

## An Appraisal of Albert Einstein's Chronic Illness

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**Abstract** — For the last 39 of his 76 years of life, physicist Albert Einstein (1879–1955) suffered from chronic illness. His health problems were primarily related to multiple complications of digestive system disorders; liver ailment, stomach ulcer, inflammation of gall bladder, jaundice and intestinal pains. Based on the published autobiographical records and biographies written by his secretary Helen Dukas and collaborators such as Philipp Frank and Banesh Hoffmann, this paper appraises the chronic illness of Einstein. Reasons for the insufficient attention to Einstein's medical history are also postulated. These possibly include, 1) his dislike of divulging personal details to analysts, interviewers and reporters; and 2) scattering of his medical records due to a peripatetic life lived in 4 countries, Germany, Switzerland, Czechoslovakia and USA.

### Introduction

About 6 reports have appeared so far on physicist Albert Einstein which are of medical interest. These are related to the Einstein's brain (1) his language disability (2,3), his abdominal aortic aneurysm (4,5) and his dreams (6). Plausible reasons for this insufficient attention to Einstein's medical history are as follows: first, Einstein did not keep a detailed diary about his discomforts, and he also disliked divulging personal matters to reporters and analysts. After attaining celebrity status, he once quipped, 'I feel now something like a whore. Everybody wants to know what I am doing all the time and everybody wants to criticize' (7). Secondly, he lived a peripatetic life resulting in scattering of his medical records. Thirdly, while physicists have explored Einstein's academic contributions in great detail due to their familiarity and understanding of the area in which Einstein excelled, they have not shown a similar interest in Einstein from the biomedical perspective. Contrastingly, biomedical scientists have held Einstein in much awe

and have failed to study the physicist from the angle of their area of speciality.

While collecting information for the paper on Einstein's dyslexia (3), I became convinced that Einstein's chronic health problems deserves an expanded study. This report is a preliminary venture in this direction. Based on the published autobiographical notes, letters and personal details (8–11), reminiscences of his sister Maja (12), biographies written by his secretary Helen Dukas and collaborators (13,14), this paper appraises the chronic health problems faced by Einstein.

### Primary places of residence

Einstein lived in 3 countries during his 76 year life (Table 1). For the first 16 years (1879–1895) he lived in Germany. Between 1895 and 1914, he lived in Switzerland, with an intervening 1 year and 4 month stay in Prague. Then, he moved back to Germany and lived in Berlin for 18 years (1914–1932). Finally, he spent the last 22 years (1933–1955) in the USA.

Approximately he spent a cumulative 2 years and 8 months in travelling. However, after arriving in the USA, he adopted a sedentary life in Princeton, New Jersey and all his international travels were completed by the age of 54.

**Table 1** Albert Einstein's primary places of residence

Period	Places of residence
1879 March – 1895 spring	Germany; Ulm and Munich
1895 summer	Italy; Pavia
1895 October – 1911 February	Switzerland; Zurich and Bern
1911 March – 1912 July	Czech Republic; Prague
1912 August – 1914 March	Switzerland; Zurich
1914 April – 1932 November*	Germany; Berlin
1933 spring and summer	Belgium
1933 October – 1955 April	USA; Princeton, New Jersey

\*During this period, he travelled to USA (three times in 1921, 1931 and 1932), Norway and Denmark (1920), England (1921), France and Japan (1922), Palestine (1923), Spain (1923), Argentina, Brazil and Uruguay (1925), Cuba (1930).

**Table 2** Bio-data of Albert Einstein's immediate family members

Family member (years of birth and death)	Relationship	Age(yr) at death; place of death; medical cause
Hermann Einstein 1847–1902	father	55; Milan, Italy; heart disease
Pauline Einstein 1858–1920	mother	62; Berlin, Germany; abdominal cancer
Maja Einstein 1881–1951	sister	70; Princeton, USA; suffered a stroke in 1946 and remained bedridden till death; also lost her speech ability
Mileva Maric 1875–1948	first wife	73; Zurich, Switzerland
Elsa Einstein* 1876–1936	second wife	62; Princeton, USA; myocarditis
Lieserl† 1902–?	pre-marital daughter	??
Hans Albert Einstein 1904–1973	first son	69; Berkeley, USA
Eduard Einstein 1910–1965	second son	55; Zurich, Switzerland; became a schizophrenic at the age of 21 and was institutionalized till death at Burghölzli psychiatric hospital

\*Elsa was also a blood-relative to Albert Einstein. Elsa's mother and Pauline Einstein were sisters; and Elsa's father was also a cousin of Hermann Einstein. †Preliminary details about Lieserl came to be known only in 1987, with the publication of private letters between Albert Einstein and Mileva Maric.

A synopsis of the bio-data of Einstein's immediate family members is shown in Table 2. Their places of death also reveal the peripatetic life Einstein had to live by choice as well as circumstances. Significant medical events in Einstein's life are annotated in Table 3.

### Munich period (1880–1894)

On 7 November 1896, after becoming a student at the Swiss Cantonal School of Argau, Einstein summarised his bio-data as follows:

*I was born on 14 March 1879 in Ulm and, when one year old came to Munich, where I remained till the winter of 1894–95. There I attended the elementary school and the Luitpold secondary school up to but not including the seventh class. Then, till the autumn of last year, I lived in Milan, where I continued my studies on my own. (11)*

However, paucity of personal details about Einstein's life during his Munich period is a hindrance

**Table 3** Albert Einstein's medical history

Date	Age (years)	Significant medical events
1879 March 14	–	born in home, at Ulm, Germany, as the first child. Mother Pauline was 27 years old.
1882–1888	3–9	slow and incomplete development of speech; dyslexia?
1895	16	doctored a medical certificate from family physician, stating that because of nervous breakdown, it was necessary for him to leave school for 6 months to stay with his parents in Italy for recuperation.
1901	22	declared unfit for Swiss military service, due to flat feet and varicose veins.
1905	26	had to recuperate in bed for 2 weeks, after completing the manuscripts due to be published in the <i>Annalen der Physik</i> .
1911 March– 1912 July	32–33	moved to Prague for appointment at the Karl-Ferdinand University; plagued by poor health; Dr Heinrich Zangger diagnosed allergy to the local water.
1917–1920	38–41	suffered from liver ailment, stomach ulcer, inflammation of gall bladder, jaundice and general weakness; lost approximately 25 kg body weight.
1922 October– 1923 February	43	travel to Orient (Colombo, Singapore, Hong Kong, Shanghai, Japan and Palestine); plagued by intestinal pains and treated by Dr Hayasi Miyake, a fellow passenger in the steamer S.S. Kitano Maru.
1928 February– March	49	suffered a temporary physical collapse in Switzerland; diagnosis of inflammation of heart by Dr Janos Plesch; bed-rest for 4 months, while keeping a salt-free diet; remained weak for a year.
1937	58	rejected an invitation to visit London due to ill-health.
1940 summer	61	suffered from stomach pains, prior to becoming American citizen on 1 October.
1947	68	diagnosis of malnutrition; suffering from acute intestinal pains.
1948 December	69	diagnosis of an intestinal cyst by Dr Rudolph Ehrmann, an old friend from Berlin; underwent operation by Dr Rudolf Nissen, at the Jewish Hospital in Brooklyn, New York, for removal of intestinal cysts; liver malfunction also diagnosed; disclosure of a large intact aneurysm of the abdominal aorta.
1954 fall	75	legs became weak, experiencing difficulty in walking; diagnosis of hemolytic anemia.
1955 early months	76	suffered from pains due to inflamed gall bladder.
1955 April	76	rupture of aortic aneurysm occurred on 13 April; entered Princeton hospital on 15 April; Physicians Thomas Harvey and Guy Dean suspected internal-bleeding; Einstein declined the suggestion for an operation; died on 18 April at 1:15 am; death announced at 8:00 am by Dr Harvey, as caused by a rupture of aortic aneurysm; body cremated in Trenton, New Jersey at 4:00 pm.

to a detailed study on his first 15 years. In his autobiographical notes, which he labelled as 'my own obituary' (8), written at the age of 67, Einstein had left out references to details of any personal nature. The Volume 1 of the *Collected Papers of Einstein*, published in 1987 (9) also does not provide any primary documents about the physicist's infancy, childhood and teenage years between 1879 and 1895. The only gleaning about Einstein's first 16 years comes from his sister Maja's biographical sketch completed in 1924 (12). She has recorded that at his birth, their mother Pauline was 'shocked at the sight of the back of his head, which was extremely large and angular, and she feared she had given birth to a deformed child'. Mother Pauline's fear subsided only after the assurance given by the doctor. Maja also noted that their grandmother's (whether she was paternal or maternal is not described) first comments on looking at the baby Albert was, 'Much too fat! Much too fat!' That he was slow to develop speech even after reaching 3 years and that he still lacked fluency of speech even when he reached 9 years old has been admitted by Einstein himself in his later years and had been duly recorded by his biographers. As this aspect of Einstein's medical history has been explored previously (3), it will not be described further in this paper.

The much publicised incident about the young Einstein becoming enchanted with a pocket compass presented by his father occurred when he was '4 or 5 years' (8), while recuperating in bed for days after a bronchial infection. In 1894, when his family had to move to Milan, Italy, the 15 year old Einstein 'boarded with a family in Munich' (12). This arrangement and the 'military tone of the school' he was attending in Munich made him 'depressed and nervous' (12). Einstein overcame this problem by doctoring a medical certificate from a family physician stating that because of nervous breakdown he needed to rejoin his parents in Italy for recuperation (13,14).

#### **Swiss period, with an interlude in Prague (1896–1914)**

As a student at the Eidgenössische Technische Hochschule (ETH), Zurich, Einstein lived frugally as he was supported only by a monthly allowance of 100 Swiss francs from a wealthy relative. Of this sum, he saved 20 francs to pay for his Swiss naturalization process. This meager financial plight pushed him into prolonged bouts of malnutrition, which seriously affected his health in later years (15). In 1898, he wrote to his sister Maja,

*What oppresses me most, of course, is the (financial) misfortune of my poor parents. Also it grieves me deeply that I, a grown man, have to*

*stand idly by, unable to do the least thing to help. I am nothing but a burden to my family... Really, it would have been better if I had never been born. Sometimes the only thought that sustains me and is my only refuge from despair is that... I have never permitted myself any amusements or diversions except those afforded by my studies. (11)*

Also, in a letter to his then girlfriend Mileva Maric, Einstein wrote in 1898, 'I was seriously unwell, so that I didn't dare leave room. My legs are still somewhat unsteady today...' (9). In the questionnaire he completed for Zurich municipal citizenship applicants, in October 1900, Einstein also noted that he did not possess insurance against death, accident and illness. In response to the question, 'Who is your family physician?', he replied, 'I have not yet had an opportunity to consult one' (9). The bio-data of Einstein recorded in the minutes of the municipal naturalization commission of Zurich, dated 14 December 1900 reveal his then meager sources of income.

*I have no property, but I have a small income from about 8 private lessons a week. As an auditor at the Polytechnicum I carry accident insurance... Am teetotaler. For the naturalization fee, a savings book of the Kantonalbank showing a deposit of 800 Fr. is submitted. (9)*

The Zurich military service examination report of 13 March 1901 reveals that at that time, Einstein's height was 171.5 cm and chest circumference 87 cm. He suffered from varicosis, flat feet and sweaty feet. As a result, he was judged unfit for military service. Between March and December 1901, Einstein was also in a precarious position, in terms of financial need. He supported himself with temporary teaching positions in Winterthur and Schaffhausen. It is not wrong to state that emotionally too, he would have suffered since his then girlfriend Mileva was pregnant with their pre-marital child Liserl (6,9). In another letter to Mileva at the end of 1901, he wrote, 'My new eating arrangement at the inn suits me quite well, in any case it is an enormous improvement...' (9).

In February 1902, Einstein arrived in Bern and supported himself by tutoring in mathematics and physics for 4 months. He was hired as a technical expert (third class) at the Bern patent office in June 1902. After his marriage to Mileva Maric in January 1903, Einstein and two of his colleagues Conrad Habicht and Maurice Solovine formed the *Akademie Olympia*, to discuss topics of their academic interest. Solovine had reminisced on the meals they used to take during these discussions:

*(These) dinners were of an exemplary frugality. The menu was usually made up of sausage, a piece of Gruyere cheese, fruit, a small jar of honey and one or two cups of tea. (16)*

It had been noted by Michelmores (7) that after completing the trend-setting manuscripts submitted for publication in the *Annalen der Physik* in 1905, his *annus mirabilis*, Einstein had to recuperate in bed for 2 weeks. After receiving a promotion to technical expert (second class) in April 1906, Einstein continued to work in the Bern patent office till October 1909. Then, he assumed the associate professor position at the University of Zurich.

When Einstein accepted the full professor position at the Karl Ferdinand University in Prague and moved there in March 1911, his family had expanded to four members. The first son Hans Albert was about to reach 7 years and second son Eduard was a seven month toddler. Life was not comfortable for the Einsteins in Prague as well. They had to buy the drinking water in bottles and cooking water had to be collected from fountains in the street. Einstein was plagued by poor health. His doctor friend Heinrich Zangger, the director of the Institute for Forensic Medicine at the University of Zurich, diagnosed allergy to the local water and persuaded the physicist to return to Switzerland (7). Einstein did move back to Zurich in August 1912 and joined the ETH as a professor. However, by April 1914, he moved again to accept a position at the Prussian Academy of Sciences in Berlin.

### **Berlin period (1914–1932)**

Immediately after Einstein moved to Berlin, he separated from his wife Mileva. The First World War began months after Einstein began his affiliation with the Prussian Academy of Sciences. Though analysts have observed that the years spanning the First World War count among 'the most creative period of his life' (10), Einstein fell sick in early 1917 and did not recover completely till 1920. He lost approximately 25 kg body weight during the first 2 months of his illness (7,17). The probable reason for Einstein's illness had been expressed by his doctor friend Janos Plesch, as follows:

*As his mind knows no limits, so his body follows no set rules. He sleeps until he is wakened; he stays awake until he is told to go to bed; he will go hungry until he is given something to eat; and then he eats until he is stopped. (17)*

Though the War came to an end in November 1918, the living conditions in war-torn Berlin remained harsh. Due to the continued economic block-

ade by the victorious allied powers, food shortage in Berlin was severe. In his letter to physicist Hendrick Lorentz, written on 18 March 1920, Einstein observed that, 'suffering is dreadful here. Many are dying from malnutrition...' (10). Einstein's recovery from illness depended much on the matronly care provided by his widowed cousin Elsa Einstein Lowenthal. They formalized their relationship by getting married in June 1919, after Einstein's divorce with Mileva Maric was pronounced in February of that year.

When Einstein was plagued by intestinal pains during his travel to the Orient in 1922 (10) and when he had to take a prolonged bed-rest after collapsing in Switzerland in 1928 (7,18), it was Elsa who laboured much to regulate Einstein's dietary regimen for curative purposes. Okamoto (19), a cartoonist who accompanied Einstein throughout the physicist's travels in Japan, had described how Mrs Elsa Einstein strictly guided the dietary protocol of her husband. She forbade him from drinking coffee, eating potatoes and consuming Japanese food. His pipe smoking was also restricted by Mrs Einstein. Similar restrictions, in addition to intake of a salt-free diet, were enforced after Einstein's 1928 collapse in Switzerland (7).

It is of interest to annotate Einstein's comments on psychoanalysis around this period. In January 1927, a government official in Dresden who described himself as an Adlerian psychotherapist wrote to Einstein to enquire whether he could psychoanalyze the physicist. Einstein's reply to this query was, 'I regret that I cannot accede to your request, because I should like very much to remain in the darkness of not having been analyzed' (11).

In 1929, Einstein received greetings from Sigmund Freud, on reaching his 50th birthday. In his letter, Freud had addressed Einstein as, 'you lucky one' (Sie Glücklicher). To this banter from the father of psychoanalysis, Einstein responded,

*I thank you warmly for having thought of me. Why do you stress my 'luck'? You, who have slipped under the skin of so many a man – indeed, of mankind – have nevertheless had no opportunity to slip under mine... (11)*

### **Princeton period (1933–1955)**

The medical events related to the Princeton period of Einstein's life, as annotated in Table 3, have been described in detail by his biographers (7,17,18) and doctors (4,5). Therefore, repeating this information here will be somewhat redundant.

Einstein moved to Princeton, New Jersey, with his wife Elsa and secretary Helen Dukas in October 1933.

In the following year, his step-daughter Margot and her husband also joined the Einstein household from Europe. At the end of 1936, Elsa Einstein died at the age of 62 years from myocarditis. After this event, the Einstein household was maintained by his secretary Helen Dukas, who served as a house keeper as well. Clark notes that, 'Miss Dukas did most of the cooking, which consisted usually of macaroni, noodles, other soft foods and little meat' (17). In 1937, Einstein rejected an invitation to visit London, stating, 'My physical condition...is so bad that I am treated like an egg without a shell and can under no circumstances entertain traveling either to England or to Palestine' (17).

In 1939, sister Maja also came to live with Einstein and stayed with him till her death in 1951, at the age of 70 years. Einstein too had come to realise after his December 1948 surgery to treat abdominal aortic aneurysm (5), that his life was nearing the end. He signed and sealed his last will and testament on 18 March 1950. To the Queen Mother of Belgium, with whom he had been occasionally corresponding, Einstein wrote in 1953,

*The strange thing about growing old is that the intimate identification with the here and now is slowly lost; one feels transposed into infinity, more or less alone, no longer in hope or fear, only observing... (13)*

Morikatsu Inagaki, who looked after Einstein during the latter's visit to Japan in 1922, wrote to the physicist in 1954, inviting him to attend the Congress of the World Federalists scheduled at Hiroshima in the fall of 1954. By then, Einstein had reached 75 years and was in failing health. In a letter dated, 15 July 1954, he replied to Inagaki.

*I received your recent letter with your urgent invitation. Since, for reasons of health, it is no longer possible for me to undertake long trips, I cannot, to my very real regret, accept your tempting invitation... (10)*

In the fall of 1954, Einstein gave casual instructions to his son Hans Albert regarding disposal of his body after death; 'I don't want the ashes buried. I don't want people pointing to a hole in the ground and saying, 'There he is'. Get rid of the ashes!' (7). He opted for cremation. Since medical scientists had expressed an interest to examine his brain, Einstein agreed to donate his brain for research, though commenting on this unusual request with a quip, 'They won't find anything unusual. But since it won't make any difference to me, they can take what they want' (7).

In early 1955, Einstein declined invitations to conferences in Bern and Berlin, organized to celebrate the 50th anniversary of the publication of his research paper on the Special Theory of Relativity, mentioning 'old age and poor health' (17). In his last letter to the Queen Mother of Belgium, dated 11 March 1955, Einstein observed,

*...I must confess that the exaggerated esteem in which my lifework is held makes me feel very ill at ease. I feel compelled to think of myself as an involuntary swindler. If one attempts to do anything about this, one succeeds only in making matters worse... (10)*

A little after 1 month of writing this letter, on 18 April 1955, Einstein succumbed to the complications arising from the rupturing of his aortic aneurysm.

## Discussion

Writing about Darwin's illness, Peter Medawar observed that, 'Charles Darwin was a sick man for the last 40 of his 73 years of life' (20). Similarly, one can assert that Einstein also suffered from chronic illness for the last 39 of his 76 years of life. Comparison between the chronic health problems of Darwin and Einstein in terms of their varied lifestyles seems a revealing exercise.

While Darwin retreated to a sedentary life at the age of 33 and spent a further 17 years before publishing his magnum opus, *The Origin of Species*, in 1859, Einstein had already published his seminal papers on the Special Theory of Relativity (1905) and the General Theory of Relativity (1915), before he became sick in 1917, at the age of 38. Furthermore, Darwin had a pleasant family life with his only wife Emma Wedgwood, with whom he had 10 children (in a span of 18 years), of whom 7 reached the adult stage. Emma also outlived Darwin for 14 years. But for Einstein, family life turned out to be not as pleasant as that of Darwin. He separated from his first wife Mileva after 10 years of marriage in 1914 and divorced her officially 5 years later. It was his illness in 1917 that brought Einstein and his cousin Elsa together and they made their relationship official by marriage in 1919. Elsa predeceased Einstein in 1936, merely 3 years after arriving in the USA. Einstein lived as a widower for another 19 years, though his first wife Mileva was living in Switzerland. Mileva also predeceased him in 1948.

As Medawar pointed out, 'Human beings cannot be straight forwardly ill like cats and mice; almost all chronic illness is surrounded by a penumbra of gloomy imaginings and by worries and fears that they may have physical manifestations' (20). Though

Einstein did not project an ill-face outwardly, it is plausible that his shattered family life did worry him constantly after he gained international recognition in 1919. The fate of his pre-marital daughter Liserl, the mental instability of his second son Eduard, the failure of his marriage to Mileva and the tribulations of being a Jewish scientist in pre-Nazi Germany would have caused much mental agony to Einstein. And this could have played a major role in aggravating his chronic health problems since 1917.

However, in his last decade, Einstein took the health-related handicaps as part of life. Biographer Clark has noted that on one occasion, after merely sniffing a box of candy, the physicist humorously quipped, 'That's all my doctor allows me to do. The devil has put a penalty on all things we enjoy in life. Either we suffer in our health, or we suffer in our soul, or we get fat'. When a friend asked Einstein, why it was the devil and not God who had imposed the penalty, the reply given by the physicist was, 'What's the difference? One has a plus in front, the other a minus' (17). To Gertrud Warschauer, the widow of a Berlin rabbi, living in England, Einstein wrote on 5 February 1955 (two months before his death),

*To one bent by age, death will come as a release; I feel this quite strongly now that I have grown old myself and I have come to regard death like an old debt, at long last to be discharged. Still, instinctively one does everything possible to delay this last fulfilment (10).*

### Conclusion and postulation

For the last 39 of his 76 years of life, Einstein suffered from chronic health problems. It was during this period that he became internationally well known. He suffered from multiple complications of digestive system disorders; liver ailment, stomach ulcer, inflammation of gall bladder, jaundice and acute intestinal pains. By 1917, when he became seriously ill for the first time at the age of 38 years, he had already published research papers in relativity which revolutionized physics. During the first 16 years of his career as a physicist (1901–16), he had published a total number of 91 original research papers, with an average of more than 5 papers per year (21). Whether the chronic illness affected Einstein's scientific productivity in his last 39 years is an interesting theme to investigate. This question will be explored in a subsequent paper.

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