 mi. This is higher than the total average of the Pacific states by 8.16 mi, making WA neither highly unaccessible or highly

accessible. HI presents a significantly lower average of proximity compared to the total average of proximity of the Pacific states, totalling 21.70%, 25.92% lower than the average of the Pacific states, indicating significantly high accessibility of distance. Compulsory treatment by law was not applicable to this indicator.

Compared to the total total average PPPM of the Pacific states, being 8105.41$, WA presents a significantly lower PPPM, being 6152.48$, cheaper by 1952.93$. Because WA's PPPM was much cheaper than the other Pacific, WA earned the highest possible score (5).

CONCLUSION AND IMPLICATIONS

The results show that the U.S. possesses the resources needed to shift towards a more holistic approach in treatment in the near future, beginning with WA, as the most ideal location, which indicates relatively high feasibility. The services must be brought together and implemented as accessible and necessary components of treatment, rather than as supplements to a physiologically based treatment.

Through analysis of the modalities accessible in each state in Region Four District IX, the most optimal location to implement the new holistic algorithm is WA. This is because WA received a total score of 13, indicating relatively high feasibility. This is relevant because the research focuses on the state of modern day, therefore the data is up-to-date, and provides as a reliable resource in in adopting the algorithm in today's world. The purpose of this project was to analyze the extent of feasibility of adopting a new holistic approach of psychiatry in the U.S. through an application of indicators of accessibility, and the goal was to promote a transcendence away from Cartesian dualistic methods in the medical field, which has had particularly negative

impacts regarding the treatment of schizophrenic patients. This indicates the first step from viably pushing away from Cartesian dualistic methods. Upon successful results retrieved from WA, the new method can then be implemented in new regions. Further calls for research should be conducted to determine whether the algorithm, once the services are brought together and implemented as accessible and necessary components of treatment, rather than as supplements to a physiologically based treatment, is effective in a clinical setting, as the U.S. has the resources needed to shift towards a holistic approach.

Limitations

A major limitation to the study is lack of empirical data, especially regarding cost. This is due to the informal structure of data that was indicated online and through telephone call, with factors, such as insurance and cost of living, playing a role. The researcher assessed what numerical dollar amount the patient would be paying either without insurance or with low insurance coverage for this column in a month. This is not reflective of schizophrenic patients with insurance. This factor made costs particularly challenging to research databases specifically relating to the costs. Also, the cost may have been influenced by cost of living, with states indicating a lower cost of living being cheaper than states reporting a more expensive cost of living.

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