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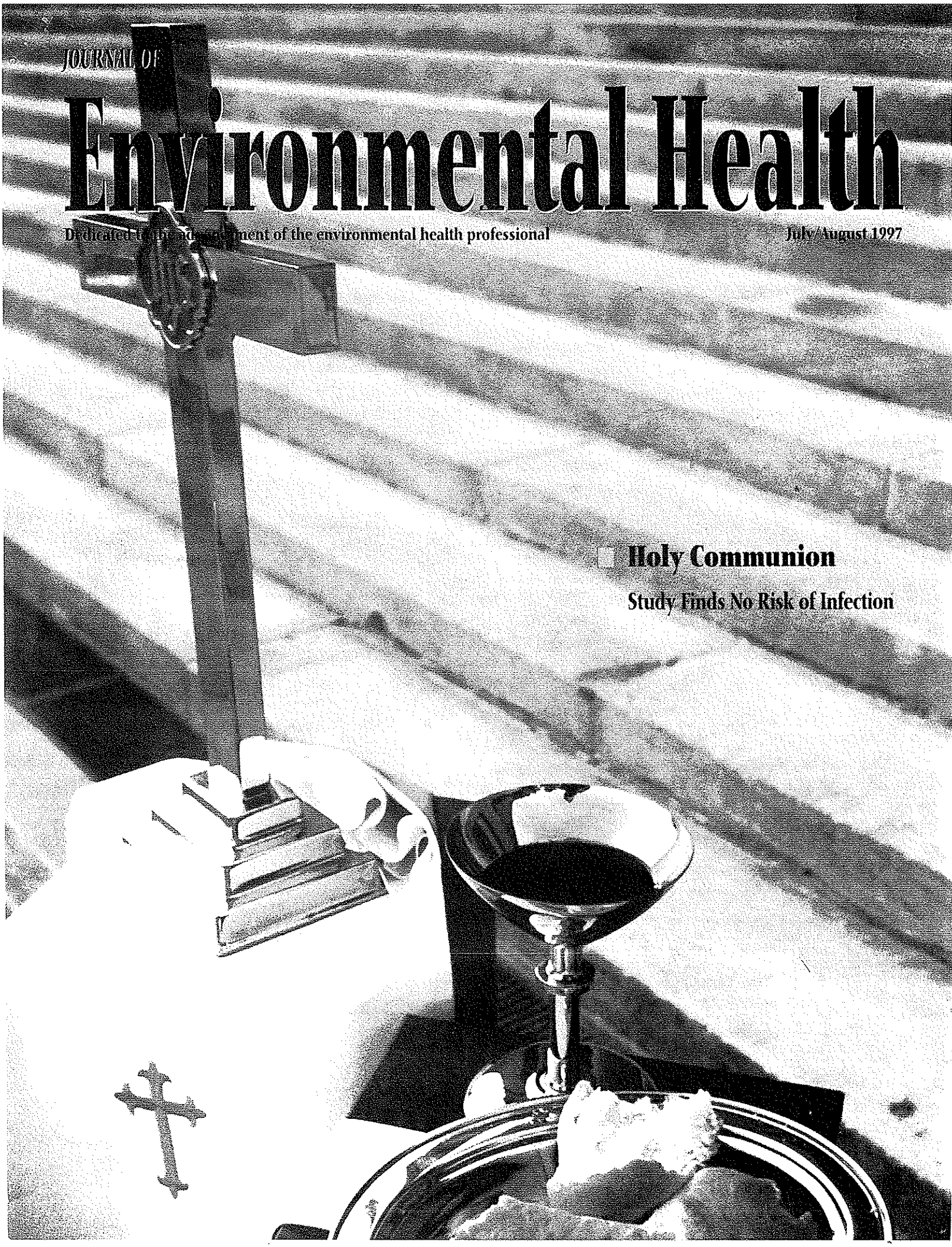
# Environmental Health

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## Holy Communion

Study Finds No Risk of Infection



# The Effects of Receiving Holy Communion on Health



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## Abstract

The risk of infection from receiving Holy Communion has been debated for more than a century and has been the subject of numerous studies. This detailed survey of 681 individuals compares illness rates among the following groups: those who receive communion; those who go to church but do not receive communion; and individuals who do not attend Christian services. In addition to supplying demographics information, participants answered detailed questions regarding respiratory, intestinal, skin, systemic, and other illnesses; physician consultations; and medications. Respondents also reported church attendance and participation in Holy Communion every week for 10 weeks. No significant difference in health was found among these groups, indicating that receiving Holy Communion as often as daily does not increase one's risk of infection.

## Introduction

The Christian sacrament of Holy Communion reenacts the Last Supper, at which Jesus Christ presided nearly 2,000 years ago. Today, many of the world's over two billion Christians consume consecrated bread and wine, some as often as twice daily. Sipping consecrated wine from a common chalice is a widespread custom throughout the world, although historical evidence, including Leonardo DaVinci's painting of "The Lord's Supper," indicates that individual cups were once customary. Concern about the possible spread of disease through shared communion cups dates back many years, with articles appearing in religious and scientific publications as early as 1887 (1).

In response to widespread concern about health risks, Christian leaders have frequently written about the common cup in religious journals and in the general media. Their articles attempt to quell fears of infectious diseases while imploring parishioners to attend church and receive the sacrament of Holy Communion (2-14).

The scientific community also has been involved, starting with physicians in the 19th century who cited the risk of, and advocated moving away from, the common cup, and continuing through this century with scrutiny of the religious rite from the perspective of hygienics (1,15-29). Wine in the chalice has been tested in both church and laboratory settings (16,20,22-24). Chalice rims have been

tested for bacteria after people have sipped (12,22,24), as have the purificator cloths that are used to wipe chalice rims between sips (12,26). The heavy metals used to make most chalices have been tested for antibacterial activity, as have glass and pottery (20,26,29). Wafers have been tested for sterility and for their ability to transfer microbes when dipped in wine (9,27). Without exception, every one of these studies has drawn the same conclusion: *Some bacteria do survive in the wine, on the chalice rim, or on a wine-soaked wafer significantly longer than the time that normally elapses between one parishioner's participation and the next. The potential for spread of infection during this religious ritual does exist.*

In an attempt to decrease health risks while maintaining the spiritual nature of the sacrament, various methods of serving and receiving the bread and wine have been developed over the years. These include bypassing the wine altogether; using fortified wine with a higher alcohol content to increase antimicrobial action; using individual spoons or individual cups; using a specially designed chalice from which many people can sip from separate compartments around the rim; intinction (the wafer is dipped into the wine either by the parishioner or by the priest); using chlorinated tap water during the consecration of the wine (the chlorine could help kill bacteria); dipping the purificator cloth into vodka to provide antimicrobial action; and distributing individually wrapped, sterile, disposable packs

that contain a wafer and a small cup of wine (5,9,16-18,26,27,30).

The actual foods consumed vary widely among the many Christian denominations. The bread may be freshly baked and broken into irregular pieces, or it may be highly processed and compressed into compact wafers. The alcohol content of the wine may vary, and alcohol-free grape juice may be used. In some churches the parishioners consume just the bread, while in others each person partakes of both the bread and the wine.

Concern about possible risks in receiving Holy Communion is extensive, as indicated by widespread coverage in the popular media (13,14,31-33). Although anecdotal information would seem to indicate that Christians who choose to receive bread and wine are no less healthy than their fellow human beings who choose not to participate in Holy Communion, no research was recorded in the literature. In the latter part of the 19th century, Dr. Howard S. Anders published widely, imploring Christians to use individual cups during Holy Communion to prevent the spread of disease. In response, Dr. Thomas J. Mays argued that no conclusion should be drawn about the communion cup producing "any special havoc" without statistics to prove this contention (18). Anders replied that he regretted being "unable to get statistics showing whether or not communicants are more [susceptible] to... diseases than noncommunicants," but remained steadfast in his resolve to convince the Christian population to use individual cups because "cleanliness is next to godliness" (15-18).

This investigation addresses the specific question raised more than 100 years ago, a question that laboratory studies, religious declarations, and the assertions of the lay public have failed to answer: *Do Christians who receive Holy Communion get sick more often than those who do not receive, or than individuals who*

*do not attend church?* The question was confronted using a survey tool that asked three basic questions: Have you attended church? Have you received the sacraments? And have you been sick?

## Methods

### Human Subjects

Participants were enlisted through school,

college, business, church, and neighborhood networks. All volunteers were accepted into the study, regardless of age, gender, general health, race, or religious affiliation. Solicitation of volunteers from across the United States was not feasible because of funding limitations, so the participant pool was limited to New Jersey residents.

Approximately 1,050 surveys were distrib-

**TABLE 1**  
Descriptive Statistics for 681 Subjects

<b>Gender</b>	Female: 64.0%	Male: 36.0%	
<b>Self-Reported Health</b>	Excellent: 88.0%	Fair: 10.0%	Poor: 2.0%
<b>Medications</b>	30.0% on some form of medication		
<b>Regular Exercise</b>	50.0%		
<b>Number of People in Household</b>	Range: 1 person to 60 people*	Mean: 4 people	Median: 3 people
<b>Age</b>	Range: 1-84 years	Mean: 39 years	Median: 42 years
<b>Age Groupings</b>	≤ 7 years: 3.0%	8-13 years: 6.0%	14-25 years: 24.0%
	26-45 years: 29.0%	46-65 years: 28.0%	>65 years: 10.0%

\*0.1 percent of sample reported living with 60 people; these were individuals living in a convent.

**TABLE 2**  
Households Grouped According to Members' Ages

Categories	Percent of Overall Participant Population
1. Infant through five years	
2. six through 12 years	
3. 13 through 18 years	
4. 19 years or older	
4	46.0%
1, 2, 3 & 4	2.0%
2, 3 & 4	12.0%
3 & 4	18.0%
1, 2 & 4	4.0%
2 & 4	10.0%
1 & 4	7.0%
1, 3 & 4	<1.0%

**TABLE 3**  
Church Visits and Wafer and Wine Consumption

	Number of Church Visits (All Participants)	Number of Times Wafer Was Taken (All Participants)	Number of Times Wafer Was Taken (Churchgoers)	Number of Times Wine Was Taken (All Participants)	Number of Times Wine Was Taken (Churchgoers)
Minimum	0.0 (27.5%)	0.0 (35.6%)	1.0 (4.7%)	0.0 (64.7%)	1.0 (5.4%)
Maximum	71 (0.1%)	71 (0.1%)	71 (0.1%)	70 (0.4%)	70 (0.4%)
Mean(SD)	11.26(SD 11.75)	7.12(SD 11.26)	11.06(SD 12.38)	3.22(SD 7.24)	9.11(SD 9.75)
Median	10.0	5.0	9.0	0.0	8.0

uted to individuals who indicated their willingness to participate. Of the 691 surveys that were returned, 681 were used; 10 were eliminated because they were incomplete.

#### Time Frame

Ideally, the survey would have run for a

full 52 weeks, encompassing all seasonal illnesses. However, maintaining the participation of the volunteers for an entire year would have been difficult, so the time frame was limited to 10 weeks. Everyone filled out the survey during the same 10 weeks, and since all

participants lived in the same geographic area, there should have been similar exposure to prevailing illnesses, weather conditions, and other environmental factors.

#### Survey Tool

The survey included a demographic cover sheet (Figure 1) followed by 10 weekly survey pages, each of which clearly identified the week in progress (Figure 2).

Participants were not asked to indicate how the wine was taken (by sipping, individual cup, intinction, etc.), as this would have added complexity to the survey, perhaps unnecessarily. If results showed that wine-consuming Christians did not have a different illness rate than the rest of the population, wine-receiving methods would not matter. If the wine consumers reported a higher incidence of illness than did other groups, a follow-up study was planned to compare all methods of wine consumption during Holy Communion.

## Results and Discussion

### Preliminary Analyses

To begin the data analysis, simple descriptive statistics including frequencies, means, standard deviations, and medians were calculated for all variables (Table 1).

The reported ages of household members were used to form household categories from all possible combinations of the following:

1. infant through five years
2. six through 12 years
3. 13 through 18 years
4. 19 years or older

Using these four categories, household members were broken down into groups as shown in Table 2.

A final item on the demographic page gave respondents an opportunity to write any additional information they felt was pertinent. Only 8.0 percent chose to do so; 2.0 percent indicated that they were members of a religious order and living in a convent, and 6.0 percent provided additional health information.

Several variables were created from the weekly survey data: total visits to church; total number of times the wafer was taken; total number of times the wine was taken; and total incidence of respiratory, intestinal, skin, and systemic infections and other general illness problems. These data are presented in Tables 3 and 4.

### Investigation of the Research Question

The research question was: *Do Christians who receive Holy Communion get sick more often than those who do not receive, or than individuals who do not attend church?* To investigate the research question, the total sample was divided

## TABLE 4

### Reported Illnesses During 10-Week Survey Period

	Respiratory	Intestinal	Skin	Systemic	General
Minimum	0.0 (44.1%)	0.0 (75.6%)	0.0 (88.4%)	0.0 (79.4%)	0.0 (36.6%)
Maximum	12 (0.1%)	10 (0.3%)	10 (0.4%)	9 (0.1%)	36 (0.1%)
Mean(SD)	1.49(SD 2.16)	0.48(SD 1.26)	0.32(SD 1.25)	0.37(SD 0.97)	2.66(SD 4.02)
					Median: 1.0

## FIGURE 1

### Demographic cover page of survey tool

FELICIAN COLLEGE

Subject No.: \_\_\_\_\_  
(for official use only)

### HOLY COMMUNION SURVEY STUDY COVER SHEET

Name: \_\_\_\_\_  
(LAST) (MIDDLE) (FIRST)

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_ - (home)

\_\_\_\_\_ - (work)

Sex: M / F Date of Birth: \_\_\_\_\_

General Health: \_\_\_\_\_

Do you take any medications on a regular basis? Yes / No

If so, please name:

\_\_\_\_\_

Do you exercise on a regular basis? Yes / No

Number of people living in your home, including you: \_\_\_\_\_

Age(s): \_\_\_\_\_

Is there any additional information that you think we should know?

according to how often respondents attended church and received the sacraments (Table 5).

For the first set of analyses, five analyses of variance were calculated using the five categories described above as the independent variables, and total respiratory, intestinal, skin, systemic, and general illness problems as dependent variables. For this sample, at  $\alpha = 0.01$ , no differences in illness were reported among those who received communion, those who attended but did not receive communion, and those who never attended church. Since no differences in health were reported among these groups, it was not necessary to determine which method individuals had used to receive the wine (sipping from a common cup, separate cups, intinction, etc.).

An analysis of variance was calculated to determine if those especially involved in religious life had a higher incidence of reported illness. These individuals attended church and received the sacraments as often as daily, and some consumed the "dregs" of the consecrated wine after all parishioners had sipped from the chalice. For all categories of health problems, no significant differences were found between participants with religious vocations and other respondents. No main effect exists for the church attendance categories ( $F[4,676] = 0.81$ , n.s.), nor any interaction term ( $F[23,676] = 1.03$ , n.s.).

An analysis of variance was calculated to determine if there were any differences in reported illness among the various household categories. The church attendance categories and the household categories were used as the independent variables, and a combined total-illness variable was calculated and used as the dependent variable. A main effect was found for the household category ( $F[7,676] = 3.73$ ,  $p < 0.01$ ). An examination of the cell means showed that households with children reported illness more than those without children. A comparison of this cell with the previous two analyses indicates that, according to these data, individuals living with children under the age of 12 are more likely to be ill than those who attend church and receive the sacraments as often as every day.

### Conclusion

Previous studies have demonstrated the viability and transferability of microbes on the communion chalice, in the wine, and on the wafers. The results of this study indicate that fears from the last century, like those of Dr. Howard S. Anders (15-18), should not be of concern to individuals who attend church and receive Holy Communion. No significant dif-

## TABLE 5

### Number of Respondents Who Attended Church and/or Received Communion

Participation	Percentage	Actual Number
Usually Attended and Received	45.1%	n = 307
Usually Attended and Did Not Receive	7.8%	n = 53
Sometimes Attended and Received	12.2%	n = 83
Sometimes Attended and Did Not Receive	4.0%	n = 27
Did Not Attend Church	31.0%	n = 211

## FIGURE 2

### Weekly survey page

Week Number: \_\_\_\_\_

Today's Date: \_\_\_\_\_

Have you had any of the following symptoms in the last seven days?

	NO ✓	YES ✓	If "YES," indicate dates
1. Respiratory (runny nose, watery eyes, sore throat, cough, ear ache)			
2. Intestinal (nausea, vomiting, diarrhea, cramps)			
3. Skin (rash, hives, acne)			
4. Systemic (fever, generalized aches & pains) Other (specify)			

If you answered "YES" to any of the above questions, please complete the following table (questions 5, 6, 7, 8). If not, go to question # 9.

	NO ✓	YES ✓	If "YES," please indicate name of medication
5. Did you take over the counter medication?			
6. Did you take prescription medicine?			
7. Did you see a doctor?			
8. If a name was given to your illness by a doctor, what was it?			

	NO ✓	YES ✓	If you went to church more than once this week, please indicate dates for each question
9. In the last seven days, did you go to church? If "NO," your survey is complete for this week. Thank you!			
10. If "YES," did you receive the wafer (bread)?			
11. If "YES," did you receive the wine?			

Thank you for filling out this week's page. Don't forget to do the same thing next week!  
Remember to call if you have any questions or concerns:

Professor Anne Loving: 778-1190, ext 6025  
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ferences were found in the rates of illness among Christians who receive Holy Communion, Christians who attend church but do not receive the sacraments, and people who do not attend Christian services. The only significant health factor found in this study was the presence of young children in the household,

a commonly observed phenomenon. Replications in other seasons and in different locales might be warranted to further test this question. However, these data suggest that receiving Holy Communion as often as daily does not increase risk of infection.

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