

Catching the benefits: Exploring the angling intervention Samen VISsen and its value for Positive Health of elderly in Dutch nursing homes

Student: R. Ceelen
Student number: i6291885
Master program: Health Education & Promotion
University: Maastricht University, Faculty of Health, Medicine and Life Sciences

Faculty supervisor: Prof. dr. S. Kremers
Second Examiner: Dr. P. van Assema

Supervisor institution: B. Zoetemeyer
Institute of placement: Sportvisserij Nederland (Dutch Angling Association)
Institute address: Leyenseweg 115, 3721BC Bilthoven
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Abstract

With life expectancy increasing, challenges occur in maintaining the health and well-being of the elderly. For this reason, the World Health Organization and United Nations endorsed the current decade as the Decade of Healthy Ageing to identify initiatives which improve the lives of elderly. Recognizing that nature-based interventions can improve the health and well-being of the elderly, the Dutch Angling Association has developed the Samen VISSen intervention, in which volunteers go angling with residents of Dutch nursing homes. Although scientific evidence shows the benefits of angling interventions for people with Post-Traumatic Stress Disorder, evidence of the effects of angling interventions on the elderly is lacking. To examine the proposed elements and mechanisms, and to further explore the perceived effects of the intervention, a qualitative study was performed. Fifteen semi-structured interviews were conducted among participants and involved nursing home carers using the Positive Health dialogue tool, and six observations. Transcribed interviews and observational notes were analyzed using the framework method. Results showed that participants experienced contributions within all dimensions of Positive Health, especially emphasising its impact on Mental functions and Social participation. The elements of Nature exposure, Angling activities, Volunteer support, Carer involvement, and Participant relation regulation, were perceived to work through a variety of potential mechanisms, which are gathered in a proposed Conceptual Angling-approach To Contribute to Health (CATCH) framework. Overall, the Samen VISSen intervention can be seen as potentially meaningful and suitable for the elderly in Dutch nursing homes.

Keywords: Nature-based intervention – Positive Health – Healthy ageing - Elderly

1. Introduction

With life expectancy increasing all over the world, challenges occur in maintaining the health and well-being of the elderly (1, 2). These challenges mostly occur in maintaining functional abilities such as being mobile, managing relationships, and satisfying basic needs, which also contribute to overall well-being. Because the worldwide population is ageing rapidly, the World Health Organization (WHO) and United Nations (UN) ascribed the highest priority to addressing care for the ageing population and declared the current decade (2021-2030) to be the UN Decade of Healthy Ageing (2, 3). While this decade underlines the fact that this is a worldwide issue, it has specific challenges in individual countries.

In the Netherlands, these challenges are most prominent in nursing homes whose residents are the country's most vulnerable elderly who cannot live self-reliant and have a wide range of health problems such as cognitive- and physical limitations (4). The residents face high levels of loneliness because they rarely receive visitors, and their limitations withhold them to go out and visit others (4). These limitations also contribute to the small number of activities they participate in and the fact that before the COVID-19 pandemic, 70% of the residents of Dutch nursing homes came outside just once a week

or less. When the COVID-19 pandemic eventually came in, measures resulted in even more social isolation of the residents because visitors were not allowed, physical- and social activities were cancelled, and so the quality of life decreased (4, 5). This has a large impact because it is this vulnerable elderly who benefit most from social interaction, physical activity, and exposure to nature (6, 7, 8). For this reason, the WHO and UN aim to identify health-promoting interventions that fit the needs of such elderly (2, 3).

Where the definition of health from the WHO still requires “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”, this does not fit the current health issues as the chronic diseases of the elderly in Dutch nursing home (9, 10). For this reason, Huber et al., revised the definition toward the Positive Health framework as “the ability to adapt and self manage in the face of social, physical, and emotional challenges” (10). This definition is operationalized in six dimensions: Bodily functions, Mental functions and perceptions, Spiritual dimensions, Quality of life, Social and societal participation, and Daily functioning (11, 12).

Nature-based activities are shown to be beneficial for the health and well-being of the elderly, but also for coping with their limitations, especially for those living in institutions such as nursing homes (7, 13). Besides the benefits, the elderly tend to prefer to participate in nature-based activities (14). In line with this, the Dutch Angling Association has designed an angling intervention called ‘Samen VISsen¹’ in which residents of nursing homes go angling with volunteers affiliated with the Dutch Angling Association (15). The intervention has been shown to have positive anecdotal outcomes for participants, but there is no scientific evidence for its impact.

The restorative power is widely supported and explained by the Stress Reduction Theory and Attention Restoration Theory (13, 16, 17). With the Stress Reduction Theory, Ulrich et al., showed that unthreatening nature exposure reduces stress, fear, anger, and mental fatigue, whereas an urban environment does not (16). These effects are explained by the traditional familiarity of people with nature retained from evolutionary influence, especially in the case of high food potentials as with angling. Benefits magnify for those who are emotionally vulnerable (18). Kaplan & Kaplan explain with the Attention Restoration Theory that more effortless attention or ‘soft’ fascination is required for restorative effects on mental fatigue (17). This attention or fascination could be fulfilled by angling, as Ulrich et al., describe the benefits of nature could be experienced through recreational activities (16).

Research into the health benefits of angling has generally been observational. It has tended to point mostly toward improved physical-, mental-, and social health (19). But besides this general research, recent research indicates angling can be an effective intervention for symptoms of Post-Traumatic Stress Disorder (PTSD) (20, 21, 22, 23). In that regard, Wheeler et al., (20) describe two experiments, one of which reported the positive effects of angling, falconry, and horse husbandry interventions. The second experiment assessed the effects of an angling intervention compared to a non-treating group. Both

¹ This Dutch title is used throughout this article. It might be translated as Come Angling, but this does not cover the wordplay in Dutch.

experiments found significant effects in decreased PTSD symptoms, depressive symptoms, anxiety, stress, need for social and work adjustment, and increased posttraumatic well-being. Focus group studies suggest nature exposure, angling itself, and the learning of this new activity, serve as important elements for these effects (22, 23). On top of that, participants experienced companionship with fellow participants as beneficial, but also the willingness to help and patience of staff that participants experience is suggested to be important for the interventions' success. Despite similar elements of the Samen VISsen intervention, effects might differ because of the different target audiences, and these interventions are specifically focused on coping with PTSD.

Both participants and staff influence can be explained through social support, but with different mechanisms. Staff support can be explained via functional social support by providing emotional-, informational-, tangible-, and belonging support (22, 24). The positive effects of participants' interaction could be better explained with the Relation Regulation Theory (25). The theory indicates that everyday social interactions, conversations, and shared activities, like angling in this case, influence relation regulation. Together with functional social support, this social support is suggested to improve health indirectly via stress buffering, or directly like reduced depressive symptoms, encouraging proactive coping, but also other positive health outcomes which are especially beneficial to those who are normally socially isolated (24, 25, 26).

Angling is normally qualified as a light-intensity activity, which is beneficial for the physical health and well-being of elderly (27, 28). Because part of the residents in Dutch nursing homes has physical limitations and is wheelchair-bound, benefits for these are taken into account (29). The benefits for wheelchair users aim at maintaining physical functioning and positive mood effects occurring because of hand movements, like during angling (30, 31). Furthermore, the focus regarding the float might be explained by Focused Attention meditation (22, 32). This involves a voluntary focus on an object, which improves executive control functions such as the ability to sustain focus for a longer time (32, 33, 34).

So, the Samen VISsen intervention seems to contain the elements nature exposure, staff, participants, and angling (15). As the intervention contains angling activities for a daypart of three hours led by an instructed volunteer of the Dutch Angling Association. Other volunteers, being experienced anglers, receive instructions, materials, and a volunteer fee provided by the Dutch Angling Association and its federations. The group will have a minimum of three participants, and it is expected that, on average, each group contains eight participants. The number of volunteers is matched to these of participants so one on one guidance is available if necessary to instruct the participants, prepare the angling gear, bait, and assist in unhooking any fish caught responsibly. The carers from the involved nursing home will be responsible for any medical care, and provide chairs, if desirable, drinks, and a snack. The activity takes place in a natural environment close to the nursing home. Participants will be exposed to the activities a different number of times and at different frequencies, depending on what has been agreed upon.

Although recent research on angling interventions has been shown to be effective in reducing PTSD symptoms, that research base is very specific. In fact, the benefits might be broader and the mechanisms

to realise these might be different. Thus, there is a need to first broadly explore the Samen VISsen intervention. The Positive Health framework seems to fit this broad approach and it is expected to be relevant to the target audience. Therefore, the present qualitative study aims to examine the proposed elements and mechanisms of the Samen VISsen intervention on elderly residents of nursing homes.

2. Materials and methods

2.1. Study design

A qualitative multi-method design was chosen to provide insight into the elements, mechanisms, and effects of the Samen VISsen intervention. The study used semi-structured interviews with participants and accompanying carers, as well as observations during the activities collected between June and July 2022. The study was ethically approved under the ethics license Master Health Education & Promotion 2020-2021 of the Research Ethics Committee of the Faculty of Health, Medicine and Life sciences (registered under number FHML/HEP_2022.885).

2.2. Participants

Nursing homes applied through a request form at the website www.samenvissen.nl, as usual (15). Using convenience sampling, nursing homes that arranged at least two activities were asked to participate in the study, in this way the in-between period could be considered during interviews. One activity was fully observed when a nursing home took part in the study.

Within each of the involved nursing homes, two to four participants were interviewed. Participants within the nursing homes all had a certain level of need for care, namely a care package within the nursing and care sector which includes the fact they cannot live self-reliantly due to memory loss to dementia and/or physical limitations (35). Inclusion criteria for participants were the need to be a nursing home resident, participated in at least two intervention activities, speak comprehensibly, and be mentally competent to be interviewed. These were purposively selected by the carer. Also, within each involved nursing home, an involved carer was interviewed and selected through voluntary response sampling. Nursing homes were recruited until the point of saturation was reached.

2.3. Data collection

Unstructured observations were conducted in a complete observer role. In this way, less reaction to the attendance of the observer was raised. With the observations, the aim was to collect field notes anonymously and objectively with an eminent level of detail to provide rich data. To add some structure, field notes were made within the themes: nature, staff, participants, angling, and others.

After the last activity of the intervention, interviews with participants were conducted using the Positive Health dialogue tool (36). Interviews were conducted face-to-face, with participants in their

rooms, and carers in their offices. After asking for age, gender, why they participated in the intervention, and how they experienced the intervention, every dimension is elaborated verbally based on the guiding document of the dialogue tool (37). But instead of asking whether they want to talk about their answers as done usually, it was asked whether the Samen VISsen intervention contributed to the answer. Also, instead of asking how they rate every dimension on a 1 to 10 scale, it was asked how much the Samen VISsen intervention contributed to their score on the overall dimension, and what they experienced as the reason for the interventions' contribution to the dimension with additional probing questions if necessary. After going through every dimension, the 'spiderweb' of the dialogue tool provided an overview of the answers to validate these. The interview with the carers was executed in the same way but about their perception regarding the impact of the intervention on each of the Positive Health dimensions of participating residents. The interviews were recorded and transcribed ad verbatim.

2.4. Analyses

Analyses were guided by a deductive as well as an inductive approach, using the framework method (38). For the initial framework, codes were determined in advance based on the elements described as the structural basis for observation and the Positive Health dimensions. During analysis of the data, it was necessary to add new codes after reading through transcripts and notes from observations. The analysis was organised using ATLAS.ti version 9.0.7.

3. Results

3.1. Participants characteristics

Six observations and fifteen semi-structured interviews were conducted within four nursing homes, with eleven participants and four carers as presented in Table 1. Interviews lasted 48 minutes (ranging between 24 to 78 minutes) on average. Interviewed participants, nine males and two females had a mean age of 86,4 years (SD = 8,01) and were recruited purposively by carers. All participants had some memory loss and physical limitations as four participants were dependent on the usage of a walker, and seven were wheelchair-bound. All interviewed participants had experience with angling before participating. Involved carers, three females and one male had a mean age of 53,0 years (SD = 11,06).

3.1.1. Participant recruitment and reasons to participate

Recruitment of participants for the Samen VISsen intervention was done by carers. Some carers mentioned during interviews: a few participants who were asked to participate replied not to have angling materials, but they agreed to participate when mentioned it was facilitated. Most carers generally asked males to participate, while one carer mentioned females should be recruited with the same effort. Interestingly, two carers mentioned this intervention attracts other participants than other activities:

“We reach another group with this activity, people who normally do not participate in activities that much ... That is certainly because they did it [angling] themselves back in the days.” [C2]

Table 1. Characteristics of involved participants and carers within each nursing home

Nursing home	Interviewee	Code used in quotes	Gender	Age	Physical limitations	Memory loss
Nursing home 1	Carer 1	[C1]	Female	39	No	No
	Participant 1	[P1]	Male	86	Wheelchair bound	Yes
	Participant 2	[P2]	Male	99	Walker usage	Yes
	Participant 3	[P3]	Male	91	Wheelchair bound	Yes
	Participant 4	[P4]	Male	88	Wheelchair bound	Yes
Nursing home 2	Carer 2	[C2]	Female	51	No	No
	Participant 5	[P5]	Male	82	Walker usage	Yes
	Participant 6	[P6]	Female	80	Wheelchair bound	Yes
	Participant 7	[P7]	Male	98	Wheelchair bound	Yes
Nursing home 3	Carer 3	[C3]	Female	52	No	No
	Participant 8	[P8]	Male	74	Wheelchair bound	Yes
	Participant 9	[P9]	Male	74	Wheelchair bound	Yes
Nursing home 4	Carer 4	[C4]	Male	70	No	No
	Participant 10	[P10]	Female	91	Walker usage	Yes
	Participant 11	[P11]	Male	87	Walker usage	Yes

Participants themselves described divergent reasons to participate. Nevertheless, all reasons did contain at least one aspect of historical experience or interest in angling, the drive to go outside and break their normal routine of sitting alone in their room, or being together with others:

“To be in another rhythm. I can sit inside the whole day, but that does not make sense ... I am used to be around other people” [P8]

But not all participants who attended, angle, as two attending females during observation 5 stayed seated at the table next to the spot. When the carer asked if they want a rod, one replied: “No, I am fine like this.” Now, after participant characteristics, results will be described per Positive Health dimension.

3.2. Positive Health

3.2.1. Bodily functions

During the activity, observations showed that almost all participants stayed seated, including those who were not wheelchair-bound. One participant, who depended on the use of a walker went for a short walk with his carer during the activity. Observations further showed most participants moved their rods themselves. In general, participants agreed with each other on the physical experience:

“I kind of liked it, especially the way they fed the fish. And catching a fish was nice. But furthermore, it is just sitting and holding the rod.” [P9]

Besides all participants had physical limitations as shown in Table 1, further limitations within this dimension varied from problems with sleeping, limited vision, and/or a low sense of energy. Participants were aware of the limitations:

“I cannot see very well because I can only see with one eye. I still wanted to participate, despite I am not able to see the float anymore, but the volunteer next to me watched for it.” [P11]

Despite the acknowledgement of limitations, carers mentioned every resident of the nursing home could participate because the activity is easily accessible and necessary support is available. Carers explained they stimulated participants to do as much themselves as possible to be more active than usual:

“I know volunteers let participants do as much themselves as possible during the activity which results in an extra experience. Yes, what participants can do themselves, they do.” [C2]

3.2.2. Mental functions and perceptions

During interviews, all participants described at least some slight memory loss, some mentioned difficulties coping with their limitations, while some participants with limitations did not feel sick at all. But in addition, participants mentioned the relieving effects of being active:

“But I do not know if you read my dossier. On October 28th, I want to undergo euthanasia ... Because I cannot live with my limitations ... But during, in fact, all activities, you think about different things. From bed to wheelchair and all that, if I do not have that then it is good.” [P9]

Participants described a similar distraction from limitations specific to angling:

“It [angling] gives a certain peace of mind ... Angling is, like a sport in which you can come to yourself.” [P4]

Concerning that, almost all participants seemed to stare at the float during observations, except for the activity of nursing home 3 because they did not use floats. During interviews in the other nursing homes, almost all participants mentioned staring at the float in relation to distraction:

“I think about nothing different than angling. I stare at the float and sometimes it goes beneath the surface and then I do not see it anymore. At that moment, my mind has different thoughts ... So, you have something to do and some distraction.” [P6]

Next to coping with limitations, participants mentioned difficulties with experiencing loss of control. Carers confirmed this and described the dependency of participants on carers and the fact that they are taken away from their partners. The intervention might have played a role in coping with the loss of control:

“But sadly enough, I am in a prison in here [nursing home] ... I am used to a good, free life ... But I liked it [angling]. Let’s be honest, I will say it again, you are on a different thought.” [P8]

3.2.3. Spiritual dimension

Carers and participants described nursing home residents did not participate in many activities; despite several activities a week took place within the nursing home. Although residents sat in their rooms for the main part of the day, participants described enjoying and being thankful for the angling activities:

“I am really thankful. So, I told the two ladies, the carers, I personally thanked them.” [P8]

During interviews, carers also mentioned participants look forward to the angling activity, which participants confirmed. Some participants told carers on Sunday evening they had to go to bed because they must angle the next day. Carers mentioned most residents who participated had experience with angling and so were familiar with it. This might be important for participants’ meaningfulness:

“It [angling] breaks the rut. It breaks the week, they are, again, not concerned about their health or other problems ... It is important to offer someone activities that they like and where they are passionate about from back in the days or still.” [C3]

Furthermore, several participants mentioned the importance and excitement of catching a fish and seeing what comes from beneath the surface. During observations, participants showed an exuberant reaction when catching fish. Carers recognize the value participants place on catching fish:

“Participants want to catch fish. I find that a bit disappointing. I thought: ‘what does it matter if you do not catch a fish?’ However, they find it quite important to catch something. Yes, that was quite a surprise for me.” [C2]

3.2.4. Quality of life

Regarding the Quality of life, several participants mentioned difficulties, like not feeling so joyful, or expressing less lust for life. In some other cases, participants reported generally feeling fine, but also that life is finished which already came forward in the quote of Participant 9 in part 3.3.2. In line with that, one participant described having a gloomy period, but not worried during the angling:

“Well, last period I have setbacks regularly ... But yeah, when you sit at the side of the water, with nice weather, you have nothing to worry about.” [P3]

They could again participate in a hobby from back in the day. Several participants mentioned being more satisfied living in the nursing home because they could angle again. But occasionally, as participants could not go themselves. In line with this, the intervention would be a partial contributor:

“You know, it [angling] contributes to the quality of life, but it does not only depend on angling ... it’s not the case that angling has a big contribution, it has some, but I think it could be everything ... it is the little things that matter.” [C1]

During observations, participants enjoyed things happening in the environment, as they pointed out flying birds, something about the weather, the fish, or sat and quietly watched what happened around them. Despite angling spots all located within a residential area, there were high levels of natural elements, sometimes so much that houses and other urban characteristics were not or hardly visible. Some participants described themselves as an outdoor person, while others explicitly describe the joy of experiencing nature:

“To see the water again. See this, see that, see ducks pass, or a coot, yes, that’s nice.” [P4]

3.2.5. Social & societal participation

During observations and interviews, there was almost no contact described between participants during the activities. Contact of participants with the volunteer played a bigger role as volunteers did really have time for conversations. Carers acknowledged the importance of these conversations:

“The regular carers do not have time to discuss things elaborately ... So, this [conversation with volunteers] is nice ... Conversations go more deeply and might not only be about angling.” [C3]

During interviews, the main topic of conversations with volunteers is described to be angling, the historical experiences, volunteers’ recent catches, but also more personal conversations. Sometimes the activity was at a place participants knew. In such cases, some participants reminisced:

“I chat a bit with the volunteer. And this man knew a little about [place of activity]. Yeah, because I asked: ‘There were other buildings over there in the past, weren’t there?’ Yes, he responded, they were broken down, these are new buildings.” [P4]

Outside the activity, involved nursing home carers mentioned to be associated with the intervention, they were told stories about it and asked about the next activity. Further, outside the activity, the amount of contact between participants differed per nursing home, in some nursing homes participants lived in different departments and did not seem to know each other. Despite this, some participants mentioned getting to know others. In another nursing home participants lived in the same department and became friends with the other participants:

“Well, they eventually became friends, yes ... So, there is a lot of angling jargon going across the table when we sit together.” [P9]

During all observations, pictures of participants were taken by carers. Interviewed carers described these pictures and their further processing of these. In one case the photo was shared with family, in another case it was printed and hung in the participants’ room. One carer mentioned caring staff referred to the picture and so initiated a conversation with residents. Participants also referred to these pictures:

“I remember where those pictures [pictures taken during angling activity] were taken, I remember well how that went ... We have a chatgroup with our family. So, I sent those pictures to my children ... they all reacted to the pictures.” [P7]

On top of the social interaction, the importance of going outside was also mentioned as the variance with sitting indoors, but also concerning being part of society. One carer described participants felt part of society because people walked by, looked at what was happening, and chatted with involved persons.

3.2.6. Daily functioning

Carers and participants both described the limitations of residents and their need for support regarding activities of daily living. Observations showed the importance of volunteers’ support to participants with angling specific tasks. Sometimes remaining places were complemented by carers, so all participants had one on one guidance. Carers mentioned without volunteers, such activities would not be possible because of a shortage of staff. Participants underlined the importance:

“You can say that a volunteer does important work, really important ... He is worth his weight in gold ... Such rod I had never used, the volunteer easily got it usable for me” [P4]

During observations, it was clear all carers facilitated a drink and something to eat. This was taken around by the carers, sometimes volunteers helped with this. But the main tasks of the carers were arranging the transportation to the angling spot and the health care of the participants:

“At first, the necessary care, I need help with that. That is the first requirement, to have that care ... the carer who helps me.” [P4]

4. Discussion

The goal of the present study was to examine the impact of the Samen VISsen intervention on the Positive Health dimensions of elderly residents of nursing homes. This is the first known research to look into the broad Positive Health effects of an angling intervention in elderly. The results showed that participants experienced effects on all six dimensions of Positive Health. However, Mental functions and perceptions and Social & societal participation were perceived to be most prominently influenced. While the prominence of Mental functions seems in line with previous research on angling interventions toward PTSD, the broader uncovered experienced effects look promising. In addition to companionship, as mentioned in earlier studies to explain the prominence of Social & societal participation, this study recognised more detailed mechanisms regarding different types of social support. To obtain these perceived effects, the elements which fit within the existing research of angling interventions toward PTSD appear to work in the elderly as well. But new potential mechanisms were identified to explain the broader perceived effects. Overall, the Samen VISsen intervention seems innovative in its kind as it suits the personal needs of certain nursing home residents whereas traditional activities often lack this.

All interviewed participants had experience with angling before participating in the interventions' activities. However, interviewed carers mentioned that this was not always the case, as some participants other than those interviewed were new to it, and so learned about a new activity. Both cases refer to the need for competence, which is part of the Self Determination Theory (39). The theory explains that the basic needs for competence, autonomy, and relatedness initiate motivation. Based on the results, especially perceived competence determined the initial motivation in this case and makes a difference to other activities. Eventually, during the activities, the feeling of competence might also explain the importance of catching fish. The fact that volunteers let participants do as much as possible, and so that their doings contributed to competence (catching fish), is a precondition for competence to enhance intrinsic motivation. This motivation promotes health and well-being, and is especially important in situations where basic needs are often frustrated like nursing homes (40). The basic needs of autonomy and competence, playing a role in the Self Determination Theory, also strongly relate to the self-managing element within the definition of Positive Health.

Different mechanisms are proposed for the potential effect of the intervention. Findings contribute to the support and further elaboration of the proposed mechanisms. Like nature, the attendance of natural elements directly emerges positive responses (16). But nature is mostly mentioned as an environmental construct with a fascination toward its occurrence. This environmental experience of nature regarding psychotherapy is described in previous research as the 'Outside world' (41). Previous research also described the 'Inside world' experience of nature, like 'being able to be me' or the 'inner peace in body and mind' (41). But current results mainly referred to the 'Inside world' in relation to angling, however, nature might unconsciously contribute. Although both variants of experiences might imply the soft fascination within the Attention Restoration Theory (17).

Angling seems to take participants to their 'Inner world'. Especially the float might be important in relation to Focussed Attention meditation (22, 32). The mechanism is supported by the results of participants who mentioned the float, but also with the absence of it in nursing home 3 which did not use floats. Experienced physical activity levels are low as most participants described they stayed seated during the activity. As light-intensity activities are still beneficial for health, for some it is all they possibly can perform, for example those participants that are wheelchair-bound. However, for others physical capacities were not fully utilized (27, 28, 29). Volunteers' support ensured that everyone can participate, regardless of limitations.

Functional social support played an important role in the four types emotional- (e.g., valuable conversations), informational- (e.g., information about fishes and angling), tangible- (e.g., angling materials), and belonging support (e.g., angling together with others) (22, 24). Further, the Relation Regulation Theory was thought to play the most important role in the affective-driven everyday interaction and shared activities of participants. However, improved relation regulation only appeared to be the case when participants lived in the same department (25). More commonly, the theory seems important for these interactions and shared activities and so the relationship between carers and participants. Pictures taken during the activities appear to contribute to conversations of participants' visitors, such as carers, when the picture is printed and hung up noticeably visible in the participants' room. The contribution of pictures might be valuable because persons with Alzheimer's disease remember pictures better than words, so nursing home residents can sincerely reminisce and talk along (42, 43). While it is important to mention the measurement of these types of social support shifts between perceived- (interviews) and received (observations) social support, participants seem mostly aware of the support and appreciate it. Together these types of social support seem to contribute to the need for relatedness as described by the Self Determination Theory (39). Although this seems unimportant for initial motivation, like competence is, but mainly for motivation after the first experienced activity. Integrating all discussed perceived effects, potential elements, and -mechanisms, this results in the Conceptual Angling-approach To Contribute to Health (CATCH) framework as shown in Figure 1.

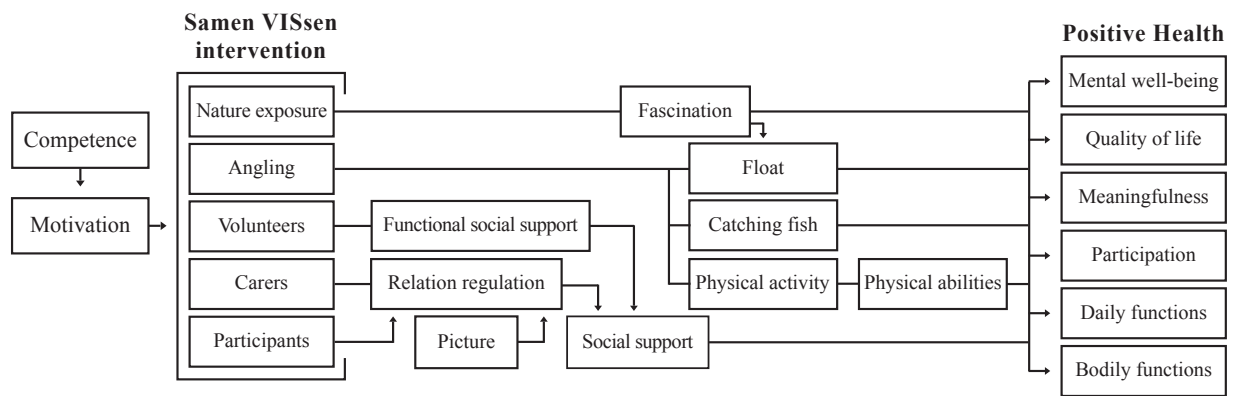


Figure 1. Conceptual Angling-approach To Contribute to Health (CATCH) framework

4.1. Limitations

The current study has several limitations. As is normally the case with qualitative research, generalizability is low as it is about a small sample, and despite involved nursing homes located in the northern, middle, and southern parts of the Netherlands, all nursing homes were located on the eastern side of the Netherlands. Given the qualitative design, no conclusions can be drawn about actual effects or mechanisms, but hypotheses are generated for further research. Also, interviewed participants were selected by carers purposively, selection bias may be a limitation as only enthusiastic participants were selected. This might be partly covered with data from carers' interviews. Further, in-depth insight into medical data was not possible, so relevant elements influencing effects might miss. Additionally, information about feelings or other sensitive information might not be shared if interviewees felt uncomfortable with the interviewer, gave socially desirable answers, or did not talk about these topics. Last, the Samen VISsen intervention is provided by volunteers, which may result in slightly different structures resulting in a different experience, for example within nursing home 3 which did not use floats. Although during observations activities' further essentials were equally present.

4.2. Intervention Recommendation

The impression has been raised that the intervention runs well. As discussed, pictures might play an important role after the interventions' activities have taken place. It is highly recommended to include taking pictures in the intervention protocol to foster this. The implementation of this might most obviously be done by nursing home carers. By taking clear pictures of all individual participants, printing these, and hanging these noticeably visible in participants' rooms, the sustainability of the impact of the intervention can be increased.

4.3. Future Research and Practice

As the current study is qualitative in nature, experimental studies are a logical next step to get an insight into the actual effect sizes and possible causality, but a mixed method approach with qualitative methods

is recommended (44). Although Positive Health seems the best suitable framework for this specific target audience, it needs to be kept in mind the only currently available quantitative measurement instrument is not suitable for use among the elderly. As our pre-test showed elderly could not validly report on this instrument. So, further development of measurement tools regarding Positive Health will be valuable, especially regarding quantitative studies. The applicability of measurement tools for low literate- and limited populations should be taken into account with the development because the concepts' relevance for these populations, as traditional objective health measures, are not always relevant or suitable. Also, as previous research showed, a natural environment, but also angling in specific, seems promising as part of psychotherapy (41). As research toward these angling interventions is in an early stage, this study adds this body of knowledge with several new mechanisms to explain the effects and broaden the application among a new target audience. Further application of these interventions among different target audiences should be explored in practice and research to discover its potential.

Further, the concept of Positive Health is spreading rapidly with different kinds of practices on different levels (45, 46, 47). As Positive Health seems suitable as the outcome of the Samen VISsen intervention among elderly residents in Dutch nursing homes, the broader application of Positive Health within Dutch nursing homes might be worth exploring. While the intervention was experienced as valuable by a specific group of nursing home residents as a result of their intrinsic motivation to angling. It might be argued that a broader variety of activities to which residents are intrinsically motivated, should be initiated on a regular base. Sports associations might contribute to this with interventions like the Samen VISsen intervention of the Dutch Angling Association, the proposed framework might also be suitable for these. Besides such activities, other settings within nursing homes to promote Positive Health could be looked at. This will be in line with positive ageing movements that aim to contribute to qualitative life years, instead of the number of years, and contributes to the purpose of the UN Decade of Healthy Ageing (2, 3, 40).

5. Conclusion

This study explored the perceived effects, potential elements, and -mechanisms of the Samen VISsen intervention among elderly in Dutch nursing homes. The intervention seems innovative in its kind as it reenables an old hobby. Participants experienced effects within all dimensions of Positive Health, in particular Mental functions and perceptions and Social & societal participation. The five elements: Nature exposure, Angling activities, Volunteer support, Carer involvement, and Participant relation regulation, were found to be primarily responsible for the impact on Positive Health. It is likely that they work through a variety of potential mechanisms, as introduced in the proposed CATCH framework. Integrating pictures in the intervention protocol is recommended, as this was found to be of added value in practice. Overall, the Samen VISsen intervention can be seen as potentially meaningful and suitable for elderly residents of Dutch nursing homes.

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