



## Health and Demographic Characteristics of Polio Survivors

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Since 1985, the Louisville and Ashland, Kentucky chapters of the Polio Survivors Organization have collected questionnaire data from polio survivors. The questionnaires included data on:

- Social and demographic data - e.g., age, sex, education, and employment history
- Polio history - e.g., dates, types, and treatments
- Current health problems - e.g., fatigue, depression, and breathing problems

Two graduate students<sup>1</sup> keyed approximately half (N=295) of these questionnaires into an SPSS data file. While most respondents are from the Midwest, the sample is national in scope. Respondents include people from the east coast to the west coast and from states bordering both Canada and Mexico. The 295 respondents live in 202 different zip code areas with no more than three people from any one zip code. Below we report on the data from this sample of polio survivors. *Due to changes in the questionnaires over time (e.g., marital status is not asked in all versions) and missing data from some questionnaires, the N for most tables is fewer than 295.*

### Social and Demographic Characteristics of the Sample

Comparing our sample with the 1990 Post-Polio Sample reported on by [Bruno and Frick \(1991\)](#), we find similar demographic profiles ([Table 1](#)). Respondents ranged from 29 to 85 years in age, with a mean age of fifty-three (53) and a median age of fifty (50). The female/male ratio was 1.7 with eighty-seven (87) percent of the sample either currently or previously married. While the reported educational attainment of our sample is lower than the 1990 National Post-Polio Survey, it is still higher than both the disabled and non-disabled groups. Over half had some college with one in four reporting a bachelors' degree and another fifteen (15) percent with a graduate degree.

Table 1				
Characteristic	Current Survey	1990 National Post-Polio Sample <sup>2</sup>		
		Post-polio	Disabled	Non-disabled
Age (Mean)	53	54	--	47

Female/male ratio	1.7	1.7	--	1.5
<b>Marital Status</b>				
Single	13%	11%	13%	22%
Married	70%	71%	56%	58%
Other (divorced, widowed, separated)	17%	18%	31%	20%
<b>Education</b>				
High School or below	44%	29%	71%	52%
More than High School	56%	71%	29%	48%
<sup>2</sup> Data reported in Bruno and Frick, 1991.				

Most people in our sample participated in the paid labor force ([Table 2](#)). As we might expect from a population with above average education and physical handicaps, polio survivors were under represented in blue collar occupations and over represented in professional occupations.

<b>Table 2. Work Experience</b>		
<b>Work Experience</b>	<b>Percent</b>	<b>N</b>
Never	2.7	7
Blue collar	10.8	28
Clerical	25.0	65
Manager	8.5	22
Professional	26.2	68
Other	26.9	70
Total	100.0	260

## **The Polio Experience**

This sample contracted polio between the years of 1903 and 1975. Prior to the one case in 1975, the most recent year was 1963. The most frequent year for contracting polio was 1952 which represented thirteen (13) percent of the sample. Half contacted polio during the nine year period from 1947 to 1955.

The questionnaire asks respondents what "type" of polio they contracted, providing responses of cerebral, bulbar, spinal, respiratory and don't know. While classifications are not based on the type of virus but on the area of the body affected, half reported not knowing where they were affected. Of those who knew, spinal was reported most, striking over a third of the sample.

One year or less was the modal age for contacting polio (14.6%) with the next most frequent ages being two, three and four in that order. Nearly half were five or younger and three of four were fifteen (15) or

younger. Less than five (5) percent were over thirty (30). On average, respondents filled out the questionnaire forty-five (45) years after first contracting polio.

<b>Table 3. Type of Polio</b>		
<b>Type of Polio</b>	<b>Percent*</b>	<b>Number</b>
Cerebral	3.1	9
Bulbar	14.9	44
Spinal	36.3	107
Respiratory	9.8	29
Don't know	44.4	131

\* Over 100% as several had more than one type.

Polio struck people about equally on the right and left sides of their bodies. Legs were affected more than arms (see [Table 4](#)).

<b>Table 4. Body Area Affected by Polio</b>		
<b>Area Affected</b>	<b>Percent*</b>	<b>Number</b>
Left side	81.6	191
Right side	85.7	203
Legs	92.5	222
Arms	48.9	116

\* Over 100% as several had more than one type.

Three fourths of the sample was hospitalized. The length of stay in the hospital ranged from one month to 10 years. Nearly a third spent up to six months with one in five spending between one and two years and the final fifth spending more than two years hospitalized. Three people reported being hospitalized for ten years.

<b>Table 5. Hospital Experience</b>	
<b>Length of hospitalization</b>	<b>Percent</b>
Not hospitalized	26.3
1 to 6 months	31.4
1 year to 2 years	21.2

Most survivors report receiving some form of physical therapy ([Table 6](#)). Half report being treated with Kenny Hot Packs. Six percent were in tank respirators with another six percent on another type of respirator. Very few received psychiatric attention. While the questionnaire did not ask if any respondents received the polio vaccine before they contracted polio, more than two thirds (68.8%) report taking the vaccine after having polio.

Type of Treatment	Percent*
Physical therapy	82.2
Kenny hot packs	56.3
Occupational therapy	13.1
Psychiatric help	3.6
Respiratory therapy	7.1
Tank respirator	5.6
Other respirator	9.6
Rocking bed	3.2

\* Over 100% as several had more than one type.

Polio survivors were left with varying degrees of physical problems, with weakened muscles the most common (see [Table 7](#)). For many the weakened muscles required they use a variety of aids for mobility.

Physical condition	Percent*	N
Weak muscles	67.2	180
Paraplegic	21.6	59
Quadriplegic	5.5	15
Ambulatory	19.2	52
Wheelchair	17.2	47
Braces	42.5	116
Respiratory Aids	4.4	12

\* Over 100% as several had more than one type.

The questionnaires included two symptom checklists. The first list asked respondents "Have there been ANY changes in your physical condition?" They were instructed to "Check any or all that apply."

Respondents were then asked to list the problems from the list for which they sought medical advice ([Table 8](#)). The instructions for the second symptom checklist read, "In the past few years, have you experienced any of the following?" ([Table 9](#)).

Over ninety (90) percent reported at least one recent health problem. Like the 1985 and 1990 National surveys, this sample reported fatigue to be their most common new health problem. On both lists approximately eighty (80) percent report suffering from this ailment. A close second on each list is weak muscles. Items pertaining to sleep, circulatory problems and numbness were checked by nearly half the respondents. Other items reported by significant percentages of the sample include gastrointestinal problems, breathing and respiratory problems, scoliosis, and urinary problems. While most of the problems are physical, significant numbers checked psychological problems of depression, anxiety and personality changes.

<b>Table 8. Checklist 1: Any changes and if medical help was sought for the problem.</b>		
<b>Type of change?</b>	<b>Percent</b>	<b>Med help?</b>
Any changes	91.2	71.3
Shortness of breath	42.8	8.4
Headache	41.1	13.3
Fatigue	78.1	20.0
Dizziness	25.5	7.9
Brittle bones	9.6	4.2
Fractures	10.7	5.8
Anxiety	33.6	7.9
Blacking out	5.2	3.6
Scoliosis	30.4	9.7
Personality change	18.5	4.2
Gastrointestinal	38.0	13.3
Depression	39.1	12.7
Interrupted sleep	47.6	12.7
Need to sleep	41.3	12.1
Numbness	48.0	12.1
Respiratory infection	24.3	7.9

Weak muscles	67.2	32.7
Other	42.9	50.3

**Table 9. Checklist 2 - Percent experiencing problem in past few years.**

Symptom	Percent
Increased fatigue	83.9
New muscle weakness	81.1
Muscle/joint pain	78.6
Scoliosis	44.4
Depression	51.0
Numbness	55.3
Gastro-intestinal	51.9
Ambulatory	67.9
Respiratory	36.3
Circulatory problems	50.0
Arthritis	55.3
Insomnia	54.4
Night sweats	36.7
Nightmares	18.0
Night breathing/choking	26.4
Hoarseness	26.5
Increased thirst	32.6
Urinary problems	35.9
Memory problems	33.9

Forty (40%) were currently under treatment for a health problem. Seventy-two (72%) percent suspect their recent problems are polio related. When asked where they had heard about post-polio problems, the most common response was from a newspaper article (see [Table 10](#)).

**Table 10. Media Source Suggesting Polio**

Source of Suspicion	Percent	N
Television	26.1	41
Radio	5.9	9
Newspaper	60.5	95
Magazine	26.6	41

Nearly three fourths of the polio survivors experiencing a new problem suggested to their physician that the problem might be polio related ([Table 11](#)). Respondents report six of ten physicians were receptive to their suggestion. Nearly half report their physicians connected the symptoms with polio. While we can understand why only one in four physicians had previous experience treating polio patients, it was disappointing to find only one in five reported their physicians sought additional information for them. Less than a third of the physicians recommended a rehabilitation evaluation.

<b>Table 11. Interactions with Physicians</b>	
<b>Interactions with Physicians</b>	<b>Percent</b>
Did you suggest to physician polio was cause of problem?	73.3
Was physician receptive?	61.9
Did physician suggest polio was cause?	47.1
Had physician treated polio in past?	20.9
Did physician seek information for you?	21.8
Did you have a rehabilitation evaluation?	27.7

## Sex Differences

There were no sex differences by type of polio, age of contracting polio, or educational attainment. Polio weakened and crippled both males and female at similar rates. Treatments were similar except females were more likely (61% to 46%) to have been treated with Kenny hot packs.

As we might expect, females were more likely to work in clerical positions. Similarly, females report seeking medical advice more often (76% - 63%) than men.

There were few reported sex differences in current health problems. Of the problems listed in tables [8](#) & [9](#), females report more fatigue, while males report slightly higher rates of memory problems and personality changes. Weaker muscles in women are found in the general elderly population ([Litt, 1998](#)) so this is not likely to reflect a differential impact by polio. The most interesting finding is that there are virtually no differences in health problems by sex.

## Age Factors

T-tests between those experiencing and not experiencing specific health problems revealed few differences in the age each group contracted polio. Those experiencing anxiety and scoliosis were slightly

younger than those not reporting these problems. On the other hand, those suffering from weak muscles and ambulatory problems were slightly older than those not experiencing these problems. The largest age difference was between those hospitalized for polio (11.7) and those not hospitalized (4.8 yrs.).

As we might expect, those who had polio more recently were more likely to have been hospitalized. Contrary to what we might expect, symptoms did not become greater the longer it had been since one was first infected with polio. Of all the problems listed in tables 8 & 9, only those reporting urinary problems had polio in the more distant past. On the other hand, those reporting problems with headache, fatigue, need to sleep, muscle/joint pain, depression, numbness, and memory problems had polio more recently.

The major issue is which health problems are due to Post Polio Syndrome and which to normal aging. Overall we found few differences in current age between those experiencing symptoms and those not experiencing symptoms. When differences do exist, those reporting the problem are younger than those without the problem. Those reporting problems with headaches, personality change, sleep problems and depression, were slightly younger than those not reporting such problems.

## Summary and Conclusions

The survey data collected by the Polio Survivors Organization is consistent with and supports research findings from previous populations of polio survivors. While polio survivors have had to deal with a variety of physical disabilities, they are at least as likely to marry as the general population, have been actively involved in the labor force and have above average educational attainment.

Thirty to forty years after being afflicted with polio, many survivors are experiencing new medical problems that appear to be related to their earlier polio experiences. While many polio survivors have sought medical treatment for some of their problems, many physicians have not had experience treating polio patients.

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## References

Bruno, Richard L. and Nancy M. Frick. "The Psychology of Polio as Prelude to Post-Polio Sequelae: Behavior Modification and Psychotherapy." *Orthopedics*. V.14:11. November, 1991. 1185-1193.

[\[Lincolnshire Library Full Text\]](#)

Litt, Iris F. 1998. "Health Issues for Women in the 1990's." in Dina L. Anselmi and Anne L. Law. *Questions of Gender*. Boston: McGraw Hill. 690-701.



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