ORIGINAL ARTICLE

Reasons for Dermatology Consultations in Nursing Homes and the Estimated Potential of Teledermatology as a Triage Tool

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Considering the limited availability of dermatologists to perform live consultations in nursing homes, teledermatology could be used as a triage tool for selection of cases for which live consultations are considered to be of added value compared with teledermatology. This prospective, multicentre observational study aimed to determine the reasons for dermatology consultations in nursing homes and the estimated value of teledermatology as a triage tool, including potential predictors. Skin tumours were the most common reason ($n = 161/270$; 59.6%) for dermatology consultations in nursing homes. Dermatologists estimated that live consultations added value compared with teledermatology in 67.8% of cases ($n = 183$). Multivariable logistic regression showed that predictors for this added value of live consultations were: consultations because of a skin tumour; consultations during which a diagnostic or treatment procedure was performed; consultations during which a secondary diagnosis was made; and the dermatologist involved. These results indicate that using teledermatology as a triage tool potentially reduces the need for additional live consultations in one-third of patients, whereas live consultations are estimated to have added value over teledermatology in two-thirds of cases. To make optimal use of the limited capacity for live consultations by dermatologists, it could therefore be helpful if elderly care physicians use teledermatology more frequently.

SIGNIFICANCE

Considering the limited availability of dermatologists to visit patients in nursing homes, teledermatology could serve as a triage tool to select those cases in which seeing a patient physically is considered necessary. In order to provide the most optimally organized and efficient dermatological care in nursing homes, teledermatology and live consultations go hand in hand. This study shows that using teledermatology as a triage tool could reduce the need for additional live consultations in one-third of patients, whereas live consultations are estimated to have added value over teledermatology in two-thirds of cases, especially in patients with skin tumours.

W ith the rapidly ageing world population and increasing prevalence of multimorbidity, increasing numbers of people are in need of institutionalized long-term healthcare, as provided in nursing homes (NHs) (1–4). Among older adults living in NHs, skin diseases form a major health problem (with prevalences of the most common skin disorders ranging from 1% to 44%) and could have a significant impact on quality of life (5–8). The most common skin diseases in this patient group are eczema, fungal infections, (pressure) ulcers, and both benign and (pre)malignant skin tumors (9–13). Therefore, in this vulnerable patient group, consultation with a dermatologist is often desirable (14, 15). However, attending a dermatology clinic may not be feasible due to severe functional or cognitive impairment and/or logistical limitations.

Previous studies in different countries have indicated that current dermatological care in NHs might be improved in several ways, mainly by using teledermatology (TD) more frequently and by enabling dermatologists to visit NHs (14–21). Store-and-forward (SAF)-TD is the most commonly used type of TD, and includes the use of asynchronous still digital image technology for communication (17). Multiple studies demonstrated that SAF-TD is a cost-effective and easy-to-use consultation method, which was shown to be of significant value in daily dermatological practice, especially in patients who are not that easily able to attend a dermatological practice (18). On the other hand, SAF-TD is currently only used by a minority of elderly care physicians in the Netherlands and has several practical limitations (e.g. limited diagnostic accurary in pigmented skin lesions) (16–18, 22). Obviously, additional live consultation (LC) with a dermatologist might be needed in case of diagnostic

doubt and/or when a dermatologist is needed to perform a diagnostic or therapeutic intervention.

Although the majority of dermatologists in the Netherlands are willing to visit patients in NHs when indicated, a lack of time, daily practice efficacy, and financial compensation are mentioned as important thresholds (16). A nationwide survey study in the Netherlands in 2014 indicated that only 30% of the responding dermatologists had ever visited a NH for LCs (16). Due to this limited availability and capacity of LCs with dermatologists in NHs, TD could serve as an important triage tool to select those cases in which additional LC by a dermatologist might be of added value and thereby enable optimal efficacy of dermatological care in NHs. However, little is currently known regarding the added value of LC vs TD in this population. The aims of this study were therefore to determine: (*i*) the reasons for NH consultations by dermatologists; and (*ii*) the estimated value of SAF-TD as a triage tool, including potential predictors.

MATERIALS AND METHODS

Study design and participants

In this prospective multicentre observational study data from live NH consultations were prospectively collected between 18 February 2015 and 11 February 2021. Dermatologists (or dermatology residents supervised by a dermatologist) who regularly visited patients in different NHs in the Netherlands and were experienced in using SAF-TD were asked to participate. Patients were chronologically included in 20 different NHs throughout the Netherlands. The indication for a live dermatologist consultation in the NH was estimated by the patients' treating elderly care physician during regular daily clinical practice. Patients were then pre-registered for a consultation using a regular referral procedure including a standardized referral letter. None of the participating elderly care physicians used dermoscopy during the study period. Each patient could only be included in the study once. In case patients were visited multiple times for several dermatological problems during the study period, only the first visit including the first-mentioned dermatological problem was included. The need for a full-body examination by the consulting dermatologist was determined on a case-by-case basis.

Study outcomes and data collection

The participating physicians prospectively collected data using a predefined data-sheet based on multiple data sources (e.g. standardized referral letters, patient charts, findings during the NH consultations, pathology results). The pre-defined data-sheet, which is partially available in Appendix S1, was developed during a multidisciplinary brainstorming session by physicians in dermatology and NH care, and was pre-tested in 10 physicians to ensure optimal feasibility, comprehensibility and completeness of the questions, instructions and response options. The pre-defined data-sheet included sections on patient, disease and referral characteristics, consultation outcomes (including final diagnosis, applied diagnostic procedures and treatment) and consultation evaluation. Furthermore, baseline characteristics regarding every participating dermatologist (e.g. on years of experience, number of NH visits per year) were also collected.

Primary outcomes in this study were: (*i*) reasons for NH consultations and (*ii*) the estimated value of SAF-TD as a triage tool, in-

cluding potential predicting characteristics on the latter. The reason for live NH consultation was defined as the final diagnosis made by the dermatologist. A histopathological diagnosis was used as the final diagnosis, when available. In case of no histopathological diagnosis, the clinical diagnosis made by the dermatologist was used. The reasons for NH consultations were collected using an open-ended question, and further categorized using the following disease groups: benign tumour, premalignant tumour, malignant tumour, eczema, (pressure) ulcers, skin infection, and other. To evaluate the estimated value of SAF-TD as triage tool the dermatologists were asked to complete an "added value score", which was a 5-point-Likert scale on the estimated added value of LC compared with SAF-TD (ranging from 0: "no added value" to 5: "a lot of added value"), followed by an open-ended question for further explanation and comments. Also, a multiple choice question was used where the dermatologists had to estimate whether they would have advised the same policy if they had only been approached by SAF-TD ("yes", "no" or "not sure"). It was hypothesized that potential predicting characteristics for added value of a LC compared with SAF-TD might be the skin disease that was diagnosed, comorbidities, polypharmacy, whether a diagnostic or treatment procedure was perfomed, whether a secondary diagnosis was noted, or if the patient was legally competent to make medical decisions. Data on comorbidity were used to calculate the Charlson Comorbidity Index (International Classification of Diseases 10th revision; ICD-10 version), which is the most commonly used comorbidity index. This index results in a weighted score ranging from 0 to 30 assigned for 17 different categories of comorbid conditions, based on the 1-year relative mortality risk (a higher score indicates the presence of more comorbid conditions in a patient and a higher mortality risk) (23). Polypharmacy was defined as the chronic usage of ≥ 5 drugs at time of inclusion (24). The study was performed according to Dutch legislation (the "Medical Research Involving Human Subjects Act" (Wet medisch-wetenschappelijk onderzoek met mensen; WMO)). Due to the design and nature of this study the medical ethics committee waived the need for formal approval and written informed consent according to Dutch legislation.

Statistical analysis

First, baseline characteristics of dermatologists and patients were described and a univariate analysis was performed to study the relationship between potential predicting characteristics and the added value score.

For further analyses, the added value score provided by the dermatologists were categorized into 2 groups: "no added value" (Likert scores 1–3) and "added value" (Likert scores 4–5). Potential predicting characteristics included in the analysis were: disease group, Charlson Comorbidity Index, polypharmacy, whether a diagnostic procedure was performed during the NH consultation, whether a secondary diagnosis was noted during the NH consultation, whether a treatment procedure was performed during the NH consultation, the dermatologist who visited the NH patient and rated the consultation (hereafter noted as "the rating dermatologist") and whether the patient was legally competent to make medical decisions. Continuous data were expressed as median and range. Categorical data were expressed as number and percentage. For univariate analysis, categorical data were compared using a χ^2 test (or Fisher's exact test in case any of the cells had an expected count of less than 5).

Subsequently, multivariable logistic regression analysis was performed to further study the influence of the characteristics, which showed a statistically significant outcome in the univariate analysis on the added value score ("no added value" vs "added value"). The selection and inclusion of variables in this regression model were based on the rule of thumb that for multivariable logistic

regression at least 10 observations per variable in the model are required on the least prevalent of the 2 outcomes. Based on a first analysis we chose to further simplify the model by reducing the number of variables described here. Because adding a categorical variable with K categories adds K–1 dummy variables to the model, categorical variables have to be handled with care. Hence, the variable "disease group", which originally contained 4 categories in the first model (eczema, benign-, premalignant- and malignant skin tumour) was simplified to a dichotomous variable (eczema vs no eczema). "Rating dermatologist" is a categorical variable with 8 categories. This would also be too demanding for the data available. Therefore, observations made by the 4 dermatologists with 10 observations or fewer were excluded, reducing the number of cases available by 16, but reducing the number of variables in the model by 4. To further reduce the number of variables in the model we chose to combine 2 variables into 1 (diagnostic and treatment procedure performed). The results of both models are described below.

In all analyses, *p*-value < 0.05 was considered statistically significant. Data were analysed using Statistical Package for Social Sciences (SPPS) Statistics for Windows, version 25.0 (IBM, Armonk, NY, USA).

RESULTS

Baseline characteristics

Data on 270 consecutive NH consultations with 270 unique patients were collected by the participating dermatologists (*n*=8), visiting 20 different NHs between 18 February 2015 and 11 February 2021. None of the NHs used SAF-TD during the inclusion period. Baseline characteristics of the dermatologists and patients are summarized in **Table I**. In 39.4% (*n*=106) of the live NH consultations 1 or more diagnostic procedures were performed by the dermatologists. Dermoscopy was used most frequently; namely in 65 (24.1%) of the consultations, followed by punch biopsy (*n*=48; 17.8%). In 19.3% (*n*=52) of the live NH consultations a secondary diagnosis was made. The most common

secondary diagnoses were: premalignant tumours (*n*=20; 37.7%); followed by malignant tumours (*n*=11; 20.8%) and skin infections (*n*=6; 11.3%). In 71.9% (*n*=194) of the cases, the visit resulted in a therapeutic intervention (e.g. cryotherapy (shave) excision). A full overview of the consultation characteristics is shown in **Table II**.

Reasons for dermatology consultations in nursing homes

Fig. 1 provides an overview of the reasons for dermatology consultations in NHs. Skin tumours (both benign and (pre)malignant) accounted for 59.6% (*n*=161) of the reasons for NH consultations. Of the malignant skin tumours, 70.9% (*n*=39) were histopathologically confirmed. In the group "other", diagnoses were clustered, such as psoriasis (*n*=9; 3.3%), pruritus sine materia (*n*=3; 1.1%), and bullous skin diseases (*n*=5; 1.9%).

Table I. Baseline characteristics of participating dermatologists (*n*=8) and patients (*n*=270) included in this prospective multi-centre observational study

Baseline characteristics	
Dermatologists	
Age, median (range)	45 (29– 51)
Male sex, *n* (%)	3 (37.5)
Years of experience, median (range)	8 (1–18)
NH patient consultations per year, median (range)	45 (30–200)
NH locations visited on a regular basis, median (range)	2 (1–15)
Patients	
Age, median (range)	85 (29–103)[d]
Male sex, *n* (%)	99 (36.7)[d]
Legally competent to make decisions, *n* (%)	90 (33.3)[e]
Charlson Comorbidity Index[c], median (range)	2 (0–8)[f]
Polypharmacy[a]	237 (87.8)[b]

[a]Defined as the chronic usage of ≥5 or more drugs at time of inclusion. [b]Data on current medication use were missing in 4 patients. [c]Weighted score ranging from 0 to 30 assigned for 17 different categories of comorbid conditions, a higher score indicates the presence of more comorbid conditions in a patient and a higher 1-year mortality risk. [d]Data on age and sex were missing in 1 patient. [e]Data on whether the patient was legally competent were missing in 11 patients. [f]Data on comorbidities were missing in 2 patients.
NH: nursing home.

Table II. Univariate analysis of potential predicting characteristics on the estimated added value of nursing home (NH) consultations compared with store-and-forward teledermatology (SAF-TD) as indicated by participating dermatologists

Characteristics	No added value (*n*=87) *n* (%)	Added value (*n*=183) *n* (%)	Total (*n*=270) *n* (%)	*p*-value
Disease group				**<0.001***
Benign tumour	5 (5.7)	35 (19.1)	40 (14.8)	
Premalignant tumour	14 (16.1)	53 (29.0)	67 (24.8)	
Malignant tumour	12 (13.8)	42 (23.0)	54 (20.0)	
Eczema	29 (33.3)	18 (9.8)	47 (17.4)	
(Pressure) ulcers	4 (4.6)	4 (2.2)	8 (3.0)	
Skin infections	4 (4.6)	8 (4.4)	12 (4.4)	
Other	19 (21.8)	23 (12.6)	42 (15.6)	
Charlson Comorbidity Index[a]				0.079
0	7 (8.1)	8 (4.4)	15 (5.6)	
1	16 (18.6)	48 (26.4)	64 (23.9)	
2	15 (17.4)	44 (24.2)	59 (22.0)	
3	19 (22.1)	26 (14.3)	45 (16.8)	
4	20 (23.3)	27 (14.8)	47 (17.5)	
>4	9 (10.5)	29 (15.9)	38 (14.2)	
Polypharmacy[b]				0.339
Yes	78 (91.8)	159 (87.8)	237 (89.1)	
No	7 (8.2)	22 (12.2)	29 (10.9)	
Diagnostic procedure performed				**<0.001***
Yes	10 (11.5)	96 (52.5)	106 (39.3)	
No	77 (88.5)	87 (47.5)	164 (60.7)	
Secondary diagnosis made				**0.001***
Yes	7 (8.0)	46 (25.1)	53 (19.6)	
No	80 (92.0)	137 (74.9)	217 (80.4)	
Treatment procedure performed				**0.014***
Yes	71 (81.6)	123 (67.2)	194 (71.9)	
No	16 (18.4)	60 (32.8)	76 (28.1)	
Rating dermatologist				**0.009***
A	21 (24.1)	89 (48.6)	110 (40.7)	
B	31 (35.6)	38 (20.8)	69 (25.6)	
C	24 (27.6)	36 (19.7)	60 (22.2)	
D	2 (2.3)	2 (1.1)	4 (1.5)	
E	1 (1.1)	0 (0.0)	1 (0.4)	
F	5 (5.7)	10 (5.5)	15 (5.6)	
G	0 (0.0)	1 (0.5)	1 (0.4)	
H	3 (3.4)	7 (3.8)	10 (3.7)	
Patient is legally competent to make medical decisions[c]				0.814
Yes	28 (33.7)	62 (35.2)	90 (34.7)	
No	55 (66.3)	114 (64.8)	169 (65.3)	

Values may not add up due to rounding or missings; [a]data on comorbidities were missing in 2 patients; [b]data on current medication use was missing in 4 patients; [c]data on whether the patient was legally competent was missing in 11 patients; *p* < 0.05 are shown in bold.
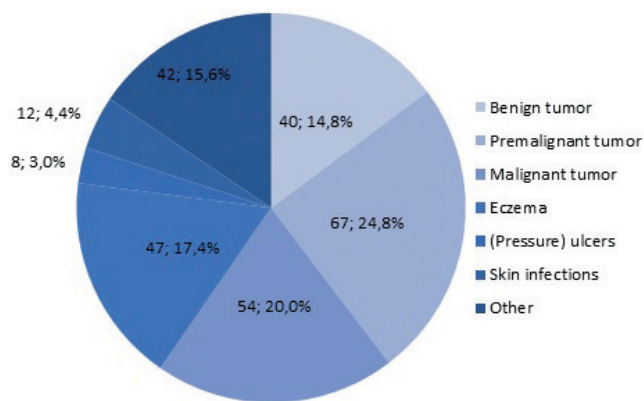
Fig. 1. An overview of the diagnoses made during dermatology consultations (n = 270) in nursing homes (NHs), categorized by major disease groups.

Value of live consultations in nursing homes compared with store-and-forward teledermatology

When the participating dermatologists indicated the estimated value of live NH consultations compared with SAF-TD on the Likert scale the median score was 4 (range 1–5). After categorizing the scores into 2 groups ("no added value" and "added value"), 183 NH visits (67.8%) were scored to be of "added value" and 87 (32.2%) visits were scored to have "no added value" (Table II).

When asked whether they would have advised the same policy if they had only been approached by SAF-TD ("yes", "no" or "not sure") instead of the LC in the NH, in 35.6% (n = 96) of the cases the dermatologists stated that they would not have advised the same policy. In 30 LC in NHs (11.1%) the dermatologists indicated they were not sure and in 144 (53.3%) of the LC they stated they would still have advised the same policy.

In total, 429 reasons for added value were provided in the open-ended question regarding the consultation evaluation. These reasons were further categorized as shown in **Table III**. Most stated reasons were the possibility of lesion palpation (n = 102; 23.8%), using cryotherapy (n = 55; 12.8%), using dermoscopy (n = 46; 10.7%), and taking a punch biopsy (n = 43; 10.0%) during the LC in the NH. Other reasons accounted for 19.1% (n = 82) of the reasons for added value, including contextual patient aspects.

Univariate analysis. Table II provides an overview of the univariate analysis of the different characteristics further stratified for the added value score. In 5 characteristics a significant difference was found between the "no added value" and "added value" groups: disease group (p < 0.001), whether a diagnostic procedure was performed (p < 0.001), whether a secondary diagnosis was made (p = 0.001), whether a treatment procedure was performed (p = 0.014), and the rating dermatologist (p = 0.009). There was no significant difference between the added value groups for the other characteristics (Charlson Co-

morbidity Index, polypharmacy, or whether the patient was legally competent to make medical decisions).

Multivariable analysis. Subsequently, a multivariable logistic regression analysis was performed to study the characteristics of significant influence on the added value score ("no added value" vs "added value") as identified in the univariate analysis in more detail. Two multivariable regression models were constructed, as described above.

The first model showed that the diagnosis skin tumour (benign: odds ratio (OR) 27.6; 95% confidence interval (95% CI) 7.3–104.3, premalignant: OR 12.2; 95% CI 4.1–36.0 and malignant: OR 10.1; 95% CI 3.3–30.5) is a strong predictor for the outcome "added value" compared with the diagnosis of eczema. Furthermore, performing a diagnostic or treatment procedure during the consultation also predicted an added value of the LC as estimated by

Table III. Reported reasons (n = 429) by participating dermatologists explaining why they indicated the nursing home (NH) consultations to be of estimated added value compared with store-and-forward teledermatology (SAF-TD)

Reported reasons	Responses n (%)
Diagnostic reasons	
Lesion palpation	102 (23.8)
Dermoscopy	46 (10.7)
Punch biopsy	43 (10.0)
Full-body skin examination	37 (8.6)
Different light conditions	36 (8.4)
Secondary diagnosis made	11 (2.6)
Lymph node palpation	6 (1.4)
Therapeutic reasons	
Cryotherapy	55 (12.8)
Shave excision	7 (1.6)
Curettage	4 (0.9)
Other reasons	
Patient-related factors (e.g. better indication of frailty status)	38 (8.9)
Interaction patient/partner/caregivers NH	31 (7.2)
Various reasons	13 (3.0)
Values may not add up due to rounding.	

Table IV. Multivariable logistic regression analysis on the influence of different variables on the estimated added value of dermatology consultations in nursing homes (NHs) compared with store-and-forward teledermatology (SAF-TD) as indicated by participating dermatologists

Variables	OR	95% CI	p-value
Eczema			
Yes	0.149	0.066–0.335	**< 0.001***
No	Reference		
Secondary diagnosis made			
Yes	4.25	1.53–11.84	**0.006***
No	Reference		
Diagnostic or treatment procedure performed			
Yes	2.15	0.890–5.186	0.089
No	Reference		
Rating dermatologist			
A	Reference		
B	0.311	0.150–0.645	**0.002***
C	0.408	0.113–1.478	0.172
F	0.290	0.134–0.628	**0.002***

The following variables were included in the regression model: eczema was diagnosed or not, secondary diagnosis made, diagnostic or treatment procedure performed and rating dermatologist (A, B, C and F). For the other dermatologists there were too few observations to enhance inclusion in the regression model. Skin tumours were excluded in this model due to their highly comparable effect on the outcome and to show only clinically relevant information.
OR: odds ratio; 95% CI: 95% confidence interval. p < 0.05 are shown in bold.

the dermatologist (OR 3.3; 95% CI 1.1–9.3). The effect of a secondary diagnosis during the consultation shows no statistical significant influence on the outcome (OR 2.6; 95% CI 0.9–7.9).

The second model (presented in more detail in **Table IV**) showed that, when simplifying the model by reducing the number of variables, the effect on the added value estimated by the dermatologist of performing a diagnostic or treatment procedure during the consultation was weakened (OR 2.1; 95% CI 0.9–5.2). In contrast, the effect of a secondary diagnosis became more relevant (OR 4.3; 95% CI 1.5–11.8 vs in the first model: OR 2.6; 95% CI 0.9–7.9). However, the diagnosis eczema is a predictor for no added value of a LC (OR 0.1; 95% CI 0.1–0.3). Both models show a comparable impact on the outcome by the rating dermatologists (Table IV).

DISCUSSION

The results of this study show that skin tumours (both benign and (pre)malignant) ($n=161$; 59.6%) followed by eczema ($n=47$; 17.4%) are the major reasons for dermatologists to visit a NH for LC. In 67.8% ($n=183$) of LCs, the dermatologists reported that the LC was estimated to be of added value compared with SAF-TD.

These findings generally correspond to the prevalences of different skin diseases found in previous studies (7, 9–13). However, a higher prevalence of skin cancer and a lower prevalence of skin infections was found in the current study. A possible explanation is that the threshold for referral to a dermatologist for skin lesions suspicious for skin cancer, is lower compared with skin infections, because elderly care physicians feel less experienced in diagnosing and treating skin cancer and that there is also often a lack of facilities to do so (14, 15). For elderly care physicians it might also be relevant to consult a dermatologist to further estimate the impact of a suspicious skin lesion on the quality of life of a patient.

This study found that the estimated added value of LC compared with SAF-TD by dermatologists is higher for skin tumours compared with eczema. Regression analysis indicates that the possibility of using direct diagnostics (e.g. palpation, dermoscopy, punch biopsy) or treatment (e.g. cryotherapy) are factors increasing the added value score in this study. This might be explained by several factors. Direct diagnostics or treatment are more often used in case of a (pre)malignant skin lesion compared with eczema. Furthermore, it was shown that SAF-TD has very limited applicability in case of skin tumours, possibly due to the lack of palpation, and the difficulty of diagnosing pigmented tumours from SAF-TD (17, 22)

Noting a secondary diagnosis during LC was also shown to increase the added value, especially when a (pre)malignant tumour was noted, which accounted for 58.8% ($n=31$) of the secondary diagnoses ($n=52$). Regression analysis revealed that the outcome is also influenced by the rating dermatologists, which seems to be partially explained by the extent of diagnostic and treatment procedures performed by the dermatologists during the NH consultations (e.g. some participating dermatologists never perform punch biopsies during their consultations). Other influential factors (e.g. skills of elderly care physicians, treating facilities in the NH) and contextual aspects of the patients have not been taking into account in this analysis and might reduce the effect found in the current study.

As shown by the results of this study, it it noteworthy that not only the technical aspects (e.g. facilities to treat and diagnose) of a LC are considered important, but also the contextual aspects of the patient. In the frail NH population, a patient-centered and holistic approach is considered to be of vital importance to provide the most appropriate healthcare. Therefore, interaction with the patient, their relatives and/or healthcare professionals is important, to properly identify relevant contextual factors, and estimate the possibility and feasibility of certain medical decisions. These aspects have an impact on management decisions, which was also indicated by the finding that 35.6% ($n=96$) of the dermatologists estimated that they would not have advised the same policy when they had only been approached by SAF-TD.

Based on the results of this study we suggest using TD as a triage tool for all NH patients where dermatological consultation is desired. In this scenario LC of low added value could possibly be reduced by 32,2% ($n=87$). Through innovations such as teledermoscopy or artificial intelligence (AI) the value of SAF-TD for skin tumours could be further improved, which could further reduce consultations of low added value. Considering 59.6% of the LCs were due to skin tumours for which (tele)dermoscopy is an essential diagnostic tool, (tele)dermoscopy could potentially substantially reduce the need for LC. In this context the value of realtime-TD (e.g. using smart glasses) to further assist in patient-centered care should also be assessed. Furthermore, a direct (randomized) comparison of LC vs TD could be beneficial to gain more insight into potential advantages and optimal triage.

Study limitations

Potential limitations to this study are the possible misinterpretation of some questions, and the self-assessing character of the questionnaire. To prevent misinterpretation, the questionnaire was pre-tested as described and, in addition, every participating dermatologist received comprehensive instructions on how to use the questionnaire. Another limitation is that, based on the specific population characteristics in this study (e.g. skin type distribution, healthcare system, dermatologist's experience visiting NHs, or availability of (tele)dermoscopy), the generalizability and validity of the results will vary.

Conclusion

To provide the most optimally organized and efficient dermatological care in NHs, TD and LCs go hand in hand. LCs are estimated to have added value over SAF-TD in two-thirds of cases, especially in patients with skin tumours. Based on the results of this study, using SAF-TD as a triage tool potentially reduces the need for additional LC in one-third of patients. Therefore, TD as a triage tool could help enable more efficient dermatological healthcare provision and it could be helpful if elderly care physicians use SAF-TD more frequently. Future research on the (cost)effectiveness of SAF-TD as a triage tool and implementation in teledermoscopy and real-time TD is recommended.

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