

The Implications of Scientific Attitude in the Semmelweis Case

Throughout history, women have died after childbirth. A scientist, by the name of Dr. Ignaz Semmelweis, observed this phenomenon in the wards of a Vienna hospital. He found that doctors washing their hands in a certain solution prior to the procedure could significantly decrease the cases and incidence of puerperal fever. This would in turn significantly decrease the maternal deaths. This was of great importance, as the maternal death rate during this time was relatively high and not uncommon, especially where Dr. Ignaz Semmelweis was carrying out his study. In the scientific attitude defending science from denial, fraud, and pseudoscience, Lee McIntyre discusses how Dr. Ignaz Semmelweis applies the scientific attitude correctly through his use of relevant empirical evidence and his willingness to change his theory with new evidence.

Dr. Ignaz Semmelweis was a Hungarian scientist who is known in the scientific community as “an early pioneer of antiseptic procedures.” His findings on the effects of washing hands on maternal mortality rates were hard to come by and be accepted by other scientists and the science community. This was due to the fact that medicine was still in its early stages during the 19th century. Scientists had not yet discovered the germ theory as well as anesthesia, antiseptics, and the effects and importance of hygiene, among other things. As a result, Dr. Ignaz was committed to an asylum where he later died due to a wound he suffered on his right hand, likely associated and caused by the beating by the guards. Dr. Ignaz Semmelweis' findings were finally accepted years after his death due to the discovery of the Germ Theory by Louis Pasteur and Joseph Lister who had “great success” with “hygienic methods”.

The scientific attitude was applied correctly during Dr. Ignaz's observations. Dr. Ignaz respected the empirical data in place at the time. This can be shown as he controlled “the circumstances and tested his ideas against actual experience” and “was respecting the idea that the cause of childbed fever could not be discerned merely by reason.” Dr. Ignaz also showed a willingness to change his theories “in light of new evidence”. This can be exemplified as he “not only changed his hypothesis each time one was refuted” but “enlarged it when new information came to light.” For example, Dr. Ignaz found that “it was not only cadaveric matter-but also putrid living tissue that could transfer disease from one body to another.”

Semmelweis applied the scientific attitude correctly as he used relevant empirical evidence. First, he considered the statistical mortality rate for both street births and births in wards 1 and ward 2. In the wards, he found the mortality rate to be 29% in ward 1 compared to 3% in ward 2. He also considered the statistical mortality rate of street births, which had the lowest number of maternal deaths. Dr. Ignaz hypothesized that the differences in maternal deaths between the respective wards could have been due to a multitude of reasons. He believed that more overcrowding in ward 1 compared to ward 2 could have potentially been the culprit for the differences in maternal deaths between the wards. He also observed the fact that medical students handle the deliveries in ward 1 compared to the midwives who handle the deliveries in ward 2. He also considered the way the medical students performed the deliveries compared to housewives. He is enlightened when one of the doctors receives a puncture wound after an

autopsy and dies. He then believed that cadaveric material could transfer disease from one body to another. He ran a test where doctors washed their hands prior to the procedure. He got positive feedback, as the maternal mortality rate dropped significantly. This shows that Semmelweis followed the scientific attitude correctly, as he showed respect for the empirical evidence. He considered and did not rule out any potential possibilities, as they could have all potentially affected the maternal death rate.

Semmelweis applied the scientific attitude correctly as he showed a willingness to change his theory with new evidence. This is exemplified as he “not only changed his hypothesis each time one was refuted” but “enlarged it when new information came to light.” He also “changed his idea based on the new data”, which further shows the use of the scientific attitude and how it was being used and applied correctly.

In conclusion, Dr Ignaz Semmelweis applied the scientific attitude correctly as he displayed an open mindedness to change his theory “in light of new evidence” as well as showed respect for the empirical evidence. In his findings, Dr Ignaz Semmelweis observes how contagious childbed fever was at the time. He concluded that hand disinfection can drastically reduce the incidence of childbed fever, which in turn will decrease maternal mortality rates. While respecting the empirical evidence and displaying an open mindness to change his theory with new evidence, Dr Ignaz Semmelweis was able to discover the importance of hand disinfection and hygiene, setting the stage for scientists that followed him to make discoveries of their own, which improved the greater science community as a whole.