

## RESEARCH ARTICLE

# Factors associated with aggressive behaviour in persons with cognitive impairments using home care services: A retrospective cross-sectional study

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**Funding information**

The article is funded by the Nursing Science Foundation Switzerland and by the Network for Aggression Management in Health and Social care institutions in Switzerland (NAGS). The Foundation was not involved in planning, execution and reporting of the study

**Abstract**

**Aim:** This study aimed to investigate the frequency of documented aggression, on the part of cognitively impaired individuals, against health professionals in home care services and to highlight related factors.

**Design:** A retrospective cross-sectional study was conducted using data obtained from the nursing documentation of six home care service organizations in Switzerland.

**Methods:** We analysed the nursing documentation of 1,186 clients in six home care services, between July 2019–September 2019, using the Cohen-Mansfield Agitation Inventory. We conducted a factor analysis as well as a descriptive data analysis and logistic regression using IBM SPSS Statistics.

**Results:** A factor analysis revealed in five factors, of which three represented aggressive behaviour in the sample. These factors were physically aggressive behaviour, verbally aggressive behaviour and importunate behaviour. Aggressive incidents, documented in the nursing records of 14.7% of clients in our sample, tended to be associated with cognitive, communication and mobility difficulties.

**Impact statement**

- This retrospective cross-sectional survey gives an overview of the frequency and forms of documented aggressive behaviour on the part of persons with cognitive impairments towards health professionals in home care services.
- One of the motivating factors for this study was the awareness that aggressive behaviour on the part of clients may stress health professionals in various ways which in turn may have an impact on the quality of care provided.
- The study revealed that healthcare specialists, rather than more qualified general or psychiatric nurses, were routinely assigned to assisting such clients and therefore specific educational and training interventions for these specific group of staff are indicated.

**KEYWORDS**

aggression, Alzheimer's disease, community health nursing, dementia, home care services

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## 1 | INTRODUCTION

Home care services are becoming increasingly important. This is a result of two factors: first, a growth in the population of elderly people; and second, the cost-effectiveness of home care compared with institutional care. In 2018, of the 367 378 persons receiving home care services in Switzerland, 60% were female and 70% of them were older than 65 years (Bundesamt für Statistik, 2018).

In the current study, home care is defined according to Genet et al. (2012): as “*care provided by professional carers within clients' own homes. Professional care that relieves informal caregivers (respite care) has also been considered*” (p. 9). One of the challenges in the home care setting is the aggressive behaviour of clients towards health professionals. This is especially the case with the care of persons suffering from some form of dementia (Schnelli et al., 2020). Dementia is one of the most important reasons for older people becoming dependent on the care of others (World Health Organization, 2019). Worldwide, approximately 50 million people are living with dementia (World Health Organisation, 2019) and around 60% of these individuals still live in their own homes (Carter, 2016).

During the progress of dementia, affected persons experience deficits in their cognitive and social abilities, a change in personality and a loss of autonomy (Gagesch et al., 2010). Awareness of these changes may lead to frustration, depressive symptoms and social isolation—especially at the beginning of the deterioration process (Fauth & Gibbons, 2014). Anosognosia, in contrast, often makes it difficult for persons with dementia to develop appropriate coping strategies for dealing with their disease. This also makes it unlikely that they will accept external help (Savaskan et al., 2014). With the course of dementia, changes in perception, communication skills and social cognition lead to people experiencing difficulties with expressing their needs (Algase et al., 1996; Hanson et al., 2015; James & Jackman, 2017). This, in turn, leads to unmet needs, negative emotions and a tendency to refuse external help. Persons with dementia often express these issues in their behaviour—because acting out their feelings remains their only way of expressing themselves (Cohen-Mansfield, 2008; Cohen-Mansfield et al., 1989). As a result, behavioural symptoms, including aggressive behaviours, are a common phenomenon (Yu et al., 2019). One of the most frequent and most distressing behavioural symptoms in such persons is agitation, often associated with aggressive behaviour, which is the subject of this study (Fauth & Gibbons, 2014).

Cohen-Mansfield (2008) mentions behavioural symptoms in the context of dementia and uses the term “agitated behaviours.” However, she distinguishes, in this regard, between aggressive and non-aggressive behaviours. Aggressive behaviours, for example, are hitting, biting or cursing at the caregiver. Examples of non-aggressive agitated behaviours include general restlessness, repetitious mannerisms or pacing. The German version of the Cohen-Mansfield Agitation Inventory (CMAI) is often used in nursing homes (Majić et al., 2012). It may be assumed that the

CMAI items manifest differently depending on whether the context is the home care setting or the inpatient setting. Hence, the construct “aggressive behaviours,” assessed by the inventory, presents in other ways in the home care setting. This could be, for example, due to the fact that environmental factors, such as limitations on walking away, opportunities for gathering, hoarding, using items inappropriately, or risks for self-endangering, are very different in the domestic setting and more difficult to control. The length of time that clients spend alone in home care settings is also different. Their needs may, therefore, also differ from those of persons in inpatient settings. Another central difference is that the basis for the nursing relationship is different. In home care settings, the health professionals are “visiting” the home of the clients, while in an inpatient setting the care recipient is in the domain of the health professional (Schnelli et al., 2020). It is, therefore, necessary to demarcate the construct “aggressive behaviour” in the home care setting.

This study is based on Steinert (1995) understanding of aggressive behaviour, and it is supplemented with descriptions of aggression according to McKenna (2004). According to these definitions, it is considered that aggressive behaviour is present when a person feels threatened, attacked or injured. Aggression is thus dependent on a subjective assessment of the situation by the affected person (Choi et al., 2017; Edward et al., 2014).

The consequences of healthcare providers experiencing aggressive behaviour may be stress, post-traumatic stress disorder, neglect of care recipients or a disturbance of the nursing relationship. Additional possible consequences are shortened visits; care neglect, for example leaving a person with dementia in soiled clothes; and the health professional's fear of the person (Schnelli et al., 2020).

In contrast to the home care setting, aggressive and related behaviours of persons with dementia are well researched in long-term care facilities (Li et al., 2020). For example, Björk et al. (2016), in a cross-sectional study, assessed that 92.0% of the residents in nursing homes had neuropsychiatric symptoms (which included aggressive behaviours). This was significantly more prevalent in persons with dementia (Björk et al., 2016). The review of Holst and Skär (2017) indicated that in the experience of formal caregivers, triggers for aggressive behaviour in persons with dementia included somatic diseases and the perception of the person with dementia that the caregiver either treated him or her roughly or did not understand the situation. Close-body activities, such as support with personal hygiene, may act as further triggers for aggressive behaviour in such persons (Holst & Skär, 2017).

From the health professionals' point of view, aggressive behaviour occurs frequently in the professional care of persons with dementia in their home (Schnelli et al., 2020). In our survey with health professionals in 2019 (manuscript under review), we found that 78.9% ( $N = 852$ ) experienced aggressive behaviour during their work in a home care service. More than half of the surveyed health professionals (54.7%,  $N = 466$ ) had experienced aggression within the last 12 months and 11% ( $N = 94$ ) had experienced aggression

within the last 7 working days. In 71.3% ( $N = 67$ ) of the reported aggressive behaviours, the perpetrating client had impaired cognitive abilities and in 54.3% ( $N = 51$ ) the perpetrator had dementia on their diagnosis list (manuscript under review). An additional result in our survey was that health professionals used the written nursing report to document aggressive incidents. However, a comparison of the actual experienced aggression of health professionals and the frequency of mentioned aggressive incidents in the nursing report is not available at this time.

To broaden the picture of the occurrence of aggressive incidents in the home care setting with the focus on persons with dementia or impairments in cognitive abilities, it is necessary to consider as many information sources as possible. This is the reason why nursing documentation is the information source in this study.

Research to verify the percentage of persons with restrictions in their cognitive abilities, specifically dementia, who are cared for by home care services and who exhibit aggressive behaviour, is not available currently. Neither is research available on factors associated with such behaviour. The available information on aggressive behaviours in home care services is predominantly based on the reports in questionnaires of experienced aggression by nurses. For the purposes of data triangulation, which might broaden the view on this phenomenon, it was, therefore, necessary to consider another source of information on aggressive behaviours, namely nursing documentation. Considering different perspectives on the phenomenon may help one to obtain a systematic overview of the occurrence of cognitive impairment and its sequelae in clients of home care services.

This research, therefore, aimed to investigate: (a) the frequency of documented aggressive behaviour in persons with impairment in cognitive abilities and dementia; (b) associated factors; and (c) the exploration of the construct of the phenomenon of aggressive behaviour in the home care setting. The following research questions guided our study:

- How often is aggressive behaviour against health professionals in home care services on the part of clients with cognitive impairment or dementia mentioned in nursing documentation and what are its associated factors?
- How is the construct of aggressive behaviour in the home care setting presented?

## 1.1 | Aims

The aims of this study were to identify the frequency of aggressive behaviour on the part of clients with cognitive impairments or dementia and the associated factors of such incidents, mentioned in the nursing documentation. A further aim was to explore the construct of aggressive behaviour in the home care setting. The purpose

of this investigation was to gain further knowledge of this phenomenon by means of considering a new information source.

## 2 | METHODS

### 2.1 | Design

We conducted a retrospective cross-sectional study between July–September 2019 on aggressive behaviour against health professionals in home care services in Switzerland. As a reporting guideline, we used the Strengthening the Reporting of Observational Studies in Epidemiology Checklist (STROBE) for cross-sectional studies (File S1) (von Elm et al., 2007).

### 2.2 | Sample and setting

In Switzerland, around 2'200 home care services (27% of them are non-profit organizations, the rest are for profit organizations or independent working nursing professionals) provide professional care for more than 370,000 clients (Bundesamt für Statistik, 2018). 79.9% of these clients are cared for by non-profit organizations. (Bundesamt für Statistik, 2018). For the recruitment of the home care services, we used a convenience sampling method. We presented the research project at meetings of the home care service association and distributed information on the project in our professional network. Six home care services agreed to participate, and all of them were included. They were in the German-speaking part of Switzerland, and all of them cared exclusively for adult persons. We retrospectively collected data from a total of 1,182 documentations of 1,182 clients seeking services from one of the six recruited non-profit home care services. In four institutions, we conducted a complete survey. In one institution, we surveyed one of three bases. In one institution, we surveyed three of 16 bases. A base is a location from where the home care service operates to look after the clients in the areas nearby. We included the documentation of all active clients of the institution (or the included base) who received home care for at least two months. We only excluded clients who received home care for less than two months, because there was not enough information available in these clients' reports to gather the data needed for the study.

### 2.3 | Variables and measurement

The occurrence of aggressive behaviour was our main interest. Potentially related factors were demographic (e.g. age, gender), intervention-related (e.g. conducted nursing interventions, staff qualifications) and clinical (e.g. diagnosis, level of dependency, restrictions) factors. According to the Resident Assessment Instrument–Minimum Data Set [RAI-MDS], impairment in cognitive abilities—an important related factor that we assessed—is

present in clients with problems in memory, restricted abilities in daily decision-making, fluctuations in thought or consciousness or acute changes in cognitive abilities.

We used the 29-item CMAI German version (Opplikofer, 2008) to assess items of aggressive and non-aggressive behaviours. In the CMAI, challenging behaviours are measured on a seven-point Likert scale (*never* = 1 to *several times an hour* = 7) (Cohen-Mansfield et al., 1989).

The CMAI is one of the most frequently used instruments for the assessment of challenging behaviours in long-term care settings. It was developed by Cohen-Mansfield et al. (1989) for use in long-term care institutions and has a high internal consistency (Cronbach's alpha 0.86–0.91) and good construct validity (Cohen-Mansfield et al., 1989; Majić et al., 2012; Rabinowitz et al., 2005). Majić et al. (2012) performed a factor analysis with the German version of the CMAI in Germany and were able to identify the following five factors in a nursing home sample: physically aggressive behaviour (25.4% explained variance), physically non-aggressive behaviour (8% explained variance), verbally agitated behaviour (6.8% explained variance), hiding and hoarding (5.4% explained variance) and inappropriate sexual behaviour (4.8% explained variance). No factor analysis for the construct of aggressive behaviour in the home care setting was available for the German version of the CMAI.

## 2.4 | Data collection

Data were retrospectively collected for the preceding eight weeks. The first author conducted the data collection together with a staff leader or clinical nursing specialist of the organization. This allowed the gathering of data to take place without the members of the research team having to make contact with clients.

The author and the staff leader or clinical nurse specialist from the organization went through the nursing documentation of all clients in the six home care services. Clinical and organizational data were collected by the main author in a structured interview with the staff leader or clinical nurse specialist following a structured form. All data were directly entered into Microsoft Excel version 2005. The client number was used as a pseudonym for the survey, combined with a three-digit letter code for the institution. This allowed the researchers to check on the data whether there were problems with the data file. The data set was completely encrypted and did not contain any personal or identifiable client information. Due to this procedure, no written informed consent was required from the clients. The measurement of associated factors is displayed in Table 1. This shows which data were collected and which source of the nursing documentation was used.

## 2.5 | Data analysis

All data were transferred to IBM SPSS version 25 and analysed using descriptive statistics (e.g. frequencies, percentages, mean values, medians, ranges) as appropriate. Bivariate relationships between aggressive behaviour and possible related factors (e.g. gender, restrictions, diagnoses and nursing interventions) were assessed by Fisher exact tests. For multiple-comparison control, we used the Bonferroni–Holm method (Holm, 1978). Additionally, logistic regression models were used to identify significant relationships with aggression. The variable selection was performed by backward selection based on likelihood ratios. The CMAI items were investigated using a factor analysis based on principal components with Varimax rotation. We determined the number of factors extracted based on

Data	Source in the nursing documentation
Age, gender	Master data
Diagnoses (delirium, dementia, addiction, depression, other psychiatric diagnoses)	Diagnoses list
Limitations of the care recipient (hearing, sight, mobility, cognition, communication, unclear/other, excretion)	Resident Assessment – Minimal Data Set [RAI-MDS]
Nursing intervention (body near, not body near)	Individual care plan
Nursing intervention (diagnostic interventions, counselling/conversation, personal hygiene, wound care, medication, support in household)	Individual care plan
Staff (nursing assistant, nurse, psychiatric nurse, health specialist <sup>3</sup> other (house care))	Staffing plan
Frequency of intervention (monthly, multiple times monthly, weekly, multiple times weekly, daily, multiple times daily)	Individual care plan
Cohen-Mansfield agitation Inventory	Written report on patient's care (of the last two months)

**TABLE 1** Data sources of measured associated factors of aggressive behaviour

<sup>3</sup>Health specialist: A three-year apprenticeship that ends with a diploma. The focus of this education is on basic care. A health specialist does not have the competences of a nurse.

the Kaiser criterion (eigenvalues greater than 1). The result was confirmed by a scree plot. The factor scores were calculated as mean scores. We investigated differences in factor scores dependent on sex, limitation in several abilities, diagnoses and nursing interventions, using the Wilcoxon tests. We used  $\alpha = 0.05$  as the level of significance, taking into account the correction, where necessary, according to the Bonferroni–Holm procedure.

## 2.6 | Ethical considerations

The study was reviewed and approved by the responsible ethical committee.

## 3 | RESULTS

### 3.1 | Description of included organizations

Characteristics of the six participating home care services are described in Table 2.

### 3.2 | Description of the sample

We analysed a total of 1,186 client documentations. Most of the clients received care from a health specialist (50.1%,  $N = 594$ ). A health specialist refers to an individual who has completed a three-year apprenticeship with a focus on basic care that ends with a diploma. A health specialist does not have the competencies of a nurse. Eleven per cent of clients (11.4%,  $N = 135$ ) received care from a nursing assistant, 10.5% ( $N = 125$ ) from a nurse and 8.2% ( $N = 97$ ) from a psychiatric nurse. The other 19.8% ( $N = 235$ ) received care from a

home caregiver or a trainee. The most frequent interventions were activities with personal hygiene (47.7%,  $N = 566$ ) and assistance with medication (48.7%,  $N = 577$ ), such as preparing medications in a weekly pillbox, checking the prepared medications or directly administering medication. In our sample, 35.3% ( $N = 419$ ) had support in their respective households and 29.8% ( $N = 354$ ) received diagnostic interventions (e.g. vital signs, blood sugar or weight measurement).

### 3.3 | Description of the group with impairment in cognitive abilities

Table 3 shows the differences in abilities, diagnoses, interventions, staffing and frequency of interventions associated with persons with cognitive impairments and those without cognitive impairments. We focused on persons with cognitive impairments because nearly all persons with dementia on their diagnosis list were included in this group. Due to an underdiagnosis of dementia in home care settings (Genet et al., 2011), we assumed that researching the documentation of clients with cognitive impairments would provide us with a more valid overview of the behaviours and responses examined.

It was found that people with cognitive impairments require a great deal of support with close-to-body care and personal hygiene. They need significantly less often support with wound care ( $p = .012$ ). Furthermore, persons suffering cognitive impairments have significantly more often limitations in all the surveyed abilities except mobility.

Health specialists are the staff members whom we found to be the most frequent caregivers of the cognitively impaired individuals in our sample. There was no significant difference in gender in the group of persons with cognitive limitations compared with the rest of the sample. However, the people with impairments had significantly

**TABLE 2** Characteristics of the home care services

Organization	Number of included clients	Characteristics
A	81	Agglomeration of a city (79,724 inhabitants), small institution (<150 clients), no clinical nursing specialist, all clients included
B	103	Rural area, small institution (<150 clients), clinical nurse specialist available, all clients included
C	444	Care recipients in rural areas as well as in a small city (30,200 inhabitants), large institution (>400 care recipients), clinical nurse specialist available, all clients included
D	211	Care recipients in urban area, large Institution (>500 clients) with 8 bases, clinical nurse specialist available, clients of 3 bases included
E	295	Medium-size institution ( $150 \leq x \leq 400$ clients), agglomeration and urban area, no clinical nurse specialist, all clients included
F	52	Medium-sized institution ( $150 \leq x \leq 400$ clients) with 3 bases, rural area, clinical nurse specialist available, clients of one base included

**TABLE 3** Characteristics of the sample and differences in persons with cognitive impairment

Section	Specification	Total 100% (n = 1,186)	Cognitive restricted 34.7% (n = 412)	Not cognitive restricted 65.3% (n = 774)	p
Gender	Female	64.8% (n = 768)	62.9% (n = 259)	65.8% (n = 509)	.338 <sup>a</sup>
Psychiatric diagnoses	Delirium	1.1% (n = 13)	2.2% (n = 9)	0.5% (n = 4)	.015 <sup>a</sup>
	Dementia	15.1 (n = 179)	38.6% (n = 159)	2.6% (n = 20)	.000 <sup>a</sup>
	Depression	12.2 (n = 145)	17.2% (n = 71)	9.6% (n = 74)	.000 <sup>a</sup>
	Other psychiatric diagnoses	11.0 (n = 131)	15.5% (n = 64)	8.7% (n = 67)	.000 <sup>a</sup>
	Addiction	6.3 (n = 755)	9.2% (n = 38)	4.8% (n = 37)	.004 <sup>a</sup>
Impairment in	Communication	18.7 (n = 222)	38.3% (n = 158)	8.3% (n = 64)	.000 <sup>a</sup>
	Cognition	34.7 (n = 412)	100% (n = 412)	0	
	Mobility	56.1 (n = 665)	44.9% (n = 185)	62.0% (n = 480)	.000 <sup>a</sup>
	Hearing	11.7 (n = 139)	16.7% (n = 69)	9.0% (n = 70)	.000 <sup>a</sup>
	Vision	12.9 (n = 153)	17.5% (n = 72)	10.5% (n = 81)	.001 <sup>a</sup>
	Excretion	21.3 (n = 253)	33.3% (n = 137)	15.0% (n = 116)	.000 <sup>a</sup>
	Unclear/other	15.9 (n = 198)	0.2% (n = 1)	24.3% (n = 188)	.000 <sup>a</sup>
Received intervention	Close-to-body activity	48.3 (n = 572)	62.9% (n = 259)	40.5% (n = 313)	.000 <sup>a</sup>
	Diagnostics	29.8 (n = 354)	42.7% (n = 176)	23.0% (n = 178)	.000 <sup>a</sup>
	Personal hygiene	47.7 (n = 566)	64.3% (n = 265)	38.9% (n = 301)	.000 <sup>a</sup>
	Counselling/Conversation	27.8 (n = 330)	38.6% (n = 159)	22.1% (n = 171)	.000 <sup>a</sup>
	Wound care	14.7 (n = 174)	11.2% (n = 46)	16.5% (n = 128)	.012 <sup>a</sup>
	Medication	48.7 (n = 577)	75.5% (n = 311)	34.0% (n = 266)	.000 <sup>a</sup>
	Household	35.3 (n = 419)	22.1% (n = 91)	42.4% (n = 328)	.000 <sup>a</sup>
	More than one intervention	57.2 (n = 678)	80.1% (n = 330)	45.0% (n = 348)	.000 <sup>a</sup>
	Personal Hygiene + diagnostics	18.0 (n = 214)	28.2% (n = 116)	12.7% (n = 98)	.000 <sup>a</sup>
	Personal Hygiene + diagnostics +counselling/conversation	7.3 (n = 86)	12.9% (n = 53)	4.3% (n = 33)	.000 <sup>a</sup>
Inserted Staff	Health specialists	50.1 (n = 594)	66.3% (n = 273)	41.5% (n = 321)	.000 <sup>b</sup>
	Nurse or psychiatric nurse	18.7 (n = 222)	19.7% (n = 81)	18.2% (n = 141)	.000 <sup>b</sup>
	Nursing assistant	11.4 (n = 135)	12.9% (n = 53)	10.6% (n = 82)	.000 <sup>b</sup>
	Other Staff	19.8 (n = 235)	1.2% (n = 5)	29.7% (n = 229)	.000 <sup>b</sup>
Frequency of assignments	Monthly up to weekly	31.8 (n = 496)	26.5% (n = 109)	50.0% (n = 387)	.000 <sup>b</sup>
	Several times a week	22.8 (n = 271)	21.8% (n = 90)	23.4% (n = 181)	.000 <sup>b</sup>
	Daily intervention	23.2 (n = 276)	31.3% (n = 129)	19.0% (n = 147)	.000 <sup>b</sup>
	Several times a day	12.1 (n = 143)	20.4% (n = 84)	7.6% (n = 59)	.000 <sup>b</sup>

Note: Confidence Interval: 95%,<sup>a</sup>Exact fisher test (2-sided), <sup>b</sup>Pearson Chi-Square (2-sided).

more depression ( $p < .001$ ), addiction ( $p = .004$ ), delirium ( $p = .015$ ) and other psychiatric diagnoses ( $p < .001$ ) on their diagnosis list.

### 3.4 | CMAI and factor analyses

The analysis of the documentation showed that in 19.5% ( $N = 231$ ) of the clients, at least one of the behaviours of the CMAI was documented at least once a month (Table 4). Complaining (9.2%,  $N = 109$ ) and negativism (7.8%,  $N = 93$ ) were the most frequently documented. Cursing the professional caregiver was documented in

6.7% ( $N = 80$ ) of cases and repetitive sentences or questions were documented in 4.8% ( $N = 57$ ). In 3.9% ( $N = 46$ ) of cases, constant unwarranted requests for attention or help were documented, and in 2.7% ( $N = 32$ ), general restlessness was documented at least once a month. The other behaviours were exhibited in less than 2% of the analysed cases.

To determine which construct represents aggressive behaviour in the home care setting, we conducted a factor analysis based on principal component analysis and Varimax rotation. The factor analysis revealed five main factors. The items loaded adequately on the factors and the factor loadings are presented in Table 4. The

**TABLE 4** Rotated component matrix ( $n = 1,186$ )

	Searching behaviours	Physically aggressive behaviours	Disruptive behaviours	Verbally aggressive behaviours	Importunate behaviours	Occurrence (100%, $n = 1,186$ )
Pacing and (aimless) wandering	0.697					1.4% ( $n = 17$ )
Inappropriate dressing or disrobing	0.560					1.9% ( $n = 23$ )
Constant unwarranted request for attention or help	0.362			0.378		3.9% ( $n = 46$ )
Repetitive sentences or questions	0.610					4.8% ( $n = 57$ )
Eating or drinking inappropriate substances	0.685					1.3% ( $n = 15$ )
Handling things inappropriately	0.734					1.5% ( $n = 18$ )
Hiding things	0.807					1.3% ( $n = 16$ )
Hoarding things	0.724					1.6% ( $n = 19$ )
Trying to get to a different place	0.684					0.8% ( $n = 10$ )
General restlessness	0.711					2.7% ( $n = 32$ )
Hitting (including self)		0.847	0.403			0.6% ( $n = 7$ )
Kicking		0.871				0.4% ( $n = 5$ )
Pushing		0.777				0.6% ( $n = 7$ )
Scratching		0.665	0.608			0.3% ( $n = 3$ )
Tearing things or destroying property	0.336	0.733				0.3% ( $n = 4$ )
Performing repetitious mannerisms		0.827				0.2% ( $n = 2$ )
Spitting (including while feeding)			0.662			0.3% ( $n = 4$ )
Throwing things			0.842			0.2% ( $n = 2$ )
Making strange noises			0.841			0.5% ( $n = 6$ )
Screaming			0.943			0.3% ( $n = 4$ )
Cursing or verbal aggression				0.699		6.7% ( $n = 80$ )
Complaining				0.847		9.2% ( $n = 109$ )
Negativism				0.889		7.8% ( $n = 93$ )
Grabbing onto people or things inappropriately					0.664	0.6% ( $n = 7$ )
Making verbal sexual advances					0.822	1.8% ( $n = 21$ )
Making physical sexual advances or exposing genitals					0.869	0.8% ( $n = 9$ )
Excluded Items						
Biting						0
Intentional falling						0.2% ( $n = 2$ )
Hurting self or others				0.480		1.2% ( $n = 14$ )

measure of sampling adequacy (Kaiser–Meyer–Olkin) was 0.767 ( $df = 325$ ,  $p < .001$ ), which is almost “meritorious” according to Kaiser and Rice (1974). The frequency of the respective behaviour was assessed on a scale ranging from 1–7 (1 = *never*, 7 = *several times an hour*). To compare the factors, we used their mean scores.

Two items of the CMAI (intentional falling and biting) are not mentioned in the factor analysis because they seldom or never occurred in the sample (intentional falling  $N = 0$ , biting  $N = 2$ ). The item “intentional hurting of self or others” loaded with 0.480 on the factor “verbally aggressive behaviours.” As there was no reasonable

explanation for the content of this item on this factor, we decided to remove it from the factor analysis. According to the resulting factor analysis, we labelled the five resulting factors as follows: searching behaviours, physically aggressive behaviours, verbally aggressive behaviours, importunate behaviour and disruptive behaviour. The factor analysis explained 64.4% of the total variance.

### 3.4.1 | Searching behaviours

This factor includes behaviours which are associated with exploration of the environment to search for stimuli or for meeting other needs. These behaviours include pacing and (aimless) wandering, inappropriate dressing or disrobing, constant unwarranted request for attention or help, repetitive sentences or questions, trying to get to a different place, eating or drinking inappropriate substances, handling things inappropriately, hiding things, hoarding things and general restlessness. All of these behaviours are commonly not intended to destroy things or cause harm to self or others but are rather exploratory in nature. In 10.1% ( $N = 120$ ) of the sample, searching behaviour was documented. The factor "searching behaviour" explained 18.2% of the total variance. Cronbach's alpha for this factor was 0.830 (10 items).

### 3.4.2 | Physically aggressive behaviour

This factor includes behaviours which, from the perspective of the caregivers, might be experienced as physically threatening or violating and which might have direct negative consequences for the physical well-being of the involved persons. These behaviours are hitting, kicking, pushing, scratching, tearing things, destroying property or performing repetitious mannerisms. These behaviours are commonly associated with physical activity directed against the self or others. Aggressive behaviour was documented in 1.0% ( $N = 12$ ) of the sample. This factor explained 15.5% of the total variance. Cronbach's alpha for this factor was 0.886 (6 items).

### 3.4.3 | Verbally aggressive behaviour

This factor includes negative verbalization against the self or others, such as cursing or verbal aggression, complaining and negativism. Verbally aggressive behaviour was documented in 13.7% ( $N = 162$ ) of the sample and represented the most frequent factor. The factor "verbally aggressive behaviours" explained 9.1% of the total variance. Cronbach's alpha for this factor was 0.799 (3 items).

### 3.4.4 | Disruptive behaviour

These behaviours include spitting, throwing things, making strange noises and screaming. These behaviours are commonly based on

a physical or verbal action. While apparently not intentional or directed at a person, they are still disruptive. These behaviours deviate from generally existing norms and can lead to irritation. In 0.7% ( $N = 8$ ) of the sample, disruptive behaviour was documented. This factor explained 13.3% of the total variance. Cronbach's alpha for this factor was 0.836 (4 items).

### 3.4.5 | Importunate behaviour

These behaviours might hurt the personal or sexual integrity of the self or other persons. The nature of these behaviours differs from verbal and physical aggression and is associated with different negative feelings of the affected person. At the same time, they are intricately linked to the values and self-image of the involved persons. They include grabbing onto people or things inappropriately, making verbal sexual advances, making physical sexual advances or exposing genitals. Importunate behaviour was documented in 2.0% ( $N = 24$ ) of the sample. The factor "importunate behaviour" explained 8.3% of the total variance. Cronbach's alpha for this factor was 0.727 (3 items).

### 3.4.6 | Aggressive behaviour according to the factor analysis

We identified three factors which represent aggressive behaviour in our sample according to the definition of Steinert (1995): verbally and physically aggressive behaviour as well as importunate behaviours. Aggressive behaviour was documented for a total of 14.8% ( $N = 175$ ) of the clients in our sample. Cronbach's alpha of this score was 0.693 (12 items).

## 3.5 | Related factors for aggressive behaviours

In a total of 14.8% ( $N = 175$ ) of the clients, at least one of the three forms of aggressive behaviours which we identified in our factor analysis were documented. Table 5 shows which potential associated factors were significantly correlated (chi-square test, Fisher exact test, Bonferroni-Holm) with which form of aggressive behaviour. It is evident that cognitive impairment is significantly associated with all forms of aggressive behaviour, while communication difficulties are related to verbal and physical aggression. Diagnostic interventions are significantly related to verbally and physically aggressive behaviour.

We further analysed the cognitively impaired individuals separately (Table 6) (chi-square test, Fisher exact test) to detect group-specific related factors for aggressive behaviour (importunate behaviour, verbally aggressive behaviour and physically aggressive behaviour). No diagnosis was significantly associated with aggressive behaviour in this group. Only impairment in mobility was significantly associated with documented aggression in persons with



cognitive restrictions ( $p=.002$ ). Diagnostics and counselling/conversation interventions were significantly associated with documented aggressive behaviour ( $p<.001$ ). We further investigated combinations of several interventions and concluded that the application of more than one intervention was significantly associated with documented aggressive behaviour.

The logistic regression model mostly confirmed the results of the multiple bivariate comparisons (Table 7). According to the regression model, addiction was a further risk factor for documented aggressive behaviour in persons with cognitive impairment. With regard to the staff involved, the regression model indicated that the higher

the qualification level of the staff member, the more likely it was that he or she would mention aggression in the nursing documentation.

## 4 | DISCUSSION

We assessed the documentations of 1,186 clients; 64.8% ( $N = 768$ ) were female which corresponds to the gender distribution of the clients in Switzerland (60% female). However, 82.5% of our sample were aged over 65 years, while the percentage of this age group among clients in Switzerland is 70% (Bundesamt für Statistik, 2018).

**TABLE 5** Multiple bivariate comparison of associated factors on forms of aggression

Total sample ( $n = 1,186$ )		Physical aggressive behaviour (1.0%, $n = 12$ )		Verbal aggressive behaviour (13.7%, $n = 162$ )		Importunate behaviour (2.0%, $n = 24$ )	
		%	<i>p</i>	%	<i>p</i>	%	<i>p</i>
Gender	male	25.0% ( $n = 3$ )	.015 <sup>a</sup> .0050 <sup>b</sup>	30.9% ( $n = 50$ )	.217 <sup>a</sup>	79.2% ( $n = 19$ )	.000 <sup>a</sup> .0029 <sup>b</sup>
	female	75.0% ( $n = 11$ )		69.1% ( $n = 112$ )		20.8% ( $n = 5$ )	
Diagnostics	Delirium	0	1.000 <sup>a</sup>	1.9% ( $n = 3$ )	.404 <sup>a</sup>	4.2% ( $n = 1$ )	.234 <sup>a</sup>
	Dementia	50.0% ( $n = 6$ )	.005 <sup>a</sup> .0038 <sup>b</sup>	21.0% ( $n = 34$ )	.033 <sup>a</sup> .0083 <sup>b</sup>	33.3% ( $n = 8$ )	.019 <sup>a</sup> .0038 <sup>b</sup>
	Depression	25.0% ( $n = 3$ )	.173 <sup>a</sup>	22.2% ( $n = 36$ )	.000 <sup>a</sup> .0033 <sup>b</sup>	0	.105 <sup>a</sup>
	Other psychiatric diagnoses	25.0% ( $n = 3$ )	.138 <sup>a</sup>	19.8% ( $n = 32$ )	.000 <sup>a</sup> .0036 <sup>b</sup>	20.8% ( $n = 5$ )	.174 <sup>a</sup>
	Addiction	8.3% ( $n = 1$ )	.545 <sup>a</sup>	12.3% ( $n = 20$ )	.003 <sup>a</sup> .0063 <sup>b</sup>	20.8% ( $n = 5$ )	.015 <sup>a</sup> .0036 <sup>b</sup>
Impairment in	Communication	66.7% ( $n = 8$ )	.000 <sup>a</sup> .0029 <sup>b</sup>	38.3% ( $n = 56$ )	.000 <sup>a</sup> .0029 <sup>b</sup>	37.5% ( $n = 9$ )	.030 <sup>a</sup> .0042 <sup>b</sup>
	Cognition	91.7% ( $n = 11$ )	.000 <sup>a</sup> .0031 <sup>b</sup>	61.7% ( $n = 100$ )	.000 <sup>a</sup> .0031 <sup>b</sup>	70.8% ( $n = 17$ )	.000 <sup>a</sup> .0031 <sup>b</sup>
	Mobility	66.7% ( $n = 8$ )	.566 <sup>a</sup>	55.6% ( $n = 90$ )	.932 <sup>a</sup>	62.5% ( $n = 15$ )	.679 <sup>a</sup>
	Hearing	25.0% ( $n = 3$ )	.157 <sup>a</sup>	14.2% ( $n = 23$ )	.294 <sup>a</sup>	16.7% ( $n = 4$ )	.514 <sup>a</sup>
	Vision	33.3% ( $n = 4$ )	.057 <sup>a</sup>	15.4% ( $n = 25$ )	.313 <sup>a</sup>	25.0% ( $n = 6$ )	.113 <sup>a</sup>
	Excretion	58.3% ( $n = 7$ )	.005 <sup>a</sup> .0036 <sup>b</sup>	30.9% ( $n = 50$ )	.003 <sup>a</sup> .0056 <sup>b</sup>	33.3% ( $n = 8$ )	.204 <sup>a</sup>
	Unclear/ other	0	.232 <sup>a</sup>	13.6% ( $n = 22$ )	.420 <sup>a</sup>	4.2% ( $n = 1$ )	.157 <sup>a</sup>
Received intervention	Diagnostics	75.0% ( $n = 9$ )	.002 <sup>a</sup> .0033 <sup>b</sup>	49.4% ( $n = 80$ )	.000 <sup>a</sup> .0038 <sup>b</sup>	45.8% ( $n = 11$ )	.112 <sup>a</sup>
	Support in personal hygiene	83.3% ( $n = 10$ )	.017 <sup>a</sup> .0045 <sup>b</sup>	60.5% ( $n = 98$ )	.001 <sup>a</sup> .0050 <sup>b</sup>	58.3% ( $n = 14$ )	.310 <sup>a</sup>
	Counselling/ Conversation	66.7% ( $n = 8$ )	.006 <sup>a</sup> .0042 <sup>b</sup>	47.5% ( $n = 77$ )	.000 <sup>a</sup> .0042 <sup>b</sup>	54.2% ( $n = 13$ )	.009 <sup>a</sup>
	Wound care	16.7% ( $n = 2$ )	.692 <sup>a</sup>	14.8% ( $n = 24$ )	1.000 <sup>a</sup>	16.7% ( $n = 4$ )	.770 <sup>a</sup>
	Medication	83.3% ( $n = 10$ )	.019 <sup>a</sup> .0056 <sup>b</sup>	74.1% ( $n = 120$ )	.000 <sup>a</sup> .0045 <sup>b</sup>	62.5% ( $n = 15$ )	.216 <sup>a</sup>
	Household	33.3% ( $n = 4$ )	1.000 <sup>a</sup>	25.3% ( $n = 41$ )	.005 <sup>a</sup> .0071 <sup>b</sup>	29.2% ( $n = 7$ )	.667 <sup>a</sup>

Note: Confidence Interval: 95%, <sup>a</sup>exact fisher test (2-sided), <sup>b</sup>Level of Significance according to Bonferroni-Holm correction.

Hence, this age group was over-represented. Due to the underdiagnosis of dementia in communities, one may assume that the diagnosis of dementia was also underrepresented in our sample (Genet et al., 2012; Johnson et al., 2018). Furthermore, not all the surveyed documentation included an actual diagnosis list. Therefore, it was assumed that the group of people with cognitive impairments included many with some form of dementia, for which the diagnosis had not been established. We identified three factors that represent aggressive behaviour in the home care setting: importunate behaviour, physically aggressive behaviour and verbally aggressive behaviour. We ascertained that impairment in cognitive abilities is significantly associated with documented aggressive behaviour in home care services, in terms of all forms of aggression. We were able to identify specific related factors to aggressive behaviour in

the whole sample, as well as in the group of persons with cognitive impairments.

In our study, we detected five factors that were different from those identified in the study by Majić (2012) ( $N = 304$ ) in nursing homes. A main difference was the factor “searching behaviour” in our sample. “Searching behaviour” includes items which express a kind of restlessness or behaviour that is associated with the search for stimuli. In the home care setting, persons with dementia have more opportunities for acting out their needs for stimuli on their own, for instance by hoarding or hiding things, as well as by wandering, because they spend more time alone. The environment is less controlled, and they have more control over their possessions. The motivation for these behaviours might be related to a need to sustain a sense of identity, as when, for example, they hide and hoard

**TABLE 6** Multiple bivariate comparison of associated factors with aggressive behaviour in persons with cognitive impairment

Persons with cognitive restrictions (n = 412)		Aggressive beh. (26.2%, n = 108)	No aggressive beh. 73.8%, n = 304)		Controlled level of significance <sup>b</sup>
	Associated factors	% (n)	% (n)	p	P <sub>(Bonferroni-Holm)</sub>
Gender	Female	66.7% (n = 72)	61.5% (n = 187)	.356	.0033
Diagnostics	Delirium	2.8% (n = 3)	2.0% (n = 6)	.703 <sup>a</sup>	.0045
	Dementia	35.2% (n = 38)	39.8% (n = 121)	.422 <sup>a</sup>	.0036
	Depression	22.2% (n = 24)	15.5% (n = 47)	.137 <sup>a</sup>	.0028
	Other psychiatric diagnoses	23.3% (n = 23)	13.5% (n = 41)	.064 <sup>a</sup>	.0025
	Addiction	13.9% (n = 15)	7.6% (n = 23)	.079 <sup>a</sup>	.0026
Impairment in	Communication	48.1% (n = 52)	34.9% (n = 106)	.016 <sup>a</sup>	.0024
	Mobility	58.3% (n = 63)	40.1% (n = 122)	.002 <sup>a</sup>	.0021
	Hearing	18.5% (n = 20)	16.1% (n = 49)	.552 <sup>a</sup>	.0038
	Vision	17.6% (n = 19)	17.4% (n = 53)	.000 <sup>a</sup>	.0056
	Excretion	38.9% (n = 42)	31.3% (n = 95)	.155 <sup>a</sup>	.0029
	Unclear/ other	0	0.3% (n = 1)	1.000 <sup>a</sup>	.0063
Received intervention	Close-to-body activity	63.9% (n = 69)	62.5% (n = 190)	.818 <sup>a</sup>	.0050
	Diagnostics	58.3% (n = 63)	37.2% (n = 113)	.000 <sup>a</sup>	.0017
	Support in personal hygiene	64.8% (n = 70)	64.1% (n = 195)	1.000 <sup>a</sup>	.0071
	Counselling/ Conversation	53.7% (n = 58)	33.2% (n = 101)	.000 <sup>a</sup>	.0018
	Wound care	11.1% (n = 12)	11.2% (n = 34)	1.000 <sup>a</sup>	.0083
	Medication	80.6% (n = 87)	73.7% (n = 224)	.193 <sup>a</sup>	.0031
	Household	24.1% (n = 26)	21.4% (n = 65)	.590 <sup>a</sup>	.0042
	More than one intervention	90.7% (n = 98)	76.3% (n = 232)	.001 <sup>a</sup>	.0019
	Personal hygiene + Diagnostics	38.0% (n = 41)	24.7% (n = 75)	.012 <sup>a</sup>	.0023
	Personal hygiene + diagnostics +counselling/conversation	22.2% (n = 24)	9.5% (n = 29)	.001 <sup>a</sup>	.0019
Inserted staff	Health specialists	56.5% (n = 61)	69.7% (n = 212)	.005 <sup>b</sup>	.0022
	Nurse and psychiatric nurse	30.6% (n = 33)	15.9% (n = 48)	.005 <sup>b</sup>	.0100
	Nursing assistants and other	13.0% (n = 14)	14.4% (n = 39)	.005 <sup>b</sup>	.0125
Frequency of assignment	Monthly up to weekly	15.7% (n = 17)	30.3% (n = 92)	.001 <sup>b</sup>	.0020
	Several times a week	15.7% (n = 17)	24.0% (n = 73)	.001 <sup>b</sup>	.0167
	Daily intervention	36.1% (n = 39)	29.6% (n = 90)	.001 <sup>b</sup>	.0250
	Several times a day	32.4% (n = 35)	16.1% (n = 49)	.001 <sup>b</sup>	.0500

Note: Confidence interval: 95%, <sup>a</sup>Exact fisher test (2-sided), <sup>b</sup>Pearson Chi-Square (2-sided).

**TABLE 7** Logistic regression model on associated factors with aggression in persons with impairment in cognitive abilities

Persons with impairment in cognitive abilities (n = 412) Backward stepwise according to Likelihood		Regression coefficient	Wald	p	Exp(B)	Confidence Interval (95%)
Associated factors						
Psychiatric diagnoses	Addiction	0.908	5.600	.018	2.480	1.169–5.262
Impairment in	Mobility	0.862	10.935	.001	2.368	1.421–3.946
Received nursing intervention	Diagnostics	0.647	6.490	.011	1.909	1.161–3.139
	Counselling/ Conversation	0.954	13.484	.000	2.597	1.560–4.321
Inserted staff <sup>a</sup>		-0.359	5.506	.019	0.698	0.517–0.943
Frequency of assignment <sup>a</sup>		0.312	7.299	.007	1.366	1.089–1.713

Note: Hosmer–Lomeshow test: 0.944; Nagelkerke's  $R^2$ : .203, classification of prediction: 76.5%;  $X^2(6)=61.508$ ,  $p = .000$ ; 1 = nurse, 2 = psychiatric nurse, 3 = health specialist, 4 = nursing assistant, 5 = others; <sup>a</sup>1 = monthly up to weekly, 2 = several times a week, 3 = daily intervention, 5 = several times a day).

mementos of their earlier life. While this behaviour is not aggressive, hiding items may trigger aggression, if, for instance, the visiting health professional must search for clean clothes. In this instance, the attempt to assist by the health professional might be experienced as an invasion of privacy.

The aggressive behaviour in our factor analysis distinguished between verbally and physically aggressive behaviour. The former included cursing, complaining and negativism, in line with our chosen definition of aggression, according to Steinert (1995). In total, 14.8% of our sample showed some form of aggressive behaviour as identified in the factor analysis. While verbally aggressive behaviour was documented in 13.7% of the clients, physical aggression (1.0%) and importunate behaviour (2.0%) were less frequently mentioned. Björk et al. (2016) surveyed neuropsychiatric symptoms in nursing homes in Sweden and identified a prevalence of 92%. Although the percentage of clients in whom aggressive behaviour was documented in our sample compared with investigations in nursing homes was relatively low, the number of health professionals in home care services who were affected by aggressive behaviour was still high. In our previously conducted survey with health professionals in home care services, 54.7% ( $N = 466$ ) experienced aggressive behaviour within the previous 12 months (manuscript under review). Aggressive behaviour may be underrepresented in the nursing documentation. In our discussion with the staff of the participating institutions, it was mentioned that only "severe" aggression was noted in the nursing documentation. We know from research on aggression in inpatient settings that the reporting compliance about aggressive incidents by health professionals is low (Archer et al., 2020; Edward et al., 2014; Hahn et al., 2012; Schnell et al., 2019; Zeh et al., 2009). Reasons for the underreporting may be fear of stigma or blaming, or the fear that they will be classified as not resilient (Edward et al., 2014; Schnell et al., 2019; Zeh et al., 2009). Importunate behaviour might be associated with shame and therefore also be underreported.

Our logistic regression model showed that a higher staff qualification level might lead to a higher rate of documented aggression. It is possible that this indicates that professional caregivers with a lower education level are less likely to report aggression in the nursing documentation. However, the consequences of aggressive

behaviour for staff and the nursing relationship outlined in our survey with health professionals are severe (manuscript under review). Additionally, the review of Schnell et al. (2020) shows that aggression by persons with dementia in the home care setting could lead, for example, to neglect of the person with dementia or to shortened visits. Due to this, it is necessary to improve the documentation on aggressive incidents to make it possible to capture the extent of the problem, to have the opportunity to conduct secondary prevention and to learn from the incidents.

We identified impairment in cognitive abilities as a factor associated with aggressive behaviour. In line with our research question, we analysed a group of persons with cognitive impairments. Persons with limitations in their cognitive abilities had significantly more limitations in their communication abilities than persons without limitations in their cognitive abilities. Therefore, it is not surprising that limitations in communication were associated with aggressive behaviour in our sample as well. However, the result after the Bonferroni–Holm adjustment and in the logistic regression model was no longer significant. Nevertheless, nearly 40% of persons with impairment in cognitive abilities had limitations in their communication abilities. Impairment in communication abilities makes it difficult for a person to communicate his or her needs. Unrecognized and, therefore, unmet needs may often be a triggering factor for aggressive behaviour (Algase et al., 1996; Carter, 2016). Furthermore, limitations in communication abilities hamper communication not only because the clients struggle to express their needs, but because they also have difficulty with understanding the health professionals' intention or the situation. The results of our survey with health professionals underpins this assumption: the most mentioned triggering factor in persons with dementia who acted aggressively was a misunderstanding of the situation by the client (66.7%) or overstrain on behalf of the client (66.7%) (manuscript under review).

Another related impairment with documented aggressive behaviour was impairment in mobility in persons with impairment in cognitive abilities. Limitations in mobility lead to a decreased radius of movement and therefore to increased interpersonal dependency and decreased stimuli.

Our results show that persons who received diagnostic and conversation/counselling interventions and a higher frequency of nursing assignments (in the group with limitations in cognitive abilities) had significantly more aggressive behaviour documented than did the rest of the group. The higher frequency of nursing assignments leads to an increased time with the client and therefore to an increased need for interaction between health professionals and clients. However, close-to-body activities were not significantly associated with aggressive behaviour. The description of the group of persons with cognitive restrictions shows that 64.3% received support in terms of assistance with personal hygiene. One may assume that the complexity and combination of interventions influences the occurrence and therefore the documentation of aggression. It is likely that persons with multiple care and medical needs are more likely to receive counselling and diagnostic interventions. This might indicate that aggressive behaviours occur more frequently in complex situations, especially in persons with cognitive impairments.

The frequency of assignments which was significantly related to aggressive behaviour in persons with impairment of cognitive abilities also leads to another problem. Persons who receive a high frequency of assignments by home care services often experience a lot of staff turnover. The main issue in home care services in Switzerland is the scheduling of staff. Often, it is not possible to guarantee continuity in operational planning. This leads to many different health professionals visiting the clients. It is safe to assume that this group is, therefore, exposed to many different health professionals. However, this group of clients is especially challenged in building new relationships. This lack of continuity therefore makes it difficult for both health professionals and clients to build a sustainable, professional relationship. This lack of continuity, especially in this group of clients, might exacerbate the risk of aggressive behaviour. It is necessary that schedules of home care services consider the specific needs of persons with dementia and cognitive impairments and therefore avoid a frequent change of staff.

Although we identified persons with cognitive impairments as the group of clients with more complex situations, the staff members most assigned to these people were the health specialists. Although the care of persons with cognitive restrictions is highly demanding (Schnelli et al. 2020), there were only few nurses working in direct care with those clients in our sample (19.7%). The need for education and skills training, specific to the care of persons with dementia, has been pointed out in the literature. It is disquieting that this seems not to be mentioned by the staff leaders of the participating institutions in our sample (Carter, 2016; Nakaishi et al., 2013; Nakanishi et al., 2018). However, nurses and psychiatric nurses were assigned more frequently to the group of persons with cognitive impairments who exhibited aggression than to the group of persons with cognitive impairments who did not show aggression (30.6% versus. 15.9%). Nevertheless, health specialists were still the staff members most often assigned to persons with cognitive restrictions who showed aggressive behaviour. This suggests the assumption that, while more highly qualified staff were assigned to very demanding situations, they were not routinely

assigned to persons with cognitive impairments and aggressive behaviour.

Nakanishi et al. (2018) investigated a psychosocial intervention to reduce the challenging behaviours of persons with dementia in home care services. They pointed out that health professionals found multi-agency discussions on individual care plans helpful in focusing on the needs of persons with dementia. Focusing on these needs was difficult for them to do on their own. Further training about unmet needs and the communication strategies of persons with dementia are necessary for health professionals in home care services to assist them to recognize these unmet needs. Strategies to deal with these unmet needs should also be included in training programmes for health professionals in home care services. Furthermore, possible strategies such as massage, conversation and spending social time with individuals with dementia need to be included in insurance schedules. Nakanishi et al. (2018) found that some interventions that were necessary were not financed and for this reason could not be provided by the home care services.

Another insight from the review of Schnelli et al. (2020) was the need for the rigorous documentation of aggressive behaviour, related unmet needs and the reaction of the caregiver, to learn from these factors and to give other caregivers information about what works and what does not work. During our survey, we determined, in discussion with the staff leader or the clinical nurse specialist in the organization, that challenging or aggressive behaviour is more often reported verbally rather than noted in the nursing documentation. This suggests that further training on nursing documentation and on the issue of individual care plans is necessary for home care service providers. Additionally, it should be investigated whether reporting systems for aggressive incidents in home care services exist and whether health professionals use them. Furthermore, home care services should pay attention to factors associated with aggressive behaviour such as limitations in cognition, communication and mobility, especially in complex cases. Educational interventions should aim at the recognition of unmet needs, especially in the context of excretion, dealing with limitations in the communication skills of the clients and dealing with unmet needs due to decreased mobility.

Facing the consequences of aggressive behaviour in home care settings should be considered a main issue of both the staff member's safety and that of the client. It should, therefore, be further researched. To prevent harm to the clients as well as to health professionals, the prevention of aggressive behaviour is an important topic in home care services that should be addressed in research, education and policy.

#### 4.1 | Limitations

This is the first research project in Switzerland to survey aggressive behaviour in home care services using nursing data. At the same time, data collection using nursing data was one of the greatest limitations of the project. Different organizations had different priorities in the structuring of their written nursing reports. We assumed

aggressive behaviour was far underrepresented in the nursing reports. Furthermore, we assumed that the quality of the assessment of the RAI-MDS was heterogenous between the organizations. It cannot be ruled out, for example, that some physical limitations were not declared. Another problem was that diagnosis lists were not available for all clients. Not all caregiving activities necessary for the delivery of good quality of care were described in the individual care plans, although they may have been conducted anyway. Due to this, the transferability of these results to other countries and the generalizability are restricted.

Our investigation was based on a convenience sample; therefore, it is possible that we had a selection bias in our study. The CMAI German version was originally developed for nursing homes; in this study, we used it in the home care setting. Testing this instrument in the home care setting and experience in practical use is necessary to gain knowledge on the usefulness of the CMAI in the home care setting and to detect its development potential.

## 5 | CONCLUSION

In total, 14.8% of the clients in home care services in our sample exhibited aggressive behaviour. The most common aggressive behaviour was verbally aggressive behaviour. We identified limitations in communication and cognition and a higher dependency on others, as predisposing factors. Due to an assumed underreporting of the diagnosis of dementia, we referred in our analysis to the subgroup of persons with limitations in cognitive abilities. In this group, limitations in mobility and a higher frequency of care assignments were associated with aggressive behaviour. It is recommended that preventive and educational interventions address this topic, especially with health specialists, as they are the most frequently assigned staff group to such clients.

A further insight revealed by this research, in addition to the insights concerning aggressive behaviour, was that the nursing documentation in home care services in Switzerland needs to be improved regarding the documentation of aggressive incidents. For this reason, the findings of this study are only conditionally generalizable. However, the results provide important hints on the occurrence of aggressive behaviour in home care services and what its associated factors are.

### 5.1 | Relevance for clinical practice

In this study, about clients with cognitive impairments, their cognitive deficits and restrictions in mobility, together with the frequent assignment of healthcare professionals to assist with their care, were identified as associated with aggressive behaviour on their part. Specific factors related to aggression should be mentioned in individual care plans, as well as the specific needs of persons with impairments in their cognitive abilities. While these client situations are often very demanding, the most frequently assigned staff are

health specialists who do not have an adequate education level to deal with these cases. It is necessary that educational measures aimed at this group of staff members be provided and that more nurses and psychiatric nurses be assigned to such complex cases. Furthermore, staff scheduling should aim at greater continuity to make the building of a professional relationship possible. Skills related to aggression management and associated factors in home care should be identified and implemented in practice.

#### 5.1.1 | Implications for further research

Although we identified an understanding of aggressive behaviour in the home care setting, further research is necessary to illuminate this construct and its further usefulness. While several associated factors were highlighted in this study, more in-depth research on the phenomenon of aggressive behaviour on the part of persons with dementia or cognitive impairments against health professionals in home care services is indicated. We referred only to related factors mentioned in the nursing documentation. However, a more general understanding of the phenomenon is needed to develop appropriate prevention and educational concepts. Further, research on educational interventions for nursing staff about their interactions with persons who have limitations in their cognitive abilities and related triggering factors for aggressive behaviour is needed.

#### ACKNOWLEDGEMENTS

We thank all the home care services for their participation. In particular, we thank the team leaders and nursing experts who participated in the survey. Our thanks also go to the Nursing Science Foundation and the NAGS for their financial support.

#### CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

#### DATA AVAILABILITY STATEMENT

Data available on request due to privacy restrictions.

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#### SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

**How to cite this article:** Schnell A, Ott S, Mayer H, Zeller A. Factors associated with aggressive behaviour in persons with cognitive impairments using home care services: A retrospective cross-sectional study. *Nurs Open*. 2021;8:1345–1359. <https://doi.org/10.1002/nop2.751>