

Food Insecurity
in the
Wisconsin WIC Population
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“Food security,” or having enough food to sustain an active and healthy lifestyle is a critical concern within many US and Wisconsin households. The United States Department of Agriculture (USDA) monitors food security annually for the nation and individual states as part of the Current Population Survey, conducted by the US Census Bureau. According to the most recent report (including data from 2008-2010), food insecurity affects more than 17 million households in the US and more than 270,000 households in Wisconsin alone¹.

A household is considered “food secure” if, during the course of a year, all members of that household had ready access to foods that were safe and sufficient to satisfy their nutritional requirements and were able to obtain these foods in socially acceptable ways (i.e. without using food pantries, stealing, or depleting emergency household food reserves). A household is considered food insecure if access to safe, nutritious foods was limited or uncertain for at least one person at some point during the year. In addition, a subset of these households are also classified as having “very low food security” if one or more individuals in that household reduced their food intake or changed their normal eating patterns during that year, due to a lack of money or other resources¹. Although the overall rate of food insecurity for Wisconsin is still lower than the national average (11.8% and 14.3%, respectively), in recent years, Wisconsin food insecurity rates, particularly those for very low food security, appear to have been rising¹.

Food insecurity has varied and significant health consequences. Within households with very low food security, it is common that one or more individuals experience hunger; however, whether or not hunger occurs, children and adults living in food insecure households tend to consume diets that are comparatively lower in fruits and vegetables, overall variety, and nutrient content. Also, some members of food insecure households (especially adult women) are at increased risk of being overweight or obese.

In general, it is not entirely clear why there is a high prevalence of overweight and obesity in adults (and potentially youth) living in food insecure households; however, several potential contributors have been proposed, including, for example, increased reliance on relatively inexpensive foods (which tend to often be high in sugar and fat), responses to ongoing cycles of food restriction and availability, etc.²⁻⁴.

As a federal preventive nutrition program, the Special Supplemental Nutrition for Women, Infants and Children (WIC) serves as one of the buffers against food insecurity within communities, along with other federal programs, such as the Supplemental Nutrition Assistance Program (SNAP) the National School Lunch and Breakfast Programs, the Emergency Food Assistance Program (TEFAP) and other supports, such as local emergency kitchens. The purpose of WIC is to help assure the healthy development and growth of infants and young children, through the distribution of vouchers for supplemental nutritious foods, coupled with access to nutrition education, and appropriate referrals to other health or social services^{1, 3}.

Measuring food security

For the above reasons, beginning in 2002, the Wisconsin WIC Program has conducted a survey every five years to gather information about the level of food insecurity and very low food security in WIC-participating households across the state. Based on feedback at the local level and from a state-level advisory group, random sampling procedures have not been used. Instead, for logistical reasons, the survey has been conducted as a census of families visiting a Wisconsin WIC clinic during the month of January, every 5th year. Results from the survey have been used to obtain WIC food insecurity rates for the state and for the county of WIC service. Beginning in 2007, rates were also reported by WIC project and participant county of household residence. Results have previously been used in conjunction with other information to help determine resource allocation and education or referral procedures within local WIC projects and to provide information for local health departments or other organizations working to counteract the problem of food insecurity at the state and local levels⁴.

In addition to the sampling strategy, methods and instruments used for the 2012 survey were identical to those used in 2007⁴. To summarize, a validated, short 6-item, self-administered version of the USDA Food Security Survey was used. Although these have changed somewhat since 2002, survey questions for 2012 were identical to those used in 2007 (Questions are provided in Table 1). Spanish and Hmong survey translations were again available. Participants again completed paper surveys and placed them into covered boxes. Survey data were subsequently compiled across locations by entering responses into the WIC database but subsequently purged from the database after analysis was complete. Again, the vast majority of WIC projects recruited throughout the month of January. Exceptions again included eight Milwaukee projects, which limited their recruitment to a two-week period, due to relatively high caseloads at these projects. In addition, in 2012, two additional high-volume projects (Dane and Brown Counties) were approved to use a limited recruitment period. Statewide levels of state food insecurity were again determined after weighting households to reflect any differences in recruitment periods at different locations.

Scores for overall food insecurity and very low food insecurity were calculated in a standard manner¹. Households with two or more (of six possible) affirmative responses were categorized as having Food Insecurity, and the subset of these households with either five or six affirmative responses were additionally categorized as having Very Low Food Security.

Results and Discussion

Based on the surveys entered into the WIC database, a total of 17,289 WIC households across the state were invited to participate. Of these, 159 families refused, and an additional 9 families answered fewer than 2 questions, leaving a total of 17,121 surveys (99%) available for analysis. Table 1 presents the individual questions and shows the percentage of affirmative responses to each question for 2012, 2007 and 2002. Table 2 provides food security prevalence values for years: 2012, 2007 and 2002 by county of WIC service. Tables 3 and 4 provide food security prevalence values for both years: 2012 and 2007 by county of WIC service, WIC project and county of household residence, respectively. All tables presented included rates for both 2012 and 2007.

Based on comparison of overall rates between these two years, an error was noted in the analysis of 2007 results. In particular, for question 4, although responses of “almost every month” and “some months, but not every month” should have been counted as affirmative indicators of food insecurity, only the former was counted in calculations. As a result, in addition to 2012 values, all tables also provide corrected food insecurity rates for 2007. Due to the fact that questions are ordered such that higher numbered questions tend to reflect more severe levels of food insecurity, changes in the 2007 rates were primarily notable for

rates of very low food security. For example, although the correction of 2007 rates did not change the overall Food Insecurity rate for that year (51%), the actual rate of Very Low Food Security was five percentage points higher than that previously reported (20%, rather than 15%)⁴. Similarly, revised 2007 rates for specific projects or counties tended to change less for Food Insecurity than for Very Low Food Security.

Based on a comparison of the new rates for 2012 and the revised rates for 2007, the observed state rate of Very Low Food Security in the available sample of WIC households was similar across years (21% and 20%, respectively); however, the observed overall rate of Food Insecurity was higher in 2012 than in 2007 (54% versus 51%).

With respect to interpretation of results over time or across locations, great care was taken with respect to the use of valid instruments, standardization of procedures across sites and time points; however, because random sampling is not currently feasible for surveys within Wisconsin WIC projects, results may or may not be representative of the entire WIC population at any point in time and for any given location. Certain types of households may be over- or under-represented in the sample, relative to their actual levels in the Wisconsin WIC population. For example, families that visit WIC clinics frequently, rather than infrequently, would be more likely to have taken the survey during the month of January, and it's conceivable that frequency of visits may also be related to differences in food security rates. Rates for individual counties or projects based on smaller numbers are also more likely to be impacted by small deviations in recruitment procedures, scheduling or participation changes across years, etc. In short, survey results offer one indication of food insecurity levels at a given time, at a particular location. Therefore, results should be interpreted in light of these potential sampling limitations.

Still, more than half of the 17,000 families that visited a Wisconsin WIC clinic in January reported living under conditions of food insecurity over the past year, and for more than a fifth of WIC families, the level of food insecurity was severe. Based on this snapshot, and consistent with state-level rates more generally, food insecurity rates in Wisconsin WIC families are not diminishing and appear likely to be stable or increasing somewhat. Food insecurity has been and remains a critical health challenge for Wisconsin and for the organizations and programs attempting to counter it.

Acknowledgments

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Table 1 Food Insecurity Prevalence and Percent Affirmative Responses to Individual Questions^a for Participating Wisconsin WIC Families in 2012, 2007 and 2002

Food Insecurity Prevalence	2012 (n=17121)	2007 (n=19582)	2002 (n=18248)
WIC households/families identified as having <u>any level</u> of food insecurity (affirmative responses to two or more survey questions)	54%	51%	44%
WIC households/families identified as having very low food security (affirmative responses to five or more survey questions)	21%	20%	19%
Responses to Individual Survey Questions^a	Percent Affirmative		
1. The food we bought just didn't last, and we didn't have money to get more. Was that 1) often, 2) sometimes, or 3) never true for you in the last 12 months.	61% often/ sometimes	58% often/ sometimes	45% often/ sometimes
2. We couldn't afford to eat balanced meals. Was that 1) often, 2) sometimes, or 3) never true for you in the last 12 months.	49% often/ sometimes	47% often/ sometimes	42% often/ sometimes
3. In the last 12 months, did you, your family, or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?	37% Yes	35% Yes	30% Yes
4. How often did this happen? 1) almost every month, 2) some months but not every month, or 3) only in 1 or 2 months?	24% (of all families) chose 1 or 2	21% (of all families) chose 1 or 2	21% (of all families) chose 1 or 2
5. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough food?	34% Yes	32% Yes	31% Yes
6. In the last 12 months, were you ever hungry, but didn't eat because you couldn't afford enough food?	21% Yes	20% Yes	18% Yes

^a Survey questions only constitute a valid measure of food insecurity when combined into an index.

Table 2 Percent of Participating WIC Households^a Reporting Food Insecurity and Very Low Food Security by Tribe and County of WIC Service, 2012, 2007 and 2002

County of WIC Service	2012			2007			2002		
	Households ^a	Food Insecurity	Very Low Food Security	Households ^a	Food Insecurity	Very Low Food Security	Households ^a	Food Insecurity	Very Low Food Security
	n	%	%	n	%	%	n	%	%
Statewide	17121	54	21	19582	51	20	18248	44	19
GLITC ^b	262	60	26	205	55	20	243	36	14
Menominee Tribe	129	41	12	192	37	12	167	40	10
Oneida Tribe ^b	148	58	25	185	54	22	138	45	19
Adams	73	36	16	71	37	15	48 ^c	31	13
Ashland	113	42	19	135	30	10	108	37	19
Barron	221	47	18	207	53	17	305	33	15
Bayfield	18 ^c	56	39	22 ^c	27	NR ^c	75	41	15
Brown	748	59	24	1293	58	21	1274	49	23
Buffalo	51	57	24	37 ^c	57	27	52	38	13
Burnett	54	57	20	97	48	21	92	49	15
Calumet	157	59	24	54	48	9	102	43	16
Chippewa	282	53	23	285	55	26	251	48	24
Clark	119	50	15	133	44	11	23 ^c	61	22
Columbia	145	49	21	187	56	29	103	37	10
Crawford	54	46	19	65	46	11	161	45	22
Dane	397	59	23	1208	58	24	627	49	21
Dodge	96	52	24	253	48	18	178	42	17
Door	121	50	21	83	35	14	100	32	9
Douglas	248	52	28	277	51	21	219	44	19
Dunn	157	59	20	171	54	23	158	35	13
Eau Claire	494	55	22	495	48	20	440	49	23
Florence	10 ^c	70	NR ^c	21 ^c	24	NR ^c	35 ^c	29	14
Fond du Lac	428	55	25	504	53	23	442	40	18
Forest	46 ^c	46	24	36 ^c	17	NR ^c	61	43	13
Grant	198	51	23	169	34	10	224	20	7
Green	99	45	15	122	49	21	23 ^c	43	NR ^c
Green Lake	61	51	25	71	45	23	45 ^c	44	13
Iowa	88	59	16	93	49	19	97	37	12
Iron	23 ^c	30	NR ^c	13 ^c	NR ^c	NR ^c	23 ^c	43	NR ^c
Jackson	73	48	18	64	52	22	78	49	19
Jefferson	281	52	15	225	54	19	278	45	20
Juneau	187	48	20	135	42	17	87	43	17
Kenosha	800	55	20	855	47	17	717	40	17
Kewaunee	50	50	12	69	45	13	55	33	13
La Crosse	176	53	22	335	51	22	377	48	19
Lafayette	37 ^c	49	16	23 ^c	30	NR ^c	27 ^c	37	NR ^c

County of WIC Service	2012			2007			2002		
	Households ^a	Food Insecurity	Very Low Food Security	Households ^a	Food Insecurity	Very Low Food Security	Households ^a	Food Insecurity	Very Low Food Security
	n	%	%	n	%	%	n	%	%
Langlade	75	57	12	17 ^c	41	NR ^c	93	30	16
Lincoln	44 ^c	52	14	46 ^c	35	17	59	36	14
Manitowoc	335	59	26	364	47	20	226	42	15
Marathon	287	57	23	154	47	14	204	41	17
Marinette	186	51	21	262	42	20	179	38	15
Marquette	58	69	34	26 ^c	69	19	43 ^c	53	21
Milwaukee	3171	51	20	3468	50	19	4051	47	20
Monroe	175	45	16	185	48	24	165	36	16
Oconto	134	49	16	135	47	19	118	42	18
Oneida	142	47	21	150	43	22	132	39	15
Outagamie	599	54	21	668	61	24	509	50	21
Ozaukee	107	61	30	109	44	15	73	37	16
Pepin	10 ^c	NR ^c	NR ^c	19 ^c	26	NR ^c	25 ^c	24	NR ^c
Pierce	189	54	18	170	51	16	94	30	16
Polk	138	67	28	144	54	17	158	34	13
Portage	230	49	23	189	46	22	229	36	15
Price	106	56	19	92	41	15	103	29	11
Racine	738	50	22	603	44	14	521	37	14
Richland	62	60	29	82	46	20	80	38	13
Rock	371	55	20	243	60	25	377	41	16
Rusk	62	48	19	99	37	16	58	40	12
St.Croix	173	57	28	429	57	21	193	35	17
Sauk	57	42	16	289	54	22	240	38	17
Sawyer	132	45	20	58	29	NR ^c	69	55	25
Shawano	222	53	23	46 ^c	41	13	134	42	20
Sheboygan	196	58	25	509	58	23	235	40	18
Taylor	90	53	17	90	50	23	111	41	12
Trempealeau	104	52	18	126	40	18	254	36	17
Vernon	87	48	18	89	43	9	143	37	13
Vilas	34 ^c	68	32	59	42	14	65	37	14
Walworth	418	61	24	419	59	26	239	43	13
Washburn	103	45	14	114	46	17	85	32	11
Washington	170	51	21	262	47	18	273	53	25
Waukesha	479	52	21	561	56	22	239	43	21
Waupaca	123	57	24	120	53	18	155	46	19
Waushara	105	48	23	75	60	28	65	38	12
Winnebago	463	68	31	445	54	23	514	45	23
Wood	302	59	29	276	50	20	304	38	19

^a The number of households represents the number of (unduplicated) WIC families that visited a WIC project during the survey recruitment period and completed at least two survey questions.

^b The Great Lakes Inter-Tribal Council (GLITC) includes data from sites in Bayfield, Burnett, Forest, Jackson, Sauk, Sawyer, Shawano, Vilas, and Wood counties. The Oneida Tribe includes data from Brown and Outagamie counties.

^c Estimates of percent food insecurity and percent very low food security are likely to be less reliable if they are based on small numbers (e.g. less than 50 households). To protect confidentiality, cells containing fewer than five (0-4) households are not reported (NR).

Table 3 Percent of Participating Households^a Reporting Food Insecurity and Very Low Food Security by WIC Project, 2012 and 2007

WIC Project	2012			2007		
	Households ^a	Food Insecurity	Very Low Food Security	Households ^a	Food Insecurity	Very Low Food Security
	n	%	%	n	%	%
Statewide	17121	54	21	19582	51	20
1	262	60	26	205	55	20
2	748	59	24	1293	58	21
3	129	41	12	192	37	12
4	226	50	23	283	45	17
5	479	52	21	561	56	22
7	241	55	20	263	46	16
8	224	54	26	172	55	24
9	248	52	28	277	51	21
10	90	53	17	90	50	23
11	599	54	21	668	61	24
12	148	58	25	185	54	22
13	406	57	20	217	44	15
14	428	55	25	504	53	23
15	800	55	20	855	47	17
16	176	53	22	335	51	22
17	230	49	23	189	46	22
18	73	48	18	64	52	22
19	121	50	21	83	35	14
20	157	59	20	171	54	23
21	260	45	19	206	40	17
22	494	55	22	495	48	20
23	282	53	23	285	55	26
24	175	45	16	185	48	24
25	106	56	19	92	41	15
26	104	52	18	126	40	18
27	463	68	31	445	54	23
28	221	47	18	207	53	17
29	418	61	24	419	59	26
30	34 ^b	68	32	59	42	14
31	196	58	25	429	57	21
32	145	49	21	187	56	29
33	161	60	24	100	50	18
34	206	57	24	110	55	19
35	682	52	16	902	51	16
36	390	52	18	431	52	19
37	281	52	15	225	54	19
38	371	55	20	243	60	25
39	61	52	21	56	46	20
40	493	53	23	530	45	15
41	142	47	21	150	43	22
42	186	51	21	262	42	20

WIC Project	2012			2007		
	Households ^a	Food Insecurity	Very Low Food Security	Households ^a	Food Insecurity	Very Low Food Security
	n	%	%	n	%	%
43	132	45	20	46 ^b	41	13
44	222	53	23	509	58	23
45	335	59	26	364	47	20
46	10 ^b	70	NR ^b	21 ^b	24	NR ^b
47	46 ^b	46	24	36 ^b	17	NR ^b
48	54	57	20	97	48	21
49	57	42	16	58	29	NR ^b
50	134	49	16	135	47	19
51	302	59	29	276	50	20
52	487	51	19	589	54	25
53	397	59	23	1208	58	24
56	87	48	18	89	43	9
57	173	57	28	289	54	22
58	103	45	14	114	46	17
59	62	48	19	99	37	16
60	119	50	15	133	44	11
61	50	50	12	69	45	13
62	170	51	21	371	46	17
63	793	51	21	885	48	19
65	123	57	24	120	53	18
66	157	59	24	54	48	9
67	96	52	24	253	48	18
68	189	54	18	170	51	16
69	138	67	28	144	54	17
71	198	51	23	169	34	10
72	154	42	20	170	28	8
73	99	45	15	122	49	21
74	245	44	21	73	44	8
75	226	40	19	168	45	19
76	107	61	30	N/A	N/A	N/A

^a The number of households represents the number of (unduplicated) WIC families that visited a WIC project during the survey recruitment period and completed at least two survey questions.

^b Estimates of percent food insecurity and percent very low food security are likely to be less reliable if they are based on small numbers (e.g. less than 50 households). To protect confidentiality, cells containing fewer than five (0-4) households are not reported (NR). A rate that is not applicable for a given year (e.g., non-existent project) is labeled as N/A.

Table 4 Percent of Participating WIC Households^a Reporting Food Insecurity and Very Low Food Security by County of Residence^b, 2012 and 2007

County of Residence ^b	2012			2007		
	Households ^a	Food Insecurity	Very Low Food Security	Households ^a	Food Insecurity	Very Low Food Security
	n	%	%	n	%	%
Statewide	17121	54	21	19582	51	20
Unknown county ^b	0	--	--	1	NR ^c	NR ^c
Adams	85	42	18	75	45	20
Ashland	128	50	23	122	36	12
Barron	233	49	19	208	52	17
Bayfield	74	54	30	64	31	9
Brown	864	59	24	1415	58	21
Buffalo	41 ^c	59	17	39 ^c	62	23
Burnett	64	66	22	90	47	19
Calumet	148	59	24	70	50	19
Chippewa	308	53	23	309	53	26
Clark	118	50	18	135	45	10
Columbia	141	48	21	181	56	30
Crawford	53	51	25	66	44	11
Dane	408	59	23	1198	59	24
Dodge	134	54	22	284	48	19
Door	116	51	22	81	35	14
Douglas	244	52	28	271	51	20
Dunn	166	59	22	189	54	25
Eau Claire	454	54	21	455	48	21
Florence	11 ^c	64	NR ^c	21 ^c	24	NR ^c
Fond du Lac	417	56	25	478	53	22
Forest	64	45	23	55	24	NR ^c
Grant	198	49	22	176	37	10
Green	93	47	16	113	48	19
Green Lake	76	46	20	62	44	18
Iowa	85	56	15	84	49	20
Iron	25 ^c	32	NR ^c	17 ^c	NR ^c	NR ^c
Jackson	108	45	19	67	52	24
Jefferson	255	52	15	204	56	21
Juneau	158	49	21	125	41	18
Kenosha	785	55	20	842	48	16
Kewaunee	55	49	13	67	43	15
LaCrosse	176	54	22	337	50	22
Lafayette	47 ^c	53	11	40 ^c	23	NR ^c
Langlade	76	54	14	21 ^c	33	NR ^c
Lincoln	53	51	13	42 ^c	31	12
Manitowoc	341	60	26	350	47	20
Marathon	286	58	22	171	49	15
Marinette	184	52	21	262	42	20

County of Residence ^b	2012			2007		
	Households ^a	Food Insecurity	Very Low Food Security	Households ^a	Food Insecurity	Very Low Food Security
	n	%	%	n	%	%
Marquette	60	70	33	33 ^c	64	27
Menominee	109	39	12	158	38	13
Milwaukee	3159	51	20	3451	50	19
Monroe	182	42	15	196	47	21
Oconto	142	48	16	137	50	20
Oneida	140	49	21	144	44	24
Outagamie	613	54	21	686	60	23
Ozaukee	109	61	30	107	45	14
Pepin	23 ^c	43	NR ^c	24 ^c	38	NR ^c
Pierce	163	55	19	166	52	17
Polk	139	65	27	150	54	17
Portage	221	50	23	196	45	21
Price	87	54	21	79	42	19
Racine	754	51	22	626	45	15
Richland	60	60	28	70	44	19
Rock	376	54	20	258	61	25
Rusk	62	50	21	96	34	15
Saint Croix	217	57	24	413	58	21
Sauk	183	56	27	313	56	22
Sawyer	81	47	19	61	30	8
Shawano	178	44	16	127	39	17
Sheboygan	226	53	25	520	57	23
Taylor	86	53	17	85	47	20
Trempealeau	111	52	19	125	41	16
Vernon	87	47	17	91	46	11
Vilas	109	69	32	174	53	18
Walworth	412	61	23	425	59	27
Washburn	100	44	13	115	46	18
Washington	157	48	18	267	47	17
Waukesha	485	53	21	544	56	23
Waupaca	128	59	25	119	53	18
Waushara	97	48	25	81	57	22
Winnebago	486	66	31	479	53	22
Wood	307	58	28	279	51	21

^a The number of households represents the number of (unduplicated) WIC families that visited a WIC project during the survey recruitment period and completed at least two survey questions.

^b Physical address was used to establish county of residence. Mailing address was used for households that did not have an available physical address.

^c Estimates of percent food insecurity and percent very low food security are likely to be less reliable if they are based on small numbers (e.g. less than 50 households). To protect confidentiality, cells containing fewer than five (0-4) households are not reported (NR). A rate that is not applicable for a given year is labeled as such (N/A).