

2011 Thundershirt Dog Anxiety Survey

The Dog Anxiety Problem: Size, Scope and Solutions

Anxiety and fear problems in dogs are recognized generally to be very common. Fear of thunder, fireworks, separation anxiety, and travel anxiety are just a few examples of the most common problems. But surprisingly, there has been very little study to determine how pervasive are these problems, what solutions are tried by dog owners to remedy these problems, and how successful are those solutions. The purpose of this survey is to provide insight into those questions and more.

Sources of Data

Thundershirt Company has sponsored two separate surveys conducted and analyzed by independent third parties.

The first was a survey of the general dog population throughout the United States. Conducted in March, 2011, 1,201 dog owners with 1,960 dogs were surveyed. The respondents were spread across the United States geographically and covered a very wide variety of dog breeds. This large sample is statistically representative of the overall dog population in the United States.

The second was a survey of Thundershirt's own customer base. This customer base was utilized to reach a very large population of dog owners currently dealing with dog anxiety and fear issues. Also conducted in March, 2011, 1,137 dog owners with 1,999 dogs were surveyed.

The surveys were conducted by GMI Inc, a Washington based survey company. Founded in 1999, GMI is a global market research company providing services to many of the largest business enterprises and researchers around the world.

The survey data was analyzed by Kevin Babyak, a Philadelphia-area economist. With more than 25 years of experience in the research industry, Mr. Babyak has held modeling and forecasting positions at the Federal Reserve Bank and the City of Philadelphia, where he served as chief economist. Mr. Babyak earned his Master's of Science in Business and Economics from Temple University and completed his PhD curriculum at Lehigh University.

The key findings from both surveys are summarized below. The related tables are provided in Appendices A and B. Additional data from the complete surveys will be released in the coming months.

Key Findings from General Dog Population Survey:

The following findings are based on the general dog population survey of 1,201 dog owners covering 1,960 dogs. This population of dog owners and dogs was spread across the United States geographically and covered a very wide variety of dog breeds.

- Over 29% of all dogs suffer from at least one anxiety or fear issue...Nearly 23 million dogs in the United States alone.¹ 16% of all dogs are suffering from multiple anxiety and/or fear issues.
- Over 12 million dogs are left to just suffer with their anxiety problems without their owners trying any remedies...over half of all dogs with anxieties. Why? 71% of dog owners do not feel that treating the problem was necessary; 29% do not feel that there is a viable solution for the problems; 13% feel that solutions are too expensive.
- Over 41% of dog-owning households had at least one dog with an anxiety or fear issue. That translates into over 18.6 million households in the United States that are dealing with anxiety and fear issues.
- Dog owners are spending over \$1 billion each year dealing with anxiety problems. Over \$240 million on damaged property alone. (Average household cost of \$246 x 18.6 million households owning at least one dog with anxiety issues / 4.5 years average time with dog)
- The most common anxiety or fear issues among dogs in the US are the following:
 - Fear of Noise or Noise Anxiety – 17% of all dogs or over 13 million dogs.
 - Separation Anxiety – 13% of all dogs or 10 million dogs.
 - Reactivity towards people and/or dogs – 12% or nearly 9 million dogs.
 - General Anxiety – 5% or 3.5 million dogs.
 - Travel Anxiety – 5% or 3.5 million dogs.
- The most common NOISE fears or anxieties among the 13 million dogs are:
 - Fear of Thunderstorms – 86%
 - Fear of Fireworks – 74%
 - Fear of Vacuum Cleaners – 41%

¹ National figures are estimated using dog population estimates from the 2010 National Pet Owners Survey conducted by the American Pet Products Association (77.4 million dogs in the United States and 1.7 dogs per dog-owning household) and Q4'2010 Estimates of Occupied Households in the United States from Synergos Inc (116,246,694 households).

- The incidence rate of anxieties appears to increase with the age of the dog. 22% of dogs 3-years-old and younger suffer from anxiety issues. Over 36% of dogs 8-years-old or older suffer from anxiety issues.
- There appears to be no difference in the incidence of overall anxieties between genders.
- Single-dog households had a significantly higher incidence of anxiety issues than multi-dog households. 44% of dogs living in single-dog households versus 22% of dogs living in multi-dog households.
- 17% of owners with dogs suffering from anxiety issues have spent over 80 hours of their time trying to manage those issues.
- 10% of owners with dogs suffering from anxiety issues have spent an average of \$1,170 on those issues. Over \$560 on damaged property. Over \$675 on veterinarian visits. Over \$275 on medications.
- The most common treatments tried by dog owners for anxiety and fear issues are the following:
 - 71% Behavior Modification, 54% Environmental Management, 33% Drugs, 31% Music Therapy
- The most common symptoms for anxiety issues:
 - Noise: 82% Shake, Tremble, Cower; 74% Hide; 69% Restless, Will not Settle
 - Separation : 84% Clinging to owners; 78% Barking, whimpering; 70% Restless, Will not Settle.
 - General Anxiety: 80% Shake, Tremble, Cower; 78% Easily Startle; 75% Cling to Owner

Key Findings from Thundershirt Customer Base Survey:

The following findings are based on a survey of 1,137 dog owners covering 1,999 dogs. All of these dog owners have previously purchased a Thundershirt for treating at least one of their dogs.

Of all the solutions tried for the different anxiety types, Thundershirt has the best overall success rate:

- a. Thundershirt – 82%
- b. Environmental Management – 77%
- c. Drugs – 76%
- d. All Other Solutions Tried – 43%

Success is defined as the percent of dogs that showed improvement in symptoms as judged by the dog owner. “Environmental Management” is the approach of attempting to avoid the sights, sounds or other stimuli that trigger the anxiety or fear issue(s).

Appendix A: General Dog Population Survey Tables

Table A1. Incidence of Anxiety by Clinical Category*

Mentioned	Fear of Noise or Noise Anxiety	Separation Anxiety	General Anxiety	Travel Anxiety	Reactivity towards people	Reactivity towards dogs	Repetitive or Compulsive Behavior - Spinning	Repetitive or Compulsive Behavior - Licking	Crating Anxiety	Other
No	240	326	486	489	451	478	552	492	544	528
Yes	337	251	91	88	126	99	25	85	33	49
Total	577	577	577	577	577	577	577	577	577	577
Incidence % - Dogs with Anxiety	58%	44%	16%	15%	22%	17%	4%	15%	6%	8%
Incidence % - Total Dog Population	17%	13%	5%	5%	7%	5%	1%	4%	2%	3%
Estimated Number of Dogs in United States (millions)**	13.4	10.0	3.6	3.5	5.0	3.9	1.0	3.3	1.3	2.0

*Base is dogs that suffered from some form of anxiety

** National figures are estimated using 1) population estimates from the 2010 National Pet Owners Survey conducted by the American Pet Products Association and 2) Q4'2010 Estimates of Occupied households in the United States from Synergos Inc.

Margin of Error: +/- 4% at 95% confidence

Table A2. Incidence of Noise Anxiety by Type*

Mentioned	Fear of Thunderstorms	Fear of Fireworks	Fear of Vacuum Cleaners	Other (Please Specify)
No	48	89	198	275
Yes	289	248	139	62
Total	337	337	337	337
Incidence %	86%	74%	41%	18%

*Base is dogs suffering from Noise Anxiety
Margin of error +/-5.3% at 95% confidence

Table A3. Incidence of Anxiety by Gender*

Row Labels	No anxiety	Anxiety Yes	Grand Total	Incidence
Male	667	288	955	30.2%
Female	716	289	1,005	28.8%
Grand Total	1,383	577	1,960	29.4%

*Base is total dogs across survey respondents
Margin of Error less than or equal to +/-3.1%

Table A4. Incidence of Anxiety by Number of Dogs Present*

Number of Dogs	No Anxiety	Yes Anxiety	Total	Incidence of Anxiety	Margin of Error (+/- at 95%)
1	370	293	663	44%	3.8%
2	563	189	752	25%	3.6%
3 or more	450	95	545	17%	4.2%
more than one	1,013	284	1,297	22%	2.7%
Total	1,383	577	1,960	29%	2.2%

*Base is total dogs across survey respondents

Table A5. Incidence of Trying Solution by Anxiety Type*

Anxiety Category	Total Cases that were treated	No solution Tried	Total # of Anxiety Cases **	Incidence of Trying Solution (%)	Margin of Error (+/- at 95% Confidence)
Noise	155	182	337	46%	5.30%
Separation	114	137	251	45%	6.20%
General Anxiety	49	42	91	54%	10.30%
Travel Anxiety	36	52	88	41%	10.40%
Other	128	289	417	31%	4.8%
Total	482	702	1,184	46%	3.50%

*Base is total number of dogs suffering from anxiety

** Total is greater than 577 because of dogs with multiple anxieties.

Table A6. Percent of Dogs Treated for Anxiety by Solution*

Solution	%tried	%have not tried	Total
Drugs (e.g. Fluoxetine, Clomipramine, Benzodiazepines, etc.)	33%	67%	100%
Thundershirts	10%	90%	100%
Natural / Homeopathic Supplements / Acupuncture	19%	81%	100%
Dog Pheromones	7%	93%	100%
Behavior Modification and Training	71%	29%	100%
Environmental Management - Avoiding Sights and Sounds	54%	46%	100%
Products for Sound Reduction (e.g. Sound Reduction Housing, etc.)	21%	79%	100%
Products for Sight Reduction	18%	82%	100%
Products for Desensitization (e.g. CD / Recordings, etc.)	21%	79%	100%
Products for Static Reduction	9%	91%	100%
Music Therapy	31%	69%	100%

*Base is 270 dogs suffering from any form of anxiety and received some form of treatment

Margin of error is +/-5.9% at 95% confidence

Table A7. Dog Owner Time Needed to Address Anxiety Issue*

Row Labels	count	percent
Less than 1 hour	121	24%
1-10 Hours	145	28%
11-40 Hours	118	23%
40-80 Hours	40	8%
> 80 Hours	89	17%
Total	513	100%

*Base is dog owners that have at least one dog suffering from anxiety.

Margin of error is +/-4.1% at 95% confidence

Table A8. Average Household Expenditures to Address Anxiety Issues*

Expenditure Category	Spending per Household	Margin of Error (95% Confidence)
Damaged Property	\$59.18	+/- \$21.80
Veterinarian Visits	\$91.19	+/- \$41.50
Behaviorist visits	\$13.85	+/- \$6.80
Medications	\$31.24	+/- \$10.20
Natural products	\$21.57	+/- \$10.70
Dog Trainer Fees	\$22.47	+/- \$7.60
Other (specify)	\$9.95	+/- \$9.20
Total Spending per Household	\$246.37	+/- \$71.70

*Base is dog owners that have at least one dog suffering from anxiety

Table A9. Average Household Expenditure to Address Anxiety Issues – Top 10%*

Expenditure Category	Spending per Household
Damaged Property	\$568
Veterinarian Visits	\$675
Behaviorist visits	\$142
Medications	\$275
Natural products	\$205
Dog Trainer Fees	\$227
Other (specify)	\$70
Total Spending per Household	\$1,172

*Base is top 10% of households in terms of spending for each category

Table A10. Incidence of Anxiety among Dogs by Current Age*

Dog Age	No	Yes	Total	Incidence Rate	Margin of Error (95% Confidence)
0-1	155	34	189	18%	+/-7.1%
2-3	309	101	410	25%	+/-4.1%
4-5	250	100	350	29%	+/-5.2%
6-7	249	100	349	29%	+/-5.2%
8-10	214	122	336	36%	+/-5.3%
11+	206	120	326	37%	+/-5.2%
total	1,383	577	1,960	29%	+/-2.2%

*Base is total dogs across dog owners surveyed

Table A11. Distribution of Dogs by Number of Anxieties Suffered*

# of Anxieties	# of Dogs	% of Total	% of those with Anxiety
0	1,383	71%	NA
1	249	13%	43%
2	165	8%	29%
3	97	5%	17%
4 or more	66	3%	11%
Grand Total	1,960	100%	NA
Total with Anxiety	577	NA	100%

*Base is total dogs owned by survey respondents

Margin of error is +/-2.2 at 95% confidence

Table A20. Reasons for Not Trying Solution for Anxiety*

	Didn't seem necessary for the dog or me	Not enough time	Too expensive	Nothing looked like a solution that would work
Not mentioned	90	288	267	217
Mentioned	217	19	40	90
Total	307	307	307	307
%	71%	6%	13%	29%

*base is total dogs with anxiety but receiving no treatment.

Margin of error is +/-5.59% at 95% confidence

Appendix B. Thundershirt Customer Sample Tables

Table B1. Effectiveness of Solutions for All Anxieties*

	No Improvement	Mild Improvement	Moderate Improvement	Excellent Improvement	Total	Total cases**
Drugs (e.g. Fluoxetine, Clomipramine, Benzodiazepines, etc.)	24%	35%	28%	12%	100%	914
Thundershirt	19%	31%	27%	24%	100%	1,577
Natural / Homeopathic Supplements / Acupuncture	42%	39%	15%	4%	100%	765
Dog Pheromones	63%	28%	6%	3%	100%	458
Behavior Modification and Training	30%	38%	23%	10%	100%	1,188
Environmental Management - Avoiding Sights and Ssounds	23%	42%	26%	8%	100%	874
Products for Sound Reduction (e.g. Sound Reduction Housing, etc.)	38%	45%	13%	4%	100%	189
Products for Sight Rreduction	41%	37%	18%	4%	100%	155
Products for Desensitization (e.g. CD / Recordings, etc.)	58%	32%	9%	2%	100%	349
Products for Static Reduction	59%	29%	9%	4%	100%	104
Music Therapy	49%	37%	11%	3%	100%	536

*Base is all Dogs from Oversample of Thundershirt Customers

**Total cases reflect the number of dogs treated across each solution. Dogs can be treated with more than one solution.

Table B2. Effectiveness of Solutions for Noise Anxiety*

	No Improvement	Mild Improvement	Moderate Improvement	Excellent Improvement	Total	Total Dogs that tried	Total Dogs
Drugs (e.g. Fluoxetine, Clomipramine, Benzodiazepines, etc.)	21%	37%	32%	10%	100%	406	810
Thundershirt	14%	29%	29%	29%	100%	737	810
Natural / Homeopathic Supplements / Acupuncture	41%	40%	14%	5%	100%	319	810
Dog Pheromones	64%	29%	7%	1%	100%	174	810
Behavior Modification and Training	42%	39%	15%	4%	100%	408	810
Environmental Management - Avoiding Sights and Ssounds	22%	45%	26%	7%	100%	426	810
Products for Sound Reduction (e.g. Sound Reduction Housing, etc.)	37%	49%	14%	0%	100%	93	810
Products for Sight Rreduction	41%	39%	20%	0%	100%	44	810
Products for Desensitization (e.g. CD / Recordings, etc.)	64%	28%	7%	1%	100%	186	810
Products for Static Reduction	51%	36%	10%	3%	100%	67	810
Music Therapy	50%	38%	10%	2%	100%	227	810
Total	33%	36%	21%	10%	100%	3,091	810

*Base is all Dogs from Oversample of Thundershirt Customers

Table B3. Effectiveness of Solutions for Separation Anxiety*

	No Improvement	Mild Improvement	Moderate Improvement	Excellent Improvement	Total	Total Dogs Tried	Total Dogs
Drugs (e.g. Fluoxetine, clomipramine, benzodiazepines, etc.)	27%	35%	27%	12%	100%	127	317
Thundershirt	23%	29%	24%	24%	100%	222	317
Natural / homeopathic supplements / acupuncture	42%	41%	14%	4%	100%	125	317
Dog Pheromones	63%	25%	8%	4%	100%	97	317
Behavior Modification and Training	23%	38%	24%	15%	100%	226	317
Environmental Management - avoiding sights and sounds	29%	38%	26%	8%	100%	119	317
Products for Sound reduction - e.g. sound reduction housing	48%	30%	15%	7%	100%	27	317
Products for Sight Reduction	43%	39%	13%	4%	100%	23	317
Products for Desensitization e.g. CD / Recordings	44%	42%	13%	2%	100%	62	317
Products for Static Reduction	71%	21%	0%	7%	100%	14	317
Music Therapy	44%	39%	13%	4%	100%	124	317
Total	35%	35%	20%	10%	100%	1,170	317

*Base is all Dogs from Oversample of Thundershirt Customers

Table B4. Effectiveness of Solutions for General Anxiety*

	No Improvement	Mild Improvement	Moderate Improvement	Excellent Improvement	Total	Total Dogs Tried	Total Dogs
Drugs (e.g. Fluoxetine, clomipramine, benzodiazepines, etc.)	28%	31%	24%	17%	100%	104	225
Thundershirt	22%	30%	29%	20%	100%	174	225
Natural / homeopathic supplements / acupuncture	42%	38%	16%	4%	100%	93	225
Dog Pheromones	66%	28%	5%	2%	100%	61	225
Behavior Modification and Training	22%	35%	29%	13%	100%	163	225
Environmental Management - avoiding sights and sounds	23%	38%	25%	14%	100%	106	225
Products for Sound reduction - e.g. sound reduction housing	40%	35%	15%	10%	100%	20	225
Products for Sight Reduction	48%	26%	22%	4%	100%	27	225
Products for Desensitization e.g. CD / Recordings	39%	45%	13%	3%	100%	31	225
Products for Static Reduction	83%	17%	0%	0%	100%	6	225
Music Therapy	48%	34%	16%	2%	100%	56	225
Total	32%	35%	22%	11%	100%	845	225

*Base is all Dogs from Oversample of Thundershirt Customers

Table B5. Effectiveness of Solutions for Travel Anxiety*

	No Improvement	Mild Improvement	Moderate Improvement	Excellent Improvement	Total	Total Dogs Tried	Total Dogs
Drugs (e.g. Fluoxetine, clomipramine, benzodiazepines, etc.)	28%	37%	24%	11%	100%	113	222
Thundershirt	20%	34%	28%	18%	100%	144	222
Natural / homeopathic supplements / acupuncture	52%	32%	13%	4%	100%	85	222
Dog Pheromones	52%	34%	7%	7%	100%	29	222
Behavior Modification and Training	34%	32%	23%	11%	100%	102	222
Environmental Management - avoiding sights and sounds	33%	35%	24%	8%	100%	49	222
Products for Sound reduction - e.g. sound reduction housing	45%	45%	9%	0%	100%	11	222
Products for Sight Reduction	58%	33%	4%	4%	100%	24	222
Products for Desensitization e.g. CD / Recordings	75%	15%	10%	0%	100%	20	222
Products for Static Reduction	67%	17%	17%	0%	100%	6	222
Music Therapy	67%	23%	7%	2%	100%	43	222
Total	38%	34%	18%	10%	100%	627	222

*Base is all Dogs from Oversample of Thundershirt Customers

Table B6. Effectiveness of Solutions for Other Anxiety*

	No Improvement	Mild Improvement	Moderate Improvement	Excellent Improvement	Total Tried	Total Tried	Total
Drugs (e.g. Fluoxetine, Clomipramine, Benzodiazepines, etc.)	26%	34%	25%	15%	100%	164	406
Thundershirt	19%	34%	22%	24%	100%	281	406
Natural / Homeopathic Supplements / Acupuncture	37%	42%	19%	2%	100%	143	406
Dog Pheromones	63%	29%	4%	4%	100%	97	406
Behavior Modification and Training	20%	40%	29%	11%	100%	289	406
Environmental Management - Avoiding Sights and Ssounds	20%	44%	27%	9%	100%	174	406
Products for Sound Reduction (e.g. Sound Reduction Housing, etc.)	32%	50%	11%	8%	100%	38	406
Products for Sight Rreduction	24%	43%	24%	8%	100%	37	406
Products for Desensitization (e.g. CD / Recordings, etc.)	56%	32%	6%	6%	100%	50	406
Products for Static Reduction	73%	9%	9%	9%	100%	11	406
Music Therapy	44%	40%	12%	5%	100%	86	406
Total	29%	38%	21%	11%	100%	1,376	406

Note: Other Anxiety includes reactivity towards dogs and people, spinning, repetitive or compulsive behavior, excessive licking and crating anxiety.

*Base is all Dogs from Oversample of Thundershirt Customers

Table B7. Overall Effectiveness of Thundershirt by Anxiety Type*

	No Improvement	Mild Improvement	Moderate Improvement	Excellent Improvement	Total	Total Dogs Tried
Noise	14%	29%	29%	29%	100%	737
Separation	23%	29%	24%	24%	100%	222
General	22%	30%	29%	20%	100%	174
Travel	20%	34%	28%	18%	100%	144
Other	19%	34%	22%	24%	100%	281
Total	18%	30%	27%	25%	100%	1,558

*Base is all Dogs from Oversample of Thundershirt Customers

Table B8. Dogs that had anxiety by adoption status*

	Always Had the issue	Began after we received dog	Total with Symptom	Total with Symptom	Total Dogs
Fear of Noise or Noise Anxiety	54%	46%	100%	891	1,999
Separation Anxiety	56%	45%	100%	400	1,999
General Anxiety	66%	34%	100%	262	1,999
Travel Anxiety	61%	39%	100%	301	1,999
Reactivity towards people	64%	36%	100%	275	1,999
Reactivity towards dogs	60%	40%	100%	313	1,999
Repetitive or Compulsive Behavior - Spinning	63%	37%	100%	60	1,999
Repetitive or Compulsive Behavior - Licking	54%	46%	100%	190	1,999
Crating Anxiety	58%	42%	100%	165	1,999
Other	61%	39%	100%	146	1,999
Total	58%	42%	100%	3,003	1,999

*Base is all Dogs from Oversample of Thundershirt Customers

Table B9. Distribution of Dogs by Number of Anxieties Suffered*

# of Anxieties	# of Dogs	Percent
0	732	37%
1	452	23%
2	338	17%
3	219	11%
4	139	7%
5	68	3%
6	38	2%
7	10	1%
8	3	0%
Total	1,999	100%

*Base is all Dogs Owned by Thundershirt Customers