Ignaz Semmelweis
Theory Induced Blindness
the Etiology of Psychiatric Disorders

Steve Love, MPA, LMSW
Clinical Social Worker
Kalamazoo Psychiatric Hospital

stevelove.net
Miasma
A theory of infectious disease

"An emanation or an atmosphere, whether from the earth itself or from some particular area, that hovers in the surroundings and causes sickness in those exposed to it, by the pervasiveness of its malign presence."

Nuland, 2003, p. 66
Florence Nightingale

“The very first canon of nursing... [is] TO KEEP THE AIR HE BREATHES AS PURE AS THE EXTERNAL AIR, WITHOUT CHILLING HIM”

Nightingale 1860, p. 12
Growing cities = growing squalor and smell

London’s Great Stink:
...The intense heat had driven our legislators from those portions of their buildings which overlook the river...

The Times, 1858
FATHER THAMES INTRODUCING HIS OFFSPRING TO THE FAIR CITY OF LONDON.

(A Design for a Fresco in the New Houses of Parliament.)
Vienna General Hospital
1774
Ignaz Semmelweis

- Born in Buda, Hungary in 1818
- Graduated with a degree in medicine from the University of Vienna in 1844
- Began an assistant professorship at the Vienna General Hospital in July of 1846
Childbed Fever (puerperal fever)

- Infectious disease following childbirth or miscarriage
- Often fatal if untreated
- Symptoms: fever, vaginal discharge, abdominal pain and swelling of connective tissue and abdomen
Only Midwives working in Division 2
His observations

1. Division 1 was staffed by doctors - Division 2 was staffed by midwives
2. Women were less likely to die of childbed fever in the streets
3. Death rates were not linked to weather
4. Greater physical trauma resulted in greater chance of contracting childbed fever
5. Closing the ward and moving the patients would cease the deaths
6. Infants of mothers who died often died of similar symptoms

Nuland, 2003
Discovering causality

In 1847, when Jakob Kolletschka died after his finger was pricked during an autopsy. Semmelweis realized the following

- Kolletschka’s symptoms matched childbed fever symptoms
- Cadaver particles were the cause of the infection
- Women were being infected by doctors conducting autopsies
After making his discoveries, Semmelweis “insisted that every entering medical attendant wash in [a bowl of chloride solution] before touching a woman in labor”\textsuperscript{1}

\textsuperscript{1}Nuland, 2003, p. 101
Miasma Wins Out¹

- Hospital director reinterpreted the data based on miasma - ascribed to the new ventilation system
- 1849: Semmelweis was ousted by the older physicians
- 1865: Semmelweis, age 47, was admitted to a psychiatric hospital and died two weeks later from wounds likely sustained from a fight with the guards

Nuland, 2003
“Once you have accepted a theory and used it as a tool in your thinking, it is extraordinarily difficult to notice its flaws. If you come upon an observation that does not seem to fit the model, you assume that there must be a perfectly good explanation that you are somehow missing. You give the theory the benefit of the doubt, trusting the community of experts who have accepted it.”

Kahneman, 2011, p. 277
Characteristics of Theory Induced Blindness

- Dominant explanatory theory
- Data that contradicts the dominant theory
- Failure to integrate contradictory data
- Hostility towards those who challenge the theory
What about mental health?

Biological pathology = Modern miasma
Modern miasma

Emil Kraepelin (19th century)

“An understanding of the symptomatology of an illness will, we hope, result above all from GENETIC research.”

Kraepelin, 1992, p. 516
Modern miasma

- Psychoanalysts dominated without causality
- 1952: with the advent of Chlorpromazine, the search for the biological cause was renewed
- Chemical Imbalance
  - “always a kind of urban legend, never a theory seriously propounded by well-informed psychiatrists”\(^1\)
- Genetic search
  - “this promise, which we have anticipated since the 1970s, remains disappointingly distant.”\(^2\)

1: Pies, 2011, para. 1
2: Kupfer, 2013, para. 1
Modern miasma

- Brain pathology
  - “Nevertheless, the spirit of a revolution— the sense that we are going to change things dramatically, even if the process requires a number of years— is very much present”
  
  - We hope to "at long last, reaching an inflection point at which insights gained from genetics and neuroscience would transform the understanding of psychiatric illnesses"

1: Andreasen, 1984, p. 138
Modern Miasma

● A turn toward epigenetics

  ○ This theory would be able to “detect molecular effects of experience... [that] point to diverse molecular pathways that confer risk of mental illness”\(^1\)

● Current estimation

  ○ It is so complex that it requires “genetics, gene expression/epigenetics, changes in neuronal activity, and differences in dynamics at the micro and macro levels, depending on the mood state”\(^2\)

2: Akil, 2011, p. 711
The fact remains

- Schizophrenia is “a disease whose mechanisms are totally unknown”\(^1\)
- More broadly, psychiatric disorders have "no validated biomarkers"\(^2\)

1: Holden, 2003, p. 333
2: Insel, 2010, p. 1971
Unmedicated vs Medicated

Division 2: Midwives
Unmedicated

Division 1: Doctors
?
Medicated
Unmedicated outcomes
Unmedicated Bipolar and Depression

- 1955: 1 in 4,345 Americans hospitalized for depression\(^1\)
- 1875-1924: 1 in 100,000 Bipolar Disorder in Wales\(^2\)

1: Silverman, 1968
2: Healy, 2011
“Depression is, on the whole, one of the psychiatric conditions with the best prognosis for eventual recovery, with or without treatment. Most depressions are self-limited.”

Cole, 1964, p. 448
Unmedicated Bipolar and Depression

“assurance can be given to a patient and to his family that subsequent episodes of illness after a first mania or even a first depression will not tend toward a more chronic course…”¹

there was “no basis to consider that manic depressive psychosis permanently affected those who suffered from it… [since] in a significant number of patients, only one episode of illness occurs.”²

¹ Winokur, 1969, p. 19
² Winokur, 1969, p. 21
Unmedicated Schizophrenia

- Warren State Hospital 1946-1950\(^1\)
  - 1 year out: 62% discharged
  - 3 years out: 73% discharged
- Delaware State Hospital 1948-1950\(^1\)
  - 6 years out: 70% discharged
- Harrow’s NIMH Study (2007), 15 years out\(^2\)
  - 40% recovery rate in those who discontinued medication post hospitalization.

---

1: Cole, 1959  
2: Harrow, 2007
Medicated Schizophrenia
Medicated Schizophrenia

- NIMH’s first long term study (1967)
  - 4 groups: Thioridazine/Mellaril, Fluphenazine/Prolixin, Chlorpromazine/Thorazine, Placebo
  - 1 year out, placebo group was “less likely to be rehospitalized than those who received any of the three active phenothiazines.”

Schooler, 1967, p. 991
Medicated Schizophrenia

- Comparing 5 year outcomes of 1947 to 1967
  - 1967 group
    - A “larger proportion of patients tend to relapse”
    - They are more “socially dependent”
    - “rather unexpectedly, these data suggest that psychotropic drugs may not be indispensable. Their extended use in aftercare may prolong the social dependency of many discharged patients.”

Bockoven, 1975, p. 801
## Medicated Schizophrenia

<table>
<thead>
<tr>
<th>Medication use (in hospital/after discharge)</th>
<th>Number of Patients</th>
<th>Severity of Illness (1=best outcome 7=worst outcome)</th>
<th>Rehospitalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>No meds/off</td>
<td>24</td>
<td>1.7</td>
<td>8%</td>
</tr>
<tr>
<td>Antipsychotics/off</td>
<td>17</td>
<td>2.79</td>
<td>47%</td>
</tr>
<tr>
<td>No meds/on</td>
<td>17</td>
<td>3.54</td>
<td>53%</td>
</tr>
<tr>
<td>Antipsychotics/on</td>
<td>22</td>
<td>3.51</td>
<td>73%</td>
</tr>
</tbody>
</table>

Rappaport, 1978
Medicated Schizophrenia

- Comparing relapse on and off antipsychotics
  - “Drug failures appeared to have a considerably higher hospitalization rate than placebo relapsers”
  - “Patients who relapse on medications are sicker than placebo relapsers”
Medicated Schizophrenia

- 50 year review of antipsychotics
  - “It cannot be denied that there is currently no compelling evidence on the matter, where ‘long-term’ is concerned”\(^1\)

- Harrow’s NIMH Study: 20 years out (Harrow)
  - Continuously medicated: 17% ever entered into a period of recovery
  - Went off medication at 2 years: 87% experienced two or more periods of recovery\(^2\)

1: Stip, 2002, p. 117
2: Harrow, 2012
Psychiatric Disability Rates

- Adult disability rates in the United States:
  - 1955: 1 in every 468
  - 1987: 1 in every 184
  - 2003: 1 in every 73
  - 2013: 1 in every 59

- Child disability rates in the United States:
  - 1987: 16,200
  - 2007: 561,569

- The average cost of a 20 year old disabled: $1 million/per person
- Similar increases have been established in Australia, Norway, and Iceland

1: Whitaker, 2010
2: Social Security Administration 2004/2014
3: Department of Social Services 2001/2013
4: Bjørngaard, 2009
5: Thorlacious, 2010
Modern handwashing alternatives in care
Talk therapy

- Cognitive behavioral therapy:
  - Meta Analysis: depression, generalized anxiety disorder, panic disorder, social phobia, posttraumatic stress disorder, and other disorders
  - Initial onset and relapse prevention bipolar disorder
  - Schizophrenia symptoms and as a monotherapy

1: Butler, 2006
2: Scott, 2006
3: Lam, 2003
4: Wykes, 2007
5: Morrison, 2014
Talk therapy

- Psychodynamic therapy demonstrated to have a measurable impact on prefrontal-limbic functioning\(^1\)
- Cognitive enhancement therapy provides a protective factor against gray matter loss in schizophrenia\(^2\)

1: Buchheim, 2012
2: Eack, 2010
“Music therapy as an addition to standard care helps people with schizophrenia to improve their global state, mental state (including negative symptoms) and social functioning if a sufficient number of music therapy sessions are provided by qualified music therapists.”

Mossler, 2011, p. 2
Exercise and Anxiety

- **ADHD**
  - Exercise for ADHD “has been shown to be effective in controlling ADHD symptoms, has essentially no side effects… [and] produces physical, mental, and emotional advantages that are far reaching and more complex” in comparison to medications\(^1\)

- **Depression**
  - Meta-analysis: 11 studies showed “a very large combined effect size for the advantage of exercise”\(^2\)

- **Anxiety**
  - Meta analysis: There is strong “evidence for the use of exercise as a treatment for anxiety disorders.”\(^3\)

---

1: Lenz, 2012, p. 308
2: Stathopoulou, 2006, p. 188
3: Wipfli, 2008, p. 404
Bipolar and Schizophrenia

- Specialist First Episode Psychosis adjunctive programs statistically beneficial for individuals in comparison to treatment-as-usual\(^1\)

- Open Dialogue, 5 year follow-up:\(^2\)
  - 73% working or studying in a formal setting
  - 29% exposed to antipsychotics
  - USA data nearing publishing

- Group based psychosocial adjunctive intervention was superior to treatment-as-usual\(^3\)

---

1: Alvarez-Jimenez, 2009  
2: Seikkula, 2006  
3: Castle, 2010
Positive Psychology

- PERMA: Positive emotions, Engagement, positive Relationships, Meaning, Achievement\(^1\)
- Logging blessings on a daily basis\(^2\)
- Story editing\(^3\)

1: Seligman, 2011
2: Emmons, 2003
3: Wilson, 2011
Scientific Method

“Principles and procedures for the systematic pursuit of knowledge involving the recognition and formulation of a problem, the collection of data through observation and experiment, and the formulation and testing of hypotheses”

Merriam-Webster, Scientific Method, 2015
First, do no harm

“the traditional Hippocratic moral obligation of medicine is to provide net medical benefit to patients with minimal harm that is, beneficence with non-maleficense.”

“The obligation to provide net benefit to patients also requires us to be clear about risk and probability when we make our assessments of harm and benefit.”

Gillon, 1994, p. 185
Are we suffering from Theory Induced Blindness?
Questions?
What is the pathology (cause) of a psychiatric disorder?
Pathology

The anatomic and physiological deviations from the normal that constitute disease or characterize a particular disease\(^1\)

In other words

What do I observe that is wrong or abnormal about you?

Merriam-Webster, Pathology, 2015
Attributing Pathology

SIDS in the 1920s

- Enlarged thymus in those examined¹
- Radiation to shrink the pathology¹
- Logical treatment for the identified abnormality²

1: Jacobs, 1999
2: Sapolsky, 2009
A Safe and Effective Treatment

“it seems reasonable to give these patients the benefit of a treatment which we know will reduce the size of the thymus gland. We are aware of the marked reduction in the size of the thymus that can be secured when patients with thymic symptoms are exposed to therapeutic [radiation treatment]. We know of no reports of harmful effects following this form of treatment of the thymus and we have never observed any in this clinic.”

Greenthal, 1922, p. 438
When normal isn’t normal

Historically, cadavers for examination were hard to obtain\textsuperscript{1}

- Overwhelmingly poor and chronically stressed
- Poverty and stress were not factors in the data

The impact of irradiated children resulted in tens of thousands of deaths\textsuperscript{1} and continues to affect those treated\textsuperscript{2}

\textsuperscript{1}: Sapolsky, 2009
\textsuperscript{2}: Adams, 2010
Traditional Pathology
(easy to measure)

- Delusions
- Too much energy
- Swallowing objects

- Hallucinations
- Too little energy
- Suicidal ideation
Rethinking Pathology
(easy to measure)

Emotional experiences outside of our ability to cope
What Elicits Emotions?

“Images of objects or events (stimuli) that are actually happening at the moment or that, having happened in the past, are now being recalled”

Damasio, 2010, p. 119
More of the Positive, Less of the Negative

Basic Positive

- Safety
- Love
- Happiness

Basic Negative

- Fear
- Anger
- Sadness
Questions?
References

Thinker image: https://www.flickr.com/photos/sidereal/349496270
Nightingale F. Notes on nursing: What it is, and what it is not. New York: D. Appleton and Company; 1860
Great Stink Quote: The Times on June 18th, 1858
Cole J. Therapeutic Efficacy of Antidepressant Drugs. JAMA. 1964;190(5).
Harrow M, Jobe T. Factors involved in outcome and recovery in schizophrenia patients not on antipsychotic medications: a 15-year multifollow-up study. The Journal of Nervous and Mental Disease. 2007;195(5).


Rappaport M, Hopkins H, Hall K, Belleza T, Silverman J. Are there schizophrenics for whom drugs may be unnecessary or contraindicated. International pharmacopsychiatry. 1978;13(2):100-11.


References


Music Therapy for People with Schizophrenia and Schizophrenia-Like Disorders. The Cochrane database of systematic reviews. 2011(12).


References


TED. Eleanor Longden: The voices in my head [Internet]. 2013 [cited 7 April 2015]. Available from: https://www.ted.com/talks/eleanor_longden_the_voices_in_my_head