Mean number of hours of care per week

Per client, the sum of hours spent was divided by the duration of the episode, which resulted in the mean number of hours of care per week. The mean, of these mean numbers of hours, for all clients was 8 (SD 12.4), while the median was 4.2 (IQR 2.4-7.8). Results per client profile are shown in Table 10. There is a large difference between groups, ranging from 12.8 hours of care per week for palliative care clients to 2.5 hours of care per week for clients with the profile 'other'. All profiles with the client type characteristic 'palliative care client', belong to the top four profiles with the highest mean number of hours of care per week. These profiles are followed by all four profiles with 'dementing elderly' as a characteristic.

There is a large difference between the mean (of the 'mean number of hours of care per week') for all clients 'currently in care' and the mean for all clients with completed episodes. An explanation can be found in the fact that the prevalence of clients who receive a high number of hours of care per week, such as palliative care clients, is much higher in the group of clients with completed episodes. These differences were explained in pararaph 4.3 (p. 25).

FIGURE 12 MEAN NUMBER OF HOURS OF CARE PER WEEK

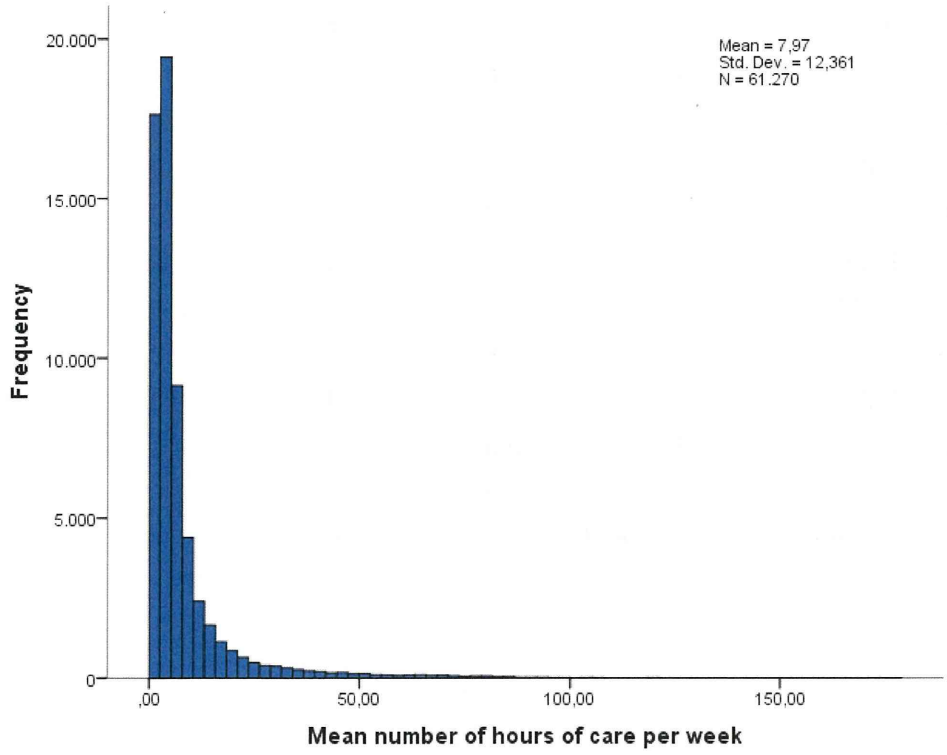

TABLE 10 MEAN NUMBER OF HOURS OF CARE, SUMMARY

Mean number of hours of care per week							
		mean	SD	median	Interquartile range (IQR)		
					25%	75%	95%
ALL CLIENTS							
	(N = 61270)	8.0	12.4	4.2	2.4	7.8	29.3
CLIENTS CURRENTLY IN CARE							
	(N = 14966)	4.8	6.1	3.5	2.0	5.8	11.9
CLIENTS WITH COMPLETED EPISODES							
	(N = 46304)	9.0	13.6	4.5	2.5	8.9	34.7
ALL CLIENTS PER RELEVANT CLIENT PROFILE							
p	(N = 10983)	19.9	20.5	12.8	6.4	25.6	64.2
ph	(N = 1682)	18.9	20.7	11.4	5.7	23.1	67.7
pc	(N = 932)	15.1	18.3	9.4	4.8	18.0	49.8
pf	(N = 666)	15.4	18.3	9.4	5.0	18.5	50.6
R	(N = 2323)	8.9	12.0	5.4	3.0	9.9	38.7
fdc	(N = 743)	5.7	4.4	4.9	3.0	7.2	14.3
dc	(N = 792)	5.3	4.1	4.4	2.4	7.2	14.6
d	(N = 4761)	5.2	4.6	4.2	2.4	6.9	12.9
fd	(N = 1713)	5.0	3.9	4.1	2.4	6.5	12.6
hfc	(N = 714)	5.1	4.0	4.1	2.4	6.5	13.2
hc	(N = 1564)	4.8	4.8	3.9	2.3	6.0	12.3
hf	(N = 1120)	4.5	3.3	3.8	2.3	5.7	11.5
h	(N = 13599)	4.1	3.7	3.5	2.3	5.1	8.5
fc	(N = 3621)	4.4	4.0	3.4	2.0	5.6	12.3
c	(N = 7055)	4.3	4.2	3.1	1.8	5.2	11.2
f	(N = 8029)	3.7	3.3	2.9	1.8	4.7	9.6
o	(N = 973)	3.2	5.8	2.5	1.6	3.6	6.7

c = chronically ill clients, d = dementing elderly, f = frail elderly, h = hospital discharged, o = other, p = palliative care clients, R = rare combinations

Comparison of groups on a statistical level, using log transformed data to correct for outliers, shows that many groups differ significantly from each other on mean number of hours of care (Appendix D, Table 38). Thirteen homogenous subsets were defined based on significance testing. These tests are on differences between means. The tables on subsets however show medians of the profile because these are more informative. Results show that there is overlap with other groups, considering all medians and IQR values. Profile 'o' in the first subset has a median of 2.5 and IQR of 1.6–3.6 / 6.7 (for 25%-75% / 95% of clients). Mean numbers of hours of care of 2.5 however are also found in profile 'p', which is in the last subset.

Examples of interpretation of the table are:

- Profile 'o' differs from all others, as do 'f' and 'c' and 'R'.
- Profile 'd' does not differ from 'dc', 'fd', 'hc', or 'hfc', but it does from all others.

TABLE 11 HOMOGENOUS SUBSETS FOR MEAN NUMBER OF HOURS OF CARE PER WEEK

Homogenous subsets for Mean number of hours of care per week													
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
o	(N = 973)	**2.5**												
f	(N = 8029)		**2.9**											
c	(N = 7055)			**3.1**										
fc	(N = 3621)				**3.4**	3.4								
h	(N = 13599)				3.5	**3.5**	3.5							
hf	(N = 1120)					3.8	**3.8**	3.8						
hc	(N = 1564)						3.9	**3.9**	3.9	3.9				
fd	(N = 1713)						4.1	**4.1**	4.1	4.1				
hfc	(N = 714)						4.1	**4.1**	4.1	4.1				
d	(N = 4761)							4.2	**4.2**	4.2				
dc	(N = 792)							4.4	4.4	**4.4**	4.4			
fdc	(N = 743)									4.9	**4.9**			
R	(N = 2323)											**5.4**		
pc	(N = 932)												**9.4**	
pf	(N = 666)												**9.4**	
ph	(N = 1682)													**11.4**
p	(N = 10983)													**12.8**

c = chronically ill clients, d = dementing elderly, f = frail elderly, h = hospital discharged, o = other, p = palliative care clients, R = rare combinations
Bold values indicate the reference profile in the subset. A reference profile is the profile to which others were compared pairwise.

4.5.3 Number of visits

The total number of visits and the mean number of visits per week were analyzed. The total number of visits can only be calculated for clients with completed episodes. The mean number of visits was analyzed for both clients in care and clients with completed episodes. Per client, the sum of visits was divided by the duration of the episode in weeks resulting in the mean number of visits per week. Both total number of visits and mean number of visits per week could only be calculated for clients who had not received any care from third parties since their number of visits were not all documented.

The total number of visits showed highly skewed distributions (Figure 13). This was the case for all relevant client profiles, which all showed similar patterns. The mean number of visits per week showed skewed distributions as well, although less extreme (Figure 14). Therefore, tables show the median and the interquartile range, as well as the 95th percentile, as more accurate representation of the data.

Total number of visits

The mean of the total number of visits for all clients was 139 (SD 361), while the median was 36 (IQR 14-98). Results per client profile are shown in Table 12. There is a large difference between groups, ranging from a median of 205 visits for the profile 'frail elderly, dementing and chronically ill', to a median of 17 visits for the profile 'other'. All profiles with the client type characteristic 'dementing elderly' belong to the top four profiles with highest total. The group of clients with the profile dementing elderly, chronically ill and frail elderly is the group with an exceptionally high total number of visits. The results also show that clients with the single characteristic other, frail elderly, discharged from hospital, palliative care and chronically ill clients, receive the lowest total number of visits.

FIGURE 13 TOTAL NUMBER OF VISITS (EXCL. 3RD PARTY)

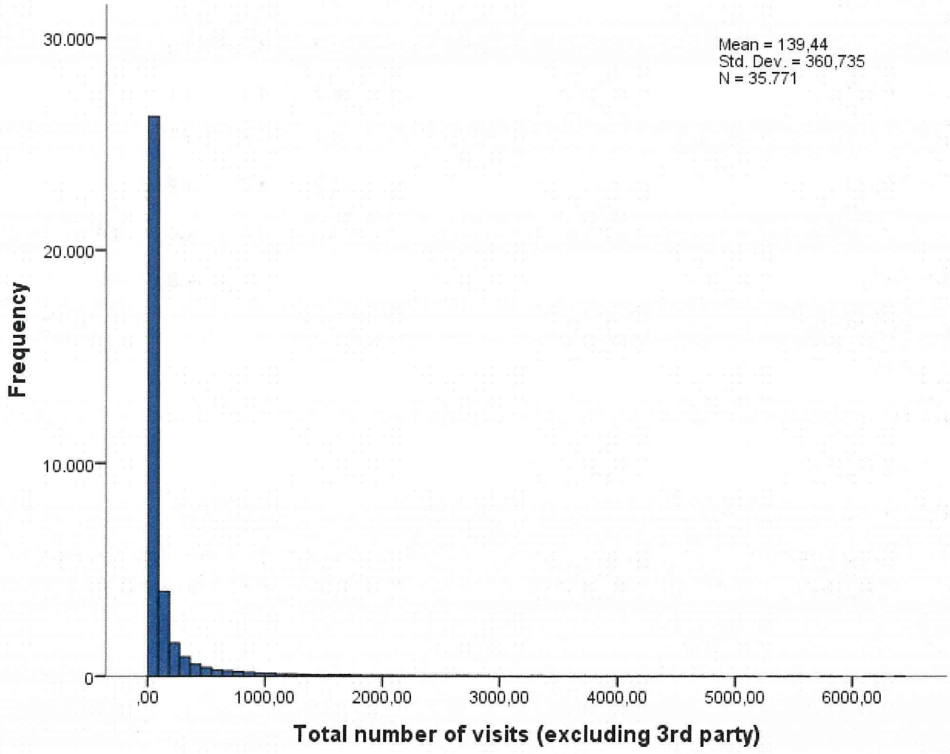

TABLE 12 TOTAL NUMBER OF VISITS (EXCL. 3RD PARTY), SUMMARY

Total number of visits (excl. 3rd party)							
		mean	SD	median	Interquartile range (IQR)		
					25%	75%	95%
ALL CLIENTS WITH COMPLETED EPISODES							
	(N = 35771)	139	361	36	14	98	640
ALL CLIENTS WITH COMPLETED EPISODES -- PER RELEVANT CLIENT PROFILE							
fdc	(N = 139)	701	1095	205	60	887	2994
dc	(N = 167)	552	946	159	51	551	2810
fd	(N = 673)	407	572	159	43	554	1677
d	(N = 2738)	359	553	154	40	456	1420
pf	(N = 346)	299	498	108	39	322	1176
fc	(N = 840)	393	700	85	20	421	1858
pc	(N = 444)	255	513	77	30	224	1077
R	(N = 836)	349	745	75	23	314	1684
ph	(N = 1031)	121	180	59	22	137	467
hfc	(N = 196)	179	309	53	18	148	926
hf	(N = 653)	101	255	42	18	90	345
hc	(N = 457)	107	208	38	15	93	511
c	(N = 3738)	162	404	32	11	109	841
p	(N = 6643)	89	222	32	13	78	322
h	(N = 10931)	53	94	30	13	60	162
f	(N = 5313)	118	327	29	12	85	514
o	(N = 616)	43	192	17	8	35	130

c = chronically ill clients, d = dementing elderly, f = frail elderly, h = hospital discharged, o = other, p = palliative care clients, R = rare combinations

Comparison of groups on a statistical level, using log transformed data to correct for outliers, shows that many groups differ significantly from eachother on total number of visits (Appendix D, Table 39). Twelve homogenous subsets were defined based on significance testing. These tests are on differences between means. The tables on subsets however show medians of the profile because these are more informative. Results show that there is overlap with other groups, considering all medians and IQR values. Profile 'o' in the first subset has a median of 16.5 and IQR of 8–35 / 130 visits (for 25%-75% / 95% of clients). Total numbers of visits of 130 however are also found in profile 'fdc', which is in the last subset.

Examples of interpretation of the table are:

- Profile 'o' differs from all others, as does 'h'.
- Profile 'p' does not differ from 'f' or 'hc', but it does from all others.

TABLE 13 HOMOGENOUS SUBSETS FOR TOTAL NUMBER OF VISITS (EXCLUDING 3RD PARTY)

Homogenous subsets for Total number of visits (excluding 3rd party)												
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
o	(N = 616)	**17**											
h	(N = 10931)		**30**										
p	(N = 6643)			**32**	32		32						
f	(N = 5323)			29	**29**	29	29						
c	(N = 3738)				32	**32**	32	32	32				
hc	(N = 457)			38	38	38	**38**	38	38				
hf	(N = 653)					42	42	**42**	42				
hfc	(N = 196)					53	53	53	**53**	53	53		
ph	(N = 1031)								59	**59**			
R	(N = 836)								75		**75**	75	
pc	(N = 444)								77		**77**	77	
fc	(N = 840)								85		**85**	85	
pf	(N = 346)										108	**108**	108
d	(N = 2738)											154	**154**
fd	(N = 673)											159	**159**
dc	(N = 167)											159	**159**
fdc	(N = 139)											205	**205**

c = chronically ill clients, d = dementing elderly, f = frail elderly, h = hospital discharged, o = other, p = palliative care clients, R = rare combinations
Bold values indicate the reference profile in the subset. A reference profile is the profile to which others were compared pairwise.

Mean number of visits per week

For each client, the sum of visits was divided by the duration of the episode which resulted in the mean number of visits per week. The mean, of this mean number of visits, for all clients was 9 (SD 6.7), while the median was 7.3 (IQR 4.1-12.3). Results per client profile are shown in Table 14. There is a large difference between groups. Numbers range from a median of 12 visits per week for palliative care clients who were also discharged from hospital, to 5 visits per week for clients with the profile 'other'. All profiles with the client type characteristic 'palliative care client', belong to the top five profiles with highest mean number of visits per week.

FIGURE 14 MEAN NUMBER OF VISITS PER WEEK

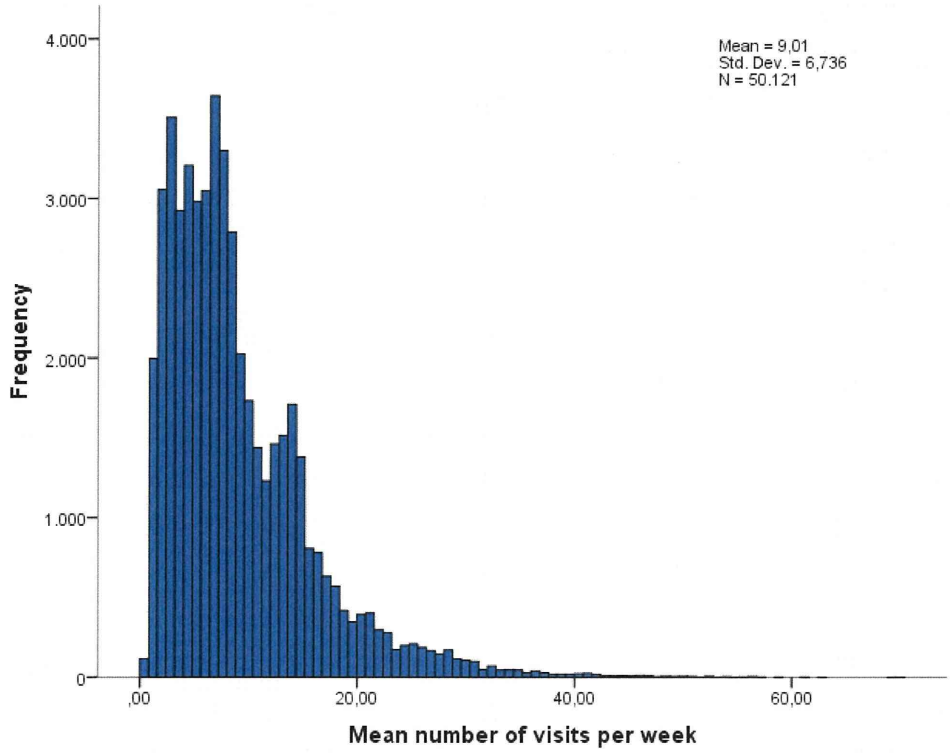

TABLE 14 MEAN NUMBER OF VISITS, SUMMARY

Mean number of visits per week							
		Mean	SD	Median	Interquartile range (IQR)		
					25%	75%	95%
ALL CLIENTS							
	(N = 50122)	9.0	6.7	7.3	4.1	12.3	22.1
CLIENTS CURRENTLY IN CARE							
	(N = 14350)	8.8	6.4	7.3	3.7	12.9	20.8
CLIENTS WITH COMPLETED EPISODES							
	(N = 35771)	9.0	6.9	7.3	4.3	12.0	22.8
ALL CLIENTS PER RELEVANT CLIENT PROFILE							
ph	(N = 1190)	14.3	10.0	11.7	7.0	19.2	35
p	(N = 6984)	12.8	9.1	10.5	6.0	17.5	30.7
fdc	(N = 630)	11.2	6.9	10.3	6.0	15	21.5
pc	(N = 614)	13.0	9.6	10.3	5.4	18.0	32.3
pf	(N = 395)	12.8	8.9	10.3	6.2	17.6	31
dc	(N = 653)	9.9	6.8	8.4	4.0	14.5	21.5
fd	(N = 1320)	9.4	6.2	8.3	4.4	13.5	21.4
R	(N = 1851)	10.6	7.9	8.3	4.9	14.4	28.2
hfc	(N = 665)	9.3	6.0	8.0	4.5	13.6	20.1
hf	(N = 1011)	8.8	5.5	7.7	4.6	12	18.7
d	(N = 3546)	9.1	6.4	7.6	3.9	13.4	21.3
fc	(N = 3268)	8.5	6.0	7.2	3.5	12.8	20.5
hc	(N = 1468)	8.6	5.8	7.2	4.2	11.9	16.5
h	(N = 12364)	7.7	4.5	7.0	4.5	9.8	15.4
c	(N = 6226)	7.4	5.7	6.1	3.2	10.0	17.0
f	(N = 7030)	7.4	5.3	6.0	3.3	10.1	17.5
o	(N = 906)	6.1	4.4	5.0	3.0	7.6	14.6

c = chronically ill clients, d = dementing elderly, f = frail elderly, h = hospital discharged, o = other, p = palliative care clients, R = rare combinations

Comparison of groups on a statistical level, using log transformed data to correct for outliers, shows that many groups differ significantly from each other on number of visits per week (Appendix D, Table 40). Eleven homogenous subsets were defined based on significance testing. These tests are on differences between means. The tables on subsets however show medians of the profile because these are more informative. Results show that there is overlap with other groups, considering all medians and IQR values. Profile 'o' in the first subset has a median of 5 and IQR of 3–7.6 / 14.6 visits per week (for 25%-75% / 95% of clients). Mean numbers of visits of 14.6 however, are also found in profile 'ph', which is in the last subset. Examples of interpretation of the table are:

- Profile 'o' differs from all others.
- Profile 'fc' does not differ from 'd' or 'h' or 'hc', but it does from all others.

TABLE 15 HOMOGENOUS SUBSETS FOR MEAN NUMBER OF VISITS PER WEEK

Homogenous subsets for Mean number of visits per week

		1	2	3	4	5	6	7	8	9	10	11
o	(N = 906)	**5.0**										
c	(N = 6226)		**6.1**									
f	(N = 7030)		**6.0**									
fc	(N = 3268)			**7.2**	7.2							
h	(N = 12364)			**7.0**	7.0							
d	(N = 3546)			7.6	**7.6**	7.6	7.6					
hc	(N = 1468)			7.2	**7.2**	7.2	7.2					
hf	(N = 1011)				7.7	**7.7**	7.7					
fd	(N = 1320)				8.3	8.3	**8.3**	8.3				
hfc	(N = 665)				8.0	8.0	**8.0**	8.0				
dc	(N = 653)				8.4	8.4	**8.4**	8.4				
R	(N = 1851)						8.3	**8.3**	8.3			
fdc	(N = 630)							10.3	**10.3**	10.3	10.3	
pc	(N = 614)								10.3	**10.3**	10.3	10.3
p	(N = 6984)								10.3	10.3	**10.3**	
pf	(N = 395)								10.3	**10.3**	10.3	10.3
ph	(N = 1190)									11.7		**11.7**

c = chronically ill clients, d = dementing elderly, f = frail elderly, h = hospital discharged, o = other, p = palliative care clients, R = rare combinations
Bold values indicate the reference profile in the subset. A reference profile is the profile to which others were compared pairwise.

5 DISCUSSION

Key findings

Results of this study show a detailed picture of a large sample of the Dutch home health care population. One of the most typical findings is the highly skewed distribution in all outcomes related to the amount of care needed. This means that all outcomes are strongly influenced by extreme outliers. Also typical is that all subgroups, or client profiles, showed similar patterns. Any studies on this subject should check for distributions on outcomes related to the amount of care. In case of outliers, data should be represented in other ways than with means only and calculations should correct for outliers.

An important finding is that categorization by client profiles, based on client types such as 'palliative care client' or 'dementing elderly', leads to very distinctive and relevant categories when analyzing clients' needs. Most groups differ significantly from each other in the amount of care needed. Groups also differ in prevalence of problems and signs and symptoms. Categorization based on client problems or signs and symptoms does not seem feasible due to the extremely large number of unique combinations of these characteristics and the small number of clients in each combination. Any studies on this subject should correct for differences in the prevalence of client types in home health care population samples. These should be acceptable in numbers in order to remain relevant and distinctive.

Another important finding is that the prevalence of relevant client profiles is very different for the population that still receives care as opposed to the population with completed care episodes. Palliative care clients are for example over 10 times more prevalent in the group of clients who no longer receive care, than in the group of clients still receiving care. This means that these prevalence numbers in data samples depend highly on the amount of historical data collected and data on completed care episodes. The less historical data collected, the less prevalence numbers are a true reflection of the home health care population sample. Therefore, any study on outcomes related to prevalence of profiles should take this into account.

Other findings

Other findings are that the Omaha System offers a set of terms that were highly applicable to this population, because nearly all available problems and signs and symptoms were used for documentation. However, each set of signs and symptoms per actual problem offers the option 'other'. This option was commonly used. This could suggest that nurses did not find the terms needed to articulate the issues they wanted to document in the standard set. It could also mean they merely chose this option to indicate that they described their findings in other words and / or in more detail in free text. This text box was offered immediately below the option 'other' in the software. Analyses of free text was not performed in this study.