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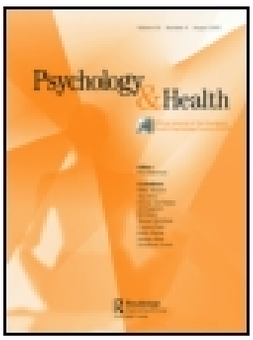

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An experimental test to reveal negative side-effects of high treatability information on preventative health behaviour

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Objectives: When the course of a disease can be positively changed by health professionals the disease can be indicated as 'highly treatable'. This 'high treatability information' (HTI) may have negative side-effects on people's preventative motivation. This study examined the effects of HTI regarding skin cancer on preventative motivation.
Design: This study employed a 2 (high treatability (HTI) versus low treatability (LTI)) × 2 (high versus low susceptibility)−experiment with a hanging control group. (family) History and self-efficacy were assessed as moderators. Participants ($N = 309$) were randomly assigned to one of the five conditions.
Main outcome measures: The main outcome was intention to engage in preventative actions regarding skin cancer.
Results: HTI significantly lowered the intention compared to LTI, under the condition of high susceptibility in people with low self-efficacy. In addition, in people with a (family) history of skin cancer, HTI significantly lowered the intention compared to the no-information group.
Conclusion: HTI regarding skin cancer can cause a drop in the preventative motivation. The effects can be conceptualised as negative side-effects of HTI. As substantial proportions of the general population have a (family) history of skin cancer or low self-efficacy, the side-effects may be widespread, possibly increasing the incidence of skin cancer.

Keywords: treatability; susceptibility; preventative health motivation; (family) history of a disease; self-efficacy

Introduction

'Cancer trial of drug combination yields "spectacular" results' (Halliday, 2015)
'New therapies raise hope for a breakthrough in tackling cancer' (Allen, 2014)
'New Drugs Prove More Effective in Treatment of Kidney Cancer, Studies Find' (Grady, 2015)

Mass media frequently communicate success stories in cancer research to raise money for charities, to provide the audience with positive news, or to motivate patients to get treated. In general, these success stories offer positive messages, however, despite such benefits, they may have negative side effects. Specifically, when the threat of dying

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from cancer in the future is related to both, medical treatments and specific health behaviours, improved treatments may deem the preventative health behaviours less necessary. Although the promise of effective treatments may stimulate the detection of illness (Dawson, Savitsky, & Dunning, 2006), when it comes to preventative behaviours it may lower the motivation to take preventative actions. As the success stories on cancer treatments can reach millions of people in the general population, the magnitude of the potential negative side-effects on a population level may be substantial. The present study aims to test and understand the effects of information concerning positive treatment effects on the intention to engage in specific preventative health behaviours: positive news on the treatability of skin cancer is expected to lower the intention to take preventative measures, such as using sun block.

Treatability information refers to information that communicates the degree to which the course of a disease can be changed by health professionals (Clarke, Lovegrove, Williams, & Machperson, 2000; Dawson et al., 2006). When the course of a disease can be positively changed by health professionals, we regard the disease as 'highly treatable', and the information which communicates this as 'high treatability information' (HTI). We assume that HTI has the potential to lower the threat of a certain disease, for example, cancer. In this regard, and building on parallel process models of threat information, the perceived threat of an illness is a result of two perceptions: the severity of the illness and the susceptibility to the illness (Leventhal, 1971; Witte, 1992). The severity of the illness refers to the negative outcomes the illness brings, for example, the risk of dying from the illness. The susceptibility to the illness refers to the risk the individual runs to contract the illness. The perceived threat will be high when the severity is high and susceptibility is high. We assume that the risk of dying from an illness may be lowered by the HTI, thereby lowering the motivation to take preventative actions. Such an effect has been suggested with regard to HIV-preventative behaviours: Stronger belief that HIV has become treatable is related to more risky sexual behaviours (e.g. Brennan, Welles, Miner, Ross, & Rosser, 2010; Misovich, Fisher, & Fisher, 1999), although no experimental proof has been gathered that supports a causal relationship.

The present study aims to gather such proof with regard to treatment and preventative behaviours concerning skin cancer. It is expected that when people process the HTI, they will incorporate it into their perceptions of skin cancer; they will adjust their perceptions (Bem, 1967), and decide whether investing in preventative behaviours regarding skin cancer is still needed. However, HTI is not expected to lower motivation in everybody: When people's perceived threat is low, motivation for preventative behaviour will already be low, and cannot be lowered further. Only when people experience a relevant level of threat, HTI can lower their motivation. In addition, a relevant level of perceived threat may imply the motivation to lower the threat; HTI may fulfil the need to get rid of the aversive feeling of threat (Gross, 1998).

In this study, HTI is formulated in the domain of skin cancer – a severe illness (Weinstein, 2000). High perceived severity is inherent to skin cancer, while high perceived susceptibility to skin cancer will be induced in the present study. Thus, in the high susceptibility condition the perceived threat is high. The expectation is that especially when the susceptibility to skin cancer is high, HTI will lower the intention to engage in preventative actions. Besides inducing high susceptibility, an individual difference regarding perceived susceptibility will be studied: Close experience with skin

cancer, in oneself or in one's family will be assessed as a proxy of perceived susceptibility.

There is evidence that the (family) history of a disease increases an individual's personal experience of the disease-related threat (Braithwaite, Emery, Walter, Prevost, & Sutton, 2004). Specifically, when an individual observes a relative's suffering from a disease, he or she will closely experience the physical and psychological impact of the disease on humans. This direct experience of a disease has greater impact on susceptibility perceptions than indirect or objective susceptibility information (Weinstein, 1989). Indeed, Rubinstein et al. (2011) showed that a (family) history of a specific illness is associated with a higher perceived susceptibility to that illness. Similar findings are reported by Finney Rutten and Iannotti (2003) and Spector et al. (2009). Qualitative data suggest that when family members have contracted a serious illness, the salience of the event may activate a personalising process in which they construct a personal risk, based on their perceptions of the illness, for example, on the cause of the illness being genetic (Walter & Emery, 2005). In line with these data we predict that one's (family) history of skin cancer will enhance the perceptions of susceptibility to skin cancer, and, therefore, will lead to a high threat of skin cancer. Therefore, we expect that in people with a (family) history of skin cancer HTI will lower the intention to engage in preventative actions.

In addition to (family) history, low self-efficacy expectations regarding preventative actions might also increase the threat to a level that the HTI can lower the threat, thereby lowering the motivation to engage in preventative actions. Self-efficacy refers to individuals' beliefs of competence and ability to perform the behaviour (Bandura, 1986; Fishbein & Yzer, 2003). Self-efficacy is regarded as an important predictor of successful health behavioural change (e.g. Dijkstra & Borland, 2003; Hagger, Chatzisarantis, & Biddle, 2001), and a high self-efficacy regarding preventative actions concerning skin cancer means that a person feels able to lower the threat and that investing in preventative actions may pay off. A low self-efficacy, however, means that a person does not feel able to lower the threat by preventative actions, thereby leaving the person stuck in the threat (Peters, Ruiter, & Kok, 2013). Thus, the expectation is that when self-efficacy is low, HTI will lower the intention to engage in preventative actions.

To test our expectations, an online experiment was conducted in the general population using a designed news articles on the treatability of skin cancer. Treatability (high versus low) and susceptibility (high versus low) were manipulated, while individual differences in (family) history and self-efficacy were assessed at pre-test. Ideally, actual preventative behaviour over a certain period would be used as dependent variable. However, in this study the HTI is manipulated and does not reflect the true state of treatability. Because it is expected that the information will lower people's inclination to engage in preventative action, using a behavioural outcome measure of actual preventative behaviour would expose them to risk, in the present study, the risk of skin cancer. Therefore, the outcome measure will be the best available proxy of behaviour, the intention to engage in skin protective behaviour, after which participants will be debriefed immediately.

Method

Recruitment and procedure

Participants were recruited from the general population in the Netherlands with a brief call on Facebook, Twitter and forums of different websites. The call mentioned that the research was about health information and that participants were asked to read a news message and answer some questions about it. By clicking the presented link, they were routed to an online system (Qualtrics). Here, participants were first informed about the coming procedure, and the anonymous handling of the data. Then they entered the study: They were presented with the pre-test measures, were randomly assigned to one of five experimental conditions, where they could read the experimental materials, after which they were presented with the post-test measures, including the dependent variables. Lastly, participants were debriefed by informing them that the article they read was manipulated, and that the real figures on susceptibility are 1 in 5, and that different types of skin cancer have different rates of treatment success, but that the overall treatment success percentage is about 90%.

Design and manipulations

The study employed a 2(high treatability versus low treatability) × 2(high susceptibility versus low susceptibility) design with a hanging control group. Participants were asked to read an online news article. The manipulations were embedded in the news article of 102 words. To develop realistic manipulations, a small pilot study was conducted: Ten people were interviewed and asked the questions: 'What percentage of skin cancer do you think is presently cured/will be cured in 10 years?'. Participants were very uncertain; they had little idea about the true percentages, and easily believed different percentages suggested by the interviewer. Therefore, the manipulations were as follows: The HTI was: 'Within 10 years 90% of the skin cancer patients can be cured (presently 20% is cured)', and the low treatability information was: 'Within 10 years 30% of the skin cancer patients can be cured (presently 20% is cured)'. The high susceptibility information was: '1 in 4 Dutch people now gets skin cancer', and the low susceptibility information was: '1 in 30 Dutch people now gets skin cancer'. In the control condition participants were asked to read a news article on 'watching the stars on a sunny evening'. The complete versions of the news messages used in the five conditions are provided in Appendix 1.

Measures

Pre-test

At pre-test, gender, age and education level were assessed as demographic variables. The highest completed level of education could be rated as one of twelve different types of education, which were recoded into two levels: low and high. Skin cancer experience was assessed with three items regarding (family) history of skin cancer: 'Did you ever have skin cancer yourself?', 'Was there ever skin cancer in your first family line (parents, children, brothers or/and sisters)?', 'Was there ever skin cancer in your second family line (grandparents, uncles or/and aunts)?'. These items could be answered by Yes or No. These variables were recoded into 'no (family) history' when

all three questions were answered with 'no', versus 'a (family) history' when one or more questions were answered with 'yes'.

The intention to prevent skin cancer was assessed using two items: 'When the temperature is 27° or higher and the sun is shining, would you protect yourself from the sun in any way when you would go outside (e.g. cover your skin or use sun block)?', 'When the temperature is 17° or higher and the sun is shining, would you protect yourself from the sun in any way when you would go outside (e.g. cover your skin or use sun block)?'. These items could be answered on five-point scales ranging from 'certainly not' (1) to 'certainly' (5). The correlation among the items was .32 ($p < .001$). The item scores were averaged to create a composite measure score of pre-test intention ($M = 3.04$, SD = 1.02).

One item on participants' previous sun block use assessed current protection behaviour: 'When I am in the sun I use sunblock.' This item could be answered on a 7-point scale, ranging from 'never' (1), 'rarely' (2), 'occasionally' (3), 'regularly' (4), 'often' (5), 'very often' (6), and 'always' (7).

Self-efficacy regarding preventative actions was assessed with nine items about the ability to use sun block under various circumstances, such as: 'Imagine, the sun shines and you find yourself on the beach unprepared. Are you able to use sunblock?', or 'Imagine, you are on the beach and want to protect yourself against the sun but you see that others don't do this. Are you able to use sunblock?'. These items could be answered on a seven-point scale: 'very certainly not' (1), 'certainly not' (2), 'probably not' (3), 'neutral' (4), 'probably' (5), 'certainly' (6), and 'very certain' (7). The Cronbach's alpha was .85.

Post-test

At post-test, the intention to prevent skin cancer was assessed with five items: 'When the temperature is 17° or higher and the sun is shining, would you protect yourself from the sun in any way when you would go outside (e.g. cover your skin or use sun block)?'; 'When the temperature is 27° or higher and the sun is shining, would you protect yourself from the sun in any way when you would go outside (e.g. cover your skin or use sun block)?'; 'I am planning to use sun block more often when the sun shines.'; 'I am planning to avoid the sun more often.'; 'I am planning to cover myself more often when the sun shines.'. These items could be answered on seven-point scales ranging from 'not planning at all' (1) to 'planning very strongly' (7). The average item score was the intention to engage in preventative actions, which was the main dependent variable. The Cronbach's alpha was .83.

Perceived treatability was assessed with the following three items on seven-point scales: 'How well can skin cancer be treated?', that could be answered from 'not very well treatable' (1) to 'very well treatable'(7); 'How successful will be the treatment of skin cancer in the future?', which could be answered from 'not successful' (1) to 'very successful'(7); 'The treatability of skin cancer will improve in the future.', which could be answered from 'will not improve'(1) to 'will strongly improve'(7). The average item score was the perceived treatability score, which was used as manipulation check. The Cronbach's alpha was .80.

Perceived susceptibility was assessed with these two items on seven-point scales: 'How high is your risk for skin cancer?', which could be answered from 'very small'(1)

to 'very high'(7); 'I run the risk for developing skin cancer.', which could be answered from 'no risk at all' (1) to 'very large risk'(7). The average item score was the perceived susceptibility score, which was used as manipulation check. The correlation of the items was .73.

Perceived severity was assessed with these six items on seven-point scales: 'I believe that skin cancer is serious.', which could be answered from 'strongly disagree'(1) to 'strongly agree'(7); 'I take skin cancer as serious.', which could be answered from 'strongly disagree'(1) to 'strongly agree'(7); 'I believe that skin cancer has serious negative consequences.', which could be answered from 'no negative consequences at all'(1) to 'many negative consequences'(7); 'Having skin cancer has negative societal consequences.', which could be answered from 'no negative societal consequences at all'(1) to 'many negative societal consequences'(7); 'Having skin cancer has negative psychological consequences.', which could be answered from 'no negative psychological consequences at all'(1) to 'many negative psychological consequences'(7); 'Having skin cancer has negative physical consequences.', which could be answered from 'no negative physical consequences at all'(1) to 'many negative physical consequences'(7); The average item score was the perceived severity score, which was used in manipulation check. The Cronbach's alpha was .85.

Participants

A total of 421 participants entered the survey system, but 335 participants completed all the measures. All the participants were Dutch. Because 26 participants were younger than 18 years old, they were excluded from the final sample. This final sample ($N = 309$) consisted of 287 (93%) female participants, 22 (7%) male participants, and the age ranged from 18 to 74 years ($M = 31.30$, SD = 11.80). Twenty-nine per cent of participants were classified as low educated (up to secondary education level), and the others were classified as high educated (undergraduate and postgraduate education level). Seventy-four per cent of the participants did not have a (family) history of skin cancer (themselves or in their family). The mean score of participants' pre-test intention to take protective measures was 3.07 (SD = 1.02) on the 5-point scale, and the mean score on the self-reported sun block use was 4.55 (SD = 1.61) on the seven-point scale (between 'regularly' and 'often').

Results

Randomisation check

χ^2 test results revealed that the five conditions did not significantly differ on the pre-test variables 'gender', 'education level' and '(family) history of skin cancer', all $ps > .1$. Besides, ANOVA test results revealed that the five conditions did not significantly differ on the variables 'age', 'pre-test intention' and 'pre-test protection behaviour', all $ps > .71$.

Manipulation check

To check whether the manipulations successfully affected perceived treatability, the five conditions were recoded into three conditions: low treatability condition, high treatability condition, and the control condition. An ANOVA indicated that perceived treatability was significantly different among these three conditions, F (2, 306) = 9.87, $p < .01$, $\eta_p^2 = .06$. Contrasts showed that in the high treatability conditions ($M = 5.20$), the perceived treatability was significantly higher ($p < .05$) than in the low treatability conditions ($M = 4.63$). In addition, in the high treatability conditions the score was significantly higher ($p < .05$) than in the control condition ($M = 4.86$). The perceived treatability in the low treatability conditions was lower than in the control condition, although the test was not significant ($p = .13$).

To test whether the manipulations of susceptibility were successful, the five conditions were recoded into three: low susceptibility conditions, high susceptibility conditions and the control condition. There was no significant difference in perceived susceptibility among the three conditions, F (2, 306) = .06, $p = .94$, $\eta_p^2 < .01$. The contrasts also showed no significant differences ($ps > .77$); the means in the conditions ranged from 3.66 to 3.71. Overall, the results suggested that the manipulation of the perception of treatability was successful but the perception of susceptibility was not influenced differentially by the manipulations.

In addition, an ANOVA was conducted to check whether the manipulations of treatability successfully influenced the perception of severity, as assumed in the theory. The results showed that the HTI led to a significantly ($p < .05$; one-sided test) lower perceived severity ($M = 5.87$) compared to the control condition ($M = 6.08$). However, the low treatability information condition ($M = 5.94$) did not differ significantly from the control condition, and neither did both treatability conditions. The means of perceived severity in all three conditions were high, possibly caused by a ceiling effect: The treatability information was able to lower the perceived severity, but not to increase it.

Effects of manipulated susceptibility

A two-way ANCOVA was conducted (excluding the control condition) to analyse the effects of susceptibility information (low versus high) and treatability information (low versus high) on post-test intention to engage in preventative actions. Age, education level, gender, pre-test protection behaviour and pre-test intention served as covariates (with the continuous measures converted into z-scores). The results showed no significant main effect of susceptibility, F (1, 236) = 1.20, $p = .27$, $\eta_p^2 < .01$, and no significant main effect of treatability, F (1, 236) = .16, $p = .69$, $\eta_p^2 < .01$. However, there was a significant two-way interaction between treatability and susceptibility, F (1, 236) = 5.83, $p = .02$, $\eta_p^2 = .024$.

Figure 1 shows the means of the post-test intention. As expected, the combination of high susceptibility information with HTI lowered the intention: Contrast analyses showed that when treatability was high, high susceptibility information led to a significantly lower intention ($M = 4.00$) compared to the low susceptibility information ($M = 4.47$), F (1, 113) = 5.18, $p = .01$, $\eta_p^2 = .056$. In addition, when susceptibility was low, HTI ($M = 4.47$) increased the intention compared to low treatability information

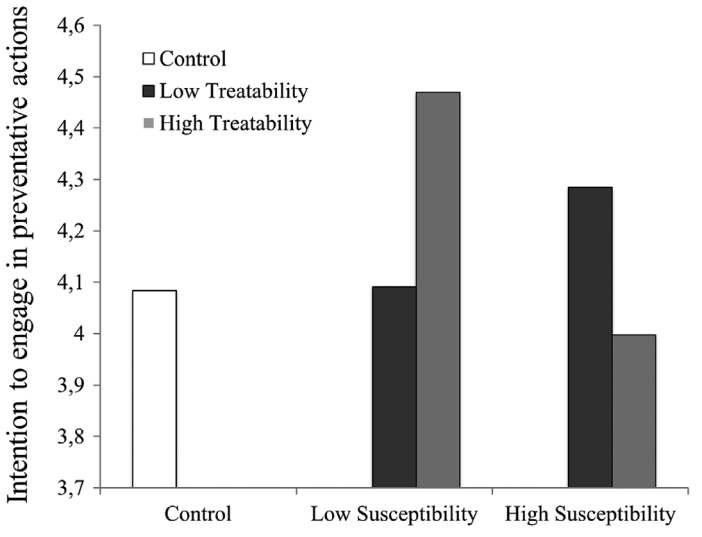

Figure 1. Effects of treatability and susceptibility manipulations on the intention to engage in preventative actions.

($M = 4.09$), although the p-value only approached significance, $p = .08$. None of the other contrasts between the four conditions were significant ($ps > .18$).

To compare all four experimental conditions with the control condition, another ANCOVA was conducted. Condition (i.e. four experimental conditions and one control condition) was regarded as the independent variable; intention to engage in preventative actions was the dependent variable, and the same covariates as above were included in the model. The result indicated that there was no significant difference on the post-test intention among these five conditions, F (4, 299) = 2.04, $p = .09$, $\eta_p^2 = .02$. Contrast analyses showed one significant difference: When treatability was high but susceptibility was low ($M = 4.47$), the intention was higher than the intention in the control condition ($M = 4.08$), $p = .04$.

The mediating role of perceived severity

To test our reasoning that the effects of treatability information on intention are mediated by severity, model 4 of the PROCESS macro (Hayes, 2012) was used. Two mediation tests were conducted; one under the condition of low susceptibility and one under the condition of high susceptibility. The control group was excluded from these analyses. Under both conditions, the analyses showed that the 95% bias-corrected bootstrap confidence intervals of the indirect effect included zero, indicating no mediation.

Effects of (family) history of skin cancer

In a preparatory analysis the effect of two levels of (family) history on post-test perceived susceptibility in the four experimental conditions was tested using an ANOVA,

controlled for the susceptibility manipulation. The test showed that the perceived susceptibility in the group without (family) history ($M = 3.53$) was significantly lower than and in the group with a (family) history ($M = 4.15$), F (1, 305) = 13.86, $p < .001$, $\eta_p^2 = .054$. This effect was even somewhat stronger when tested in the control condition only ($p < .01$, $\eta_p^2 = .11$). Thus, (family) history of skin cancer may be regarded as an individual difference indicator of perceived susceptibility.

To analyse the influence of this moderator, we started with conducting a three-way interaction ANCOVA (treatability × susceptibility × (family) history), excluding the control condition, with the post-test intention to engage in preventative actions as the dependent variable, and the same covariates as above. The three-way interaction was not significant F (1, 232) = 1.75, $p = .19$, $\eta_p^2 < .01$, nor were the three two-way interactions in the model. Thus, the model including the susceptibility manipulation and excluding the control condition did not reveal significant effects. Despite the non-significant three-way interaction we decided to further analyse the effects of (family) history. The two-way interaction in participants without a (family) history ($n = 179$) was significant, F (1, 170) = 6.46, $p = .012$, $\eta_p^2 < .037$, and it revealed the same pattern of mean as depicted in Figure 1 (the highest score was $M = 4.54$ in the high treatability and low susceptibility condition), including two significant contrasts. The two-way interaction in participants with a (family) history ($n = 66$) was not significant, $F < .01$ (the highest score was $M = 4.32$).

Another test of the moderating effect of (family) history was conducted, now including the control condition and excluding the susceptibility manipulation, in a 3 (low treatability conditions, high treatability conditions, and control condition) × 2 (with or without (family) history of skin cancer)-analysis. This two-way interaction was tested in an ANCOVA, with intention to engage in the preventative actions as dependent variable, and the same covariates as above, but now also including the susceptibility manipulation as a covariate. No main effects were found on treatability, F (2, 297) = .10, $p = .91$, $\eta_p^2 < .01$, and on (family) history, F (1, 297) = .24, $p = .63$, $\eta_p^2 < .01$, but the expected two-way interaction between treatability and a (family) history was significant, F (2, 297) = 3.87, $p = .02$, $\eta_p^2 = .026$. Thus, as we expected, the effects of treatability information on intention was moderated by a (family) history of skin cancer.

Figure 2 shows the estimated means of the post-test intention by treatability information and (family) history of skin cancer. Contrast analyses showed that when participants were exposed to the HTI, those with a (family) history scored significantly lower on intention ($M = 4.87$) compared to participants without a (family) history ($M = 4.29$), $p = .04$. This may be a manifestation of the expected effect. In addition, in participants with a (family) history, the HTI led to a significantly lower intention compared to the control condition, $p = .018$, while in participants without a (family) history it led to a significantly higher intention compared to the control condition, $p = .042$.

Effects of self-efficacy

To analyse the influence of self-efficacy as a moderator, we started with conducting a three-way interaction ANCOVA (treatability × susceptibility × self-efficacy), excluding the control condition, with the post-test intention to engage in preventative actions as the dependent variable, and the same covariates as above. This analysis indicated that there was no significant three-way interaction among these variables, F (1, 232) = 1.66,

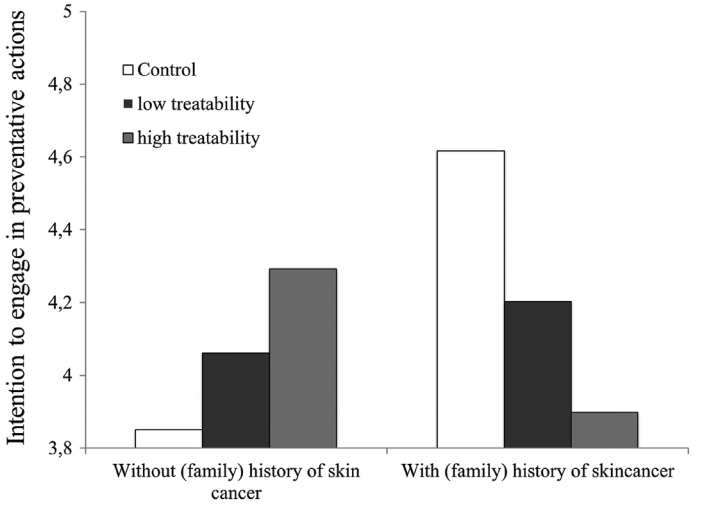

Figure 2. (family) History of skin cancer as moderator of the effects of treatability information on the intention to engage in preventative actions.

$p = .20$, $\eta_p^2 < .01$. Within the three-way model, only the above reported two-way interaction (treatability × susceptibility) was significant, F (1, 232) = 4.31, $p = .04$, $\eta_p^2 = .018$. Despite the non-significant three-way interaction we decided to further analyse the possible moderating effects of self-efficacy. That is, the effect of HTI is expected to occur *especially* when the threat is high; when self-efficacy is low.

Instead of using a median-split to construct a low and a high self-efficacy group, that would lower statistical power and use an arbitrary cut-off point, we applied moderation analyses (Cohen, Cohen, West, & Aiken, 2003): A high self-efficacy group and a low self-efficacy group were modelled using the whole data-set (still excluding the control condition) by decreasing and increasing the z-score of self-efficacy with 1 standard deviation, respectively, using an ANCOVA procedure (Siero, Huisman, & Kiers, 2009). Figure 3 shows the means of the post-test intention by treatability and susceptibility in two levels of self-efficacy. Analyses revealed that only when self-efficacy was low, there was a significant two-way interaction (treatability × susceptibility), F (1, 232) = 5.44, $p = .02$, $\eta_p^2 = .023$. When self-efficacy was high, this two-way interaction (treatability × susceptibility) was not significant, F (1, 232) = .38, $p = .54$, $\eta_p^2 < .01$. Contrast analyses in the low self-efficacy group showed the expected effect of HTI: When susceptibility was high, high treatability manipulation also led to a significantly lower intention ($M = 3.65$) than the low treatability manipulation ($M = 4.27$), F (1, 232) = 4.78, $p = .03$, $\eta_p^2 = .02$. In addition, when treatability was high, the high susceptibility manipulation led to a significantly lower intention ($M = 3.65$) than the low susceptibility manipulation ($M = 4.23$), F (1, 232) = 4.79, $p = .035$, $\eta_p^2 = .019$. In the high self-efficacy group, no contrasts were significant. These analyses suggest that the intention-lowering effect of the combination of HTI and high susceptibility was prevented by high self-efficacy.

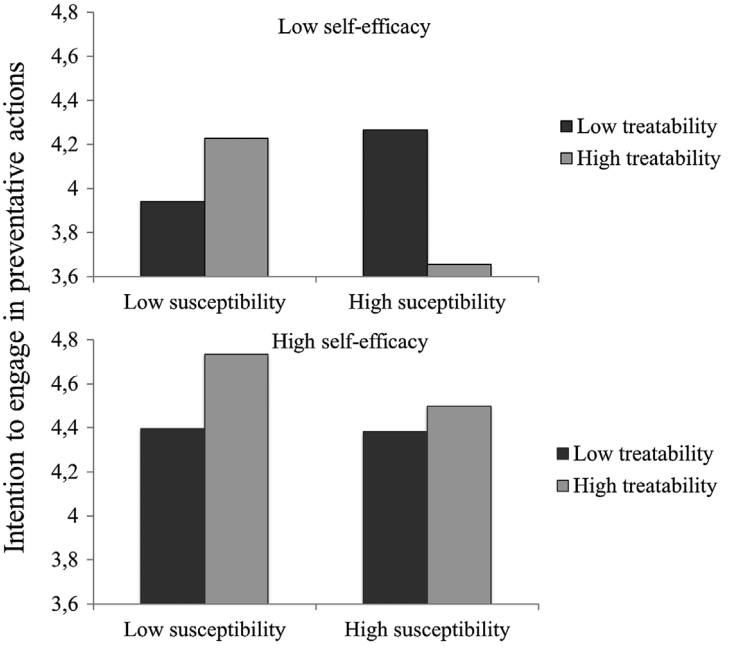

Figure 3. Self-efficacy as moderator of the effects of treatability information on the intention to engage in preventative actions.

Another test of the moderating effect of self-efficacy was conducted, now including the control condition, in a 3 (low treatability conditions, high treatability conditions, and control condition) × self-efficacy-analysis. This two-way interaction was tested in an ANCOVA, with intention to engage in the preventative actions as dependent variable, and the same covariates as in the former analysis. This interaction was not significant, F (2, 324) = .98, p = .38, $\eta_p^2 < .01$, and no contrasts were significant.

Discussion

The aim of this study was to explore the expected negative side-effects of HTI on preventative health intentions. It was expected that especially when the threat is high, HTI will be used to lower the threat, leading to a lowered inclination to take preventative actions. Taken together the results were consistent with our predictions. Specifically, the lowest intention to engage in preventative action was found when HTI was presented in the context of: (1) induced high susceptibility; (2) a (family) history, and; (3) low self-efficacy.

One major assumption was that skin cancer was seen as a serious illness. Indeed, our data showed that the scores on severity were quite high; around 6 on a 7-point scale. Only with a serious illness, high susceptibility information can be expected to lead to a high threat, the perceived susceptibility that is caused by a (family) history will lead to a high threat, and a lack of control to prevent the disease will lead to a high

threat. Thus, our main expectation that HTI can have negative side-effects, and that these side-effects especially occur under high threat, was verified.

The drop in intention can only occur when the threat is high: (1) only then it is possible to correct and adapt one's perceptions and related intentions downwards, and; (2) only then the HTI may lead to a relief of negative emotions. The latter mechanism can be seen as a form of emotion-regulation (Gross, 1998) and in the field of health persuasion as a manifestation of fear-control (Witte, 1992). The present study was not designed to assess the exact mechanisms at play.

The two-way interaction between susceptibility information and treatability information was significant, although the expected intention lowering effect of HTI (under conditions of high susceptibility) was not. Still, the combination of high susceptibility information and HTI led to the lowest intention. This intention ended up at about the same level as in the control condition. Thus, the HTI in itself did not make things worse so much, but it at least neutralised the potentially motivating effects of the high susceptibility information (although this particular contrast did not reach the conventional level of significance). However, in participants with a (family) history of skin cancer, who had a relatively high intention in the control condition, the intention dropped below that in the control condition because of the HTI. Thus, while the spontaneous intentions of these participants were high, the HTI lowered it significantly.

These results occurred under conditions of high susceptibility (induced or from (family) history). In contrast, when induced susceptibility was low, HTI led to the highest intention (although the difference with LTI only approached significance): In the case of skin cancer, it seemed that despite low susceptibility, the HTI motivated people to take actions themselves: One way or another it seems that these people were motivated to invest even more in preventative behaviours. It may be that especially in combination with high treatability these people believed their preventative behaviour would pay off (i.e. avert the threat): The anticipation of engaging in preventative behaviour made them feel more safe. Under conditions of HTI, this 'hope' that a preventative behaviour would avert the threat may have been undermined by the high susceptibility information: This information led to a significant drop in intention. Thus, although the need to engage in preventative behaviour should be even higher when susceptibility is high, the contrary was observed. The drop may be a manifestation of emotion-regulation to get rid of the aversive feeling of threat.

The first moderator that was tested was (family) history of skin cancer. Despite the results showing that the three-way interaction was not significant, further analysis showed that the overall pattern – found in the analyses without moderators – was only present in participants without a (family) history of skin cancer; those with a (family) history all scored lower on intention. This pattern suggests that people with close experience with skin cancer did not receive the differences between the manipulated conditions; it may be because they processed the information more defensively (although there was no main effect of (family) history on post-test intention), or their increased perceptions of susceptibility may have rendered the susceptibility manipulations ineffective.

The statistical model excluding the susceptibility induction showed a significant interaction between the (family) history and the treatability induction. Indeed, (family) history was assumed to be an indicator of susceptibility (Rubinstein et al., 2011), as the data showed that having a (family) history was associated with a significantly higher

perceived susceptibility at post-test. A (family) history reflects participants' close experience with skin cancer, personally or in family members, making it more salient, possibly related to people's genetic similarity concerns. Therefore, it increases the threat of skin cancer, which, in the present study, was not further influenced by the susceptibility information. The effects of HTI can be understood in our theoretical framework. That is, when participants did not have a (family) history, the HTI increased the intention of preventative actions, thereby conceptually replicating the effect of HTI when induced susceptibility was low; when participants had a (family) history, the HTI lowered the intention, as expected. The intention was lowered significantly compared to the control group, not compared to LTI. This shows that the strong spontaneous intentions to engage in preventative action of people with a (family) history were undermined by HTI. The level of intention induced by HTI was even significantly lower than that of people without a (family) history of skin cancer; after the HTI it was as low as the spontaneous intentions of people without (family) history.

Although (family) history of skin cancer was associated with increased susceptibility, the mechanism at play remains uncertain: As (family) history was not manipulated, it is possible that a third variable set the condition for HTI to lower the intention. Still, the finding that a (family) history of skin cancer lowers the inclination to engage in protective behaviour is practically relevant, as in Western societies there are substantial numbers of skin cancer patients. For example, between 2007 and 2011, 4.9 million people were treated for skin cancer in the US (Guy, Machlin, Ekwueme, & Yabroff, 2015). All these skin cancer patients have families who know about their illness. In the present study, 25% of the participants had a (family) history of skin cancer. These figures imply that there is a large population segment in which HTI through mass media can lower the intention to take preventative actions. Depending on how many people are exposed to the HTI on skin cancer, many of them would be influenced negatively by the information, running unnecessary risks to skin cancer due to a lack of personal preventative actions. Moreover, the findings in this study only concern skin cancer. We predict that the HTI regarding other prevalent illnesses that are related to preventative behaviours, such as lung cancer, diabetes, heart diseases and stroke will have similar effects when people experience a high threat, for example, because of a (family) history with the illness.

Like the (family) history of skin cancer, self-efficacy regarding preventative action is also thought to be related to the motive to use the HTI to lower the threat (Peters et al., 2013; Witte, 1992). Although the three-way interaction was not significant, the interaction between susceptibility and HTI was significant when self-efficacy was low but not when self-efficacy was high. Moreover, only when self-efficacy was low the means and contrasts showed the pattern which we expected: When susceptibility was high, HTI significantly lowered the intention compared to LTI. Thus, the side-effect of HTI was prevented when self-efficacy was high. These findings regarding self-efficacy as the moderator suggest probable population effects: People in the population vary in how confident they are that they are able to take preventative actions. Although low self-efficacy in itself lowers the intention to engage in sun protection behaviours (Jackson & Aiken, 2000), this study showed the negative effect is enhanced by HTI. Again, we predict that HTI with regard to other cancers and illnesses has similar effects.

This study has some relevant limitations. The most obvious limitation of this study is that the measured dependent variable was the intention to engage in preventative

actions, rather than actual behaviour. Although the presence of strong intentions is the core predictor of goal-directed behaviour, the correspondence between intentions and behaviour is limited (the 'intention–behaviour gap'; Fennis, Adriaanse, Stroebe, & Pol, 2011; Sheeran, 2002). However, the present study was designed to demonstrate the negative side-effect of HTI and from an ethical point of view we cannot deliberately make people actually behave unhealthy. By assessing the dependent variable intention immediately after the experimental manipulations, participants could be debriefed in time to prevent the negative side-effects to occur in actual behaviour. Another limitation of this study is a lack of measurement of threat-based emotions. It was expected that when the threat was high, people would use the HTI to lower it. One plausible operationalisation of threat could have been experienced fear, but we did not measure this. In addition, another limitation is that the manipulation check concerning susceptibility indicated a failure to induce this perception, although the induced susceptibility did influence the effects of treatability information on intention. This suggests that the manipulation check susceptibility measures were not able to capture the induced effects. This may be caused by people's inclination to rapidly form a functional optimistic bias with regard to their vulnerability when they are confronted with a serious illness (Weinstein, 1982). Finally, it seemed there was a ceiling effect on our measure of severity. With regard to skin cancer it may be necessary to formulate the highest-score anchor more extreme to capture more possible variance. This ceiling effect may also have resulted in a lack of the expected mediation by severity.

This study is the first to experimentally test and find negative side-effects of optimistic information on a medical treatment. The question, now, is what can be done with this knowledge. To start with, more experimental studies are needed but also field studies that monitor what happens when new optimistic messages are spread through the media. Because the HTI often is factual information, it cannot be denied and it is probably undesired to stop publishing this information. However, we might focus on generating recommendations for media to publish HTI but avoid the negative side-effects. For example, certain health behaviour recommendations might be published together with the HTI to increase self-efficacy. Experimental studies may systematically test what is effective in preventing the side-effects. The present findings may also motivate us to look for possible negative side-effects of other types of health information on preventative actions.

In conclusion, under conditions of high threat, the HTI can have negative side-effects on people's motivation regarding preventative actions. Because in society there are many people with relevant (family) histories and low self-efficacy regarding preventative measures, at present the accumulated negative side-effect of HTI regarding different preventable illnesses will probably be substantial. The present study raises awareness of these side-effects and, thereby, may contribute to a solution to prevent the negative side-effects.

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References

Allen, A. (2014, February 17). New therapies raise hope for a breakthrough in tackling cancer. *The Washington Post.* Retrieved from https://www.washingtonpost.com/national/health-science/new-therapies-raise-hope-for-a-breakthrough-in-tackling-cancer/2014/02/14/b4f8e4fc-8dad-11e3-95dd-36ff657a4dae_story.html

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall, Inc.

Bem, D. J. (1967). Self-perception: An alternative interpretation of cognitive dissonance phenomena. *Psychological Review, 74*(3), 183–200.

Braithwaite, D., Emery, J., Walter, F., Prevost, A. T., & Sutton, S. (2004). Psychological impact of genetic counseling for familial cancer: A systematic review and meta-analysis. *Journal of the National Cancer Institute, 96*(2), 122–133. doi:10.1093/jnci/djh017

Brennan, D. J., Welles, S. L., Miner, M. H., Ross, M. W., & Rosser, B. R. S. (2010). HIV treatment optimism and unsafe anal intercourse among HIV-positive men who have sex with men: Findings from the Positive Connections Study. *AIDS Education and Prevention, 22,* 126–137. doi:10.1521/aeap.2010.22.2.126

Clarke, V. A., Lovegrove, H., Williams, A., & Machperson, M. (2000). Unrealistic optimism and the health belief model. *Journal of Behavioral Medicine, 23*(4), 367–376. doi:10.1023/A:1005500917875

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*. Mahwah, NJ: LawrenceErlbaum Associates.

Dawson, E., Savitsky, K., & Dunning, D. (2006). 'Don't tell me, I don't want to know': Understanding people's reluctance to obtain medical diagnostic information. *Journal of Applied Social Psychology, 36*(3), 751–768. doi:10.1111/j.0021-9029.2006.00028.x

Dijkstra, A., & Borland, R. (2003). Residual outcome expectations and relapse in ex-smokers. *Health Psychology, 22*(4), 340–346. doi:10.1037/0278-6133.22.4.340

Fennis, B. M., Adriaanse, M. A., Stroebe, W., & Pol, B. (2011). Bridging the intention–behavior gap: Inducing implementation intentions through persuasive appeals. *Journal of Consumer Psychology, 21*(3), 302–311. doi:10.1016/j.jcps.2010.12.003

Finney Rutten, L. J., & Iannotti, R. J. (2003). Health beliefs, salience of breast cancer family history, and involvement with breast cancer issues: adherence to annual mammography screening recommendations. *Cancer Detection and Prevention, 27*(5), 353–359. doi:10.1016/s0361-090x(03)00133-8

Fishbein, M., & Yzer, M. C. (2003). Using theory to design effective health behavior interventions. *Communication Theory, 13*(2), 164–183. doi:10.1111/j.1468-2885.2003.tb00287.x

Grady, D. (2015, September 25). New drugs prove more effective in treatment of kidney cancer, studies find. *The New York Times.* Retrieved from http://www.nytimes.com/2015/09/26/health/2-new-drugs-prove-more-effective-against-kidney-cancer-studies-find.html

Gross, J. J. (1998). Antecedent-and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology, 74*(1), 224–237.

Guy, G. P., Machlin, S. R., Ekwueme, D. U., & Yabroff, K. R. (2015). Prevalence and costs of skin cancer treatment in the U.S., 2002–2006 and 2007–2011. *American Journal of Preventative Medicine, 48*(2), 183–187. doi: 10.1016/j.amepre.2014.08.036

Hagger, M. S., Chatzisarantis, N., & Biddle, S. J. H. (2001). The influence of self-efficacy and past behaviour on the physical activity intentions of young people. *Journal of Sports Sciences, 19*(9), 711–725. doi:10.1080/02640410152475847

Halliday, J. (2015, June 1). Cancer trial of drug combination yields 'spectacular' results. *The Guardian*. Retrieved from https://www.theguardian.com/society/2015/jun/01/paradigm-shift-hailed-in-treatment-of-lung-cancer

Hayes, A. F. (2012). *PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling* (White paper). Retrieved from http://www.afhayes.com/public/process2012.pdf

Jackson, K. M., & Aiken, L. S. (2000). A psychosocial model of sun protection and sunbathing in young women: the impact of health beliefs, attitudes, norms, and self-efficacy for sun protection. *Health Psychology, 19*(5), 469–478. doi:10.1037/0278-6133.19.5.469

Leventhal, H. (1971). Fear appeals and persuasion: The differentiation of a motivational construct. *American Journal of Public Health, 61*(6), 1208–1224.

Misovich, S. J., Fisher, J. D., & Fisher, W. A. (1999). Belief in a cure for HIV infection associated with greater HIV risk behaviour among HIV positive men who have sex with men. *Canadian Journal of Human Sexuality, 8*(4), 241–248. doi:10.1521/aeap.2010.22.2.126

Peters, G. Y., Ruiter, R. A. C., & Kok, G. (2013). Threatening communication: A critical re-analysis and a revised meta-analytic test of fear appeal theory. *Health Psychology Review, 7*, S8–S31. doi:10.1080/17437199.2012.703527

Rubinstein, W. S., Acheson, L. S., O'Neill, S. M., Ruffin, M. T., Wang, C., Beaumont, J. L., & Rothrock, N. (2011). Clinical utility of family history for cancer screening and referral in primary care: A report from the Family Healthware Impact Trial. *Genetics in Medicine: Official Journal of the American College of Medical Genetics, 13*(11), 956–965. doi:10.1097/GIM.0b013e3182241d88

Sheeran, P. (2002). Intention—behavior relations: A conceptual and empirical review. *European Review of Social Psychology, 12*(1), 1–36. doi:10.1080/14792772143000003

Siero, F. W., Huisman, M., & Kiers, H. A. L. (2009). *Voortgezette regressie en variantieanalyse* [Advanced regression and variance analysis]. Houten: Springer Media

Spector, D., Mishel, M., Skinner, C. S., Deroo, L. A., Vanriper, M., & Sandler, D. P. (2009). Breast cancer risk perception and lifestyle behaviors among white and black women with a family history of the disease. *Cancer Nursing, 32*(4), 299–308.

Walter, F. M., & Emery, J. (2005). 'Coming down the line'– patients' understanding of their family history of common chronic disease. *The Annals of Family Medicine, 3*(5), 405–414.

Weinstein, N. D. (1982). Unrealistic optimism about susceptibility to health problems. *Journal of Behavioral Medicine, 5*(4), 441–460. doi:10.1007/BF00845372

Weinstein, N. D. (1989). Effects of personal experience on self-protective behavior. *Psychological Bulletin, 105*(1), 31–50. doi:10.1037/0033-2909.105.1.31

Weinstein, N. D. (2000). Perceived probability, perceived severity, and health-protective behavior. *Health Psychology, 19*(1), 65–74. doi:10.1037/0278-6133.19.1.65

Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. *Communication Monographs, 59*(4), 329–349. doi:10.1080/03637759209376276

Appendix 1. The complete version of the news messages used in five conditions and its translations

Condition 1: Low treatability and high susceptibility

Within 10 years 30% of skin cancer patients can be cured

It is apparent that some sunburns can lead to an increased chance of skin cancer, but through more efficient treatment and the application of new techniques, more skin cancer patients can be cured.

Currently, 20% of skin cancer patients can be cured, but that could be 30% in 10 years. That is said by Professor H. Pinedo, who is working in Cancer Centre Amsterdam (CCA) from the medical centre of Vrije Universiteit.

'1 in 4 Dutch people now gets skin cancer, so we are very happy with this expected progression', says Professor H. Pinedo.

Wetenschap

Gepubliceerd: 19 juli 2014 18:16
Laatste update: 19 juli 2014 18:15

Deel:

Binnen 10 jaar kan 30 procent van de huidkankerpatiënten genezen worden

Het blijkt dat enkele verbrandingen al kunnen leiden tot een verhoogde kans op huidkanker, maar door efficiëntere behandeling en de toepassing van nieuwe technieken kunnen meer huidkankerpatiënten genezen.

Foto: Antoni van Leeuwenhoek

Op dit moment geneest 20 procent van de huidkankerpatiënten, maar dat zou over 10 jaar 30 procent kunnen zijn. Dat stelt professor H. Pinedo van het Cancer Center Amsterdam (CCA) van het medisch centrum van de Vrije Universiteit.

"1 Op de 4 Nederlanders krijgt nu huidkanker, dus we zijn erg blij met deze verwachte progressie", aldus professor H. Pinedo.

Door: NU.nl/ Jop de Vrieze

Condition 2: High treatability and low susceptibility

Within 10 years 90% of skin cancer patients can be cured

It is apparent that some sunburns can lead to an increased chance of skin cancer, but through more efficient treatment and the application of new techniques, more skin cancer patients can be cured.

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Condition 3: Low treatability and low susceptibility

Within 10 years 30% of skin cancer patients can be cured

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Door: NU.nl/ Jop de Vrieze

Condition 4: High treatability and high susceptibility

Within 10 years 90% of skin cancer patients can be cured

It is apparent that some sunburns can lead to an increased chance of skin cancer, but through more efficient treatment and the application of new techniques, more skin cancer patients can be cured.

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Door: NU.nl/ Jop de Vrieze

Condition 5: Control condition

Look at the stars on the sunny summer evenings

At the Public Observatory Philippus Lansbergen you can now go to the 'Zeeuwse Sunny Summer Evenings' every Friday evening. During those evenings you will learn more about the sun, the universe and of course you can take a look at them yourself.

The evenings begin with a brief introduction of the sun. H. Pinedo is an astronomer and astronomy is his great hobby. There are some sun spots to see on some good evenings. Therefore, he would like to tell you more about this.

'There is still so much what people do not know. These sunny summer evenings bring people something more' says H. Pinedo.

Wetenschap

Gepubliceerd: 19 juli 2014 18:16
Laatste update: 19 juli 2014 18:15

Deel:

Kijken naar de sterren op de zonnige zomeravonden

Bij de Volkssterrenwacht Philippus Lansbergen kun je nu elke vrijdagavond naar de Zeeuwse Zonnige Zomeravonden. Tijdens die avonden leer je meer over de zon, het heelal en mag je natuurlijk zelf ook even kijken.

Foto: Volkssterrenwacht

De avonden beginnen met een korte introductie van de zon. H. Pinedo is astronoom en sterrenkunde is zijn grote hobby. Op goede avonden zijn er onder andere zonnevlekken te zien. Hij vindt het dan ook leuk om hierover te vertellen.

"Er is nog zoveel wat de mensen niet weten. Door zo'n zomeravond breng je de mensen toch nog iets bij", aldus H. Pinedo.

Door: NU.nl/ Jop de Vrieze