



IUL - School of Social Sciences
Department of Social and Organizational Psychology

Risk Normalization in Sunlight Exposure

Gabriela Ferreira Gaspar

Dissertation submitted as partial requirement for the conferral of
Master in Social and Organizational Psychology

Supervisor:

Doctor. Sílvia Coelho Ribeiro Fernandes Luís Alves, Investigator CIS-IUL
ISCTE – University Institute of Lisbon

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“It’s not the destination so much as the journey.”

Jack Sparrow, 2011

To my best friends, my best company, my best everything – my mom and dad,
to Silvia, for the enormous calm and patience, and for embracing this challenge as her own.

Resumo

O presente estudo tem como objetivo explorar a existência de um processo de normalização de risco, devido à utilização de ilusões positivas, nos indivíduos que se expõem ao sol na praia. Com base num estudo piloto ($N = 44$) aferiu-se que as ilusões positivas mais referidas pelos indivíduos são a utilização de medidas de proteção complementares, como o protetor solar ou a ingestão de água, ao invés da não exposição ao sol durante o horário considerado mais perigoso (12h-15h). Para compreender se a utilização destas medidas de proteção se poderia associar a um processo de normalização de risco à exposição solar, aplicou-se um questionário ($N = 276$) a uma amostra de conveniência, que foi reduzida em dois grupos tendo por base a média dos comportamentos de proteção – baixos comportamentos de proteção ($n = 74$) e altos comportamentos de proteção ($n = 41$). Os resultados indicam que existem diferenças entre as amostras relativamente ao processo de normalização de risco. Como esperado, para os indivíduos que têm elevados comportamentos de proteção e se expõem ao sol no horário mais perigoso existe uma relação negativa entre o conhecimento de risco e a perceção de risco da exposição solar (i.e., existe normalização de risco) mas não nos indivíduos que se expõem fora desse horário. Foi também testado o efeito de variáveis moderadoras: mediação das consequências do risco no tempo e literacia em saúde na relação entre conhecimento e perceção de risco. Apenas a literacia em saúde teve um efeito significativo, tendo contrariado o efeito de normalização. Sendo que nos últimos anos se tem enfatizado também os benefícios da exposição solar, explorou-se ainda qual seria a relação entre o conhecimento de benefícios e a perceção de risco e qual o papel das variáveis moderadoras. Verificou-se a existência de uma relação positiva entre conhecimento de benefícios e perceção de risco de exposição solar, sendo esta relação moderada pela mediação das consequências do risco no tempo. Quando os indivíduos consideram que as consequências do risco são tardias, o conhecimento de benefícios associa-se a uma menor perceção de risco.

Este estudo tem implicações que poderão ser relevantes para a comunicação do risco. Em particular importa: a) alertar que a utilização de medidas de proteção durante o horário mais perigoso não garante imunidade ao risco da exposição solar; b) apostar na promoção em literacia em saúde para minimizar a normalização de riscos; c) compreender como os riscos e os benefícios associados à exposição solar interagem para influenciar a perceção de risco.

Palavras-chave: exposição solar, normalização da perceção de risco, ilusões positivas, literacia em saúde.

Abstract

The present study focuses on the understanding of whether there is a process of risk normalization, due to the use of positive illusions, in individuals who expose themselves to sunlight on the beach. A pilot study ($N = 44$) evidenced that the positive illusions most referred are the use of protective measures during exposition at unrecommended time. To understand whether knowledge of sunlight exposure risks and risk perception could be negatively associated, due to the use of protective measures, a questionnaire was applied to a convenience sample ($N = 276$). The sample was reduced in two groups that reported being exposed between 12 am and 3 pm - low protective behaviors ($n = 74$) and high ($n = 41$). Results illustrate the normalization process only in individuals who have high protection behaviors, as expected. The effect of moderating variables was also tested: mediation of the consequences of risk in time and health literacy in the relation between knowledge of risks and risk perception. Only health literacy had a significant effect, decreasing normalization. The role of knowledge of benefits was also explored. It was positively related to risk perception and this relation was moderated by mediation in time.

This study suggests that it is important to a) warn that the use of protective measures during the hazardous time does not guarantee immunity, b) promote health literacy, as it can minimize risk normalization c) understand how information on risks and benefits interact to influence risk perception.

Keywords: sunlight exposure, normalization of risk perception, positive illusions, health literacy.

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Introduction

Every year we hear about the misdeeds of the sun and about the care we must take in our exposure to it. Furthermore, with the worsening of global warming ultraviolet rays (UV) have changed, posing serious problems to the human skin, such as the increase of skin cancer (Diffey, 2003). Despite the possible pleasure of being exposed to the sun, the longer one is under the sun, the greater is the damage on human skin and the risk to develop skin cancer (Hampton, 2017). Thus, efforts have increasingly been made to ensure that information on sunlight exposure risk reach the entire population. Although campaigns appear to have been effective in informing people about the risks of sunlight exposure, behaviors do not seem to have changed (e.g., Gruijl, 1999; Rodrigues et al., 2014). Indeed, there is evidence that individuals have risky behaviors despite their awareness of sunlight exposure risk (Sjöberg, Holm, Ullén & Brandberg, 2004). As such, this research explores the possible occurrence of a process of risk perception normalization of sunlight exposure, tapped by a negative association between knowledge of risk and sunlight risk exposure. In addition, as moderated exposure to sunlight has also benefits for human health, the role of knowledge of benefits of sunlight risk exposure was also explored.

Chapter I – State of art

1.1. The sunlight exposure

The sun is essential to life, however it is also dangerous. The sunlight is composed of rays with varying wavelengths and energy. A part of the sun's rays is retained by the ozone layer, but UV (UVA and UVB) are not and act on the skin (Garnier, 2016). Ultraviolet radiation is the major environmental factor affecting the function and structure of the human skin (Lavker, Gerberick, Veres, Irwin & Kaydbey, 1995). In accordance with the World Health Organization, human exposure to solar UV has important public health implications. Evidence of harm associated with overexposure has been demonstrated in many studies, particularly of skin cancer and malignant melanoma. The rise in the incidence of skin cancers over the past decades is strongly related to outdoor activities and recreational exposure. Overexposure to sunlight is widely accepted as the underlying cause for harmful effects on the skin, eye and immune system. Experts believe that four out of five cases of skin cancer could be prevented, as UV damage is mostly avoidable (Lucas, McMichael, Smith, & Armstrong, 2006).

Excessive sunlight exposure is a major cause of skin lesions, leading to premature aging and skin cancer (Lavker, Gerberick, Veres, Irwin & Kaydbey, 1995). According to Gruijl (1999), the habits of light skinned individuals in developed countries in the search for the sun have contributed to the increase in skin cancer observed over the last century, being the most common type of cancer in the USA and in Australia. In Sweden, skin cancer is also the type of cancer that is increasing most rapidly (Sjöberg, Holm, Ullén & Brandberg, 2004). In Portugal, there are about twelve thousand new cases of skin cancer per year (<http://sicnoticias.sapo.pt/pais/2017-05-17-Casos-de-cancro-de-pele-aumentam-em-Portugal>). Thus, it is recommended that individuals should avoid direct sunlight, especially between 11 am and 4 pm. During exposure to sunlight, individuals should be hydrated by drinking lots of water and avoiding sugar drinks; there is a need of protecting against heat and always search for shadowing and fresh places when outdoor; the use of light clothing and especially made of cotton and also the use of hats and sunglasses; finally, the use of sunscreen with protection factor 30 or higher, reapplying every two hours (e.g., General Directorate of Health, 2016). Nevertheless, it is common to see many people on the beach between 11 am and 4 pm, or even between 12 am and 3 pm, if we would like to be less strict. Therefore, the question arises: how do this people deal with sunlight exposure risk?

On the other hand, the World Health Organization also recommends a moderate degree of UV exposure, necessary to produce Vitamin D which is essential for bone health (Lucas et al., 2006). In the medical community, vitamin D is gaining a lot of interest since it can help to reduce the risk of developing cardiovascular disease and increase levels of wound healing (Tur, 2013). It is also essential because it releases serotonin - a neurotransmitter acting inside the brain which regulates sleep, mood, sensitivity to pain, body temperature and other things – which is very important to keep a good mental health (Hampton, 2017).

Thus, public health policy on ultraviolet radiation needs to aim at preventing the disease burden associated both with excessive and with insufficient UV exposure. Achieving the balance between overexposure and insufficient exposure might be a challenge. Indeed, Hoel, Berwick, Gruijl and Holick (2016), illustrate that Americans have been recommended to reduce their sunlight exposure, based on the worries that this exposure will promote the appearance of skin cancer but, simultaneously, there has been an increasing number of individuals suffering from vitamin D deficiencies, which brings enormous health problems. As such, in addition to understand how individuals deal with knowing the risks of sunlight exposure, this research aims to understand how individuals integrate the benefits of sunlight exposure in their risk perception.

1.2. Risk perception and risk normalization

Considering the amount of information that is available about the dangers of excessive sunlight exposure, knowledge about their harm and protective behaviors might have become commonplace from generation to generation.

Risk perception is associated with qualitative aspects as the degree of knowledge about the risks (whether the risk is new, whether the risk is visible or invisible), as the nature of the devastation that can cause (Lima, 2004). The formation of risk perception is related to considerations about the performance of information and knowledge in risk perception (O'Connor, Bard & Fisher, 1999). However, knowledge about risk is not always positively related to the perception of the same risk, being that "the continuous awareness of an uncontrollable risk can paradoxically normalize the perception of risk" (Luís et al., 2016; Lima, 2004). Risk normalization is a process of risk trivialization that is particularly likely when individuals voluntarily expose themselves to threats and when the effects of risks are not immediate (Luís et al., 2016), as it can be on the case of sunlight exposure. Risk normalization might result of risk awareness and continued risk contact (Luís et al., 2016; Lima, 2004). An example might be when people know the risks but voluntary expose

themselves to the sun at unrecommended hours, do not perceive any consequences of the exposure to sunlight, and use protective measures as a means of controlling the threat.

1.2.1 Positive illusions

According to Taylor (1983), the human mind has the ability to successfully overcome several tragedies of life. After studying several patients with cancer, heart diseases among others, that is people whose lives were threatened, she developed the Theory of Cognitive Adaptation. This theory suggests that individuals develop cognitive illusions - or positive illusions - to deal with some sort of threat (Taylor, 1983).

Positive illusions are coping strategies that people use to deal with the risks and gain control over environmental hazards; social psychologists have shown that some kind of illusions may have “an adaptive role in mental health and well-being of individuals” (Luís et al., 2016).

If individuals want to keep going to the beach between 12 am and 3 pm, and thereby exposing themselves to harmful sunlight, a way to psychologically cope with this threat is by using positive illusions. In particular, the use of protective measures, which function as a protective supplement and not as a barrier to UV rays, can be a positive illusion and reduce the risk perception of sunlight exposure risks.

1.3. Health Literacy

According to the World Health Organization (1998), the definition of health literacy reveals itself as "the set of cognitive and social competences and the capacity of individuals to access the understanding and use of information, in a way to promote and maintain good health". This concept is related to health promotion issues, but also adopts the form of a tool to navigate health systems (e.g., Pedro, Amaral & Escoval, 2016). According to these authors, "the promotion of citizens' health literacy has been identified in the last decades as the way to better care".

Thus, it is expected that an individual with low health literacy will also have low levels of knowledge compared to those with adequate health literacy (Pedro, Amaral & Escoval, 2016). Therefore, they might not perceive sunlight exposure as a threat and, as such the process of minimization will not occur.

1.4. Objective and hypothesis

In this study, we pretend to understand if there is a process of risk normalization in individuals who expose themselves to the sunlight on the beach on a hazardous time of the day. The recommended time period for non-exposure is between 11 am and 4 pm. We focused on how individuals that exposed themselves to sunlight during 12 am and 3 pm dealt with that risk. The hypotheses on this study were based on risk perception normalization and on how positive illusions account for normalization. We expected that:

H₁: There is a negative relationship between the knowledge of the risks associated with sunlight exposure and the perception of risk (risk normalization process) when individuals rely on positive illusions;

H₂: The risk normalization effect is moderated by the perception of voluntary exposure to risk and it has a negative impact on the relation between knowledge of risks and risk perception;

H₃: The effect of risk normalization is moderated by the perception of the effect of solar exposure being mediated in time and it has a negative impact on the relation between knowledge of risks and risk perception;

H₄: The risk normalization effect is moderated by health literacy and it has a positive impact on the relation between knowledge of risks and risk perception.

Chapter II - Methodology

2.1. Pilot study

The pilot study was administered ($N = 44$) via internet. Participants were asked about the period of time they usually went to the beach / pool / river, and asked to rate the time (which they had indicated in the previous question), on a scale of 1 (not harmful) to 7 (very harmful) in terms of possible negative impacts on their health. Finally, participants were asked to indicate up to three reasons to justify the previous response.

As can be seen in Table 1, the positive illusion most mentioned by the participants refers to the use of protective measures (22.73%), even when these exposed themselves to sunlight between 12 am and 3 pm. It was also verified that these individuals had low risk perceptions, since the average of responses related to the risk of their sunlight exposure is below the midpoint of the scale.

Table 1

Results of the pilot study about sunlight exposure habits.

Schedule	Risk classification (Mean)	Justifications	Percentage
Between 12 am and 3 pm	3	The use of sunscreen, drinking plenty of water and the fact that they are shaded, and so they are protected from the sun.	22.73%
Not between 12 am and 3 pm	2.2	The sun is less strong	20.45%
Not between 12 am and 3 pm	2.8	It is not too hot	18.18%
Not between 12 am and 3 pm	2.75	Thinking that sunbathing between 12 am and 3 pm is bad for the skin, but before and after that time it is not.	15.91%

Note: Risk classification scale range from 1 to 7.

2.2. Main study

2.2.1 Participants

This study has a sample of 276 participants, collected through a convenience and snowball sampling, where 33.8% are male and 66.2% are female, aged from 18 to 70 years ($M = 31.03$, $SD = 11.28$). Most of the participants are from coastal zones (66.4%) and mostly had a graduation (42.7%) and the high school level (40.2%). In a scale from 1 (never) to 5 (always) participants report a very positive financial situation ($M = 4.65$, $SD = 0.57$).

2.2.2 Procedure and measures

Knowledge, risk perception, protection behaviors, beach frequency schedule and other information were collected in a questionnaire administered via the internet.

Knowledge. Objective knowledge consists of 2 questions with a response scale ranging from 1 (certainly false), 2 (probably false), 3 (partly false, partly true), 4 (probably true), and 5 (certainly true), one regarding knowledge on sunlight exposure risk (*frequency of skin cancer* - "Skin cancer is the most common type of cancer in Portugal") and the other regarding knowledge on sunlight exposure benefits (*vitamin D* - "Casual solar exposure (5 to 15 minutes, 2 To 3 times a week) does not allow maintaining high vitamin D levels). These measures are considered adequate as previous studies indicate that these categories of knowledge to be highly relevant. In particular, individuals tend to identify skin cancer as the most common negative effect of sunlight exposure, and to identify vitamin D as the most benefic thing we take from this exposure (Al-Naggar, Al-Naggar & Bobryshev, 2011).

Risk perception. We focused on personal risk perception, which was measured by two items on a scale ranging between 1 (very low) and 7 (very high), assessing the risks of sunlight exposure to health and the likelihood of occurrence of health problems (Spearman-Brown coefficient is .67). Regarding the moderator variables, the questions followed on the psychometric approach of Fischhoff, Slovic, Lichtenstein, Read and Coms (1978): "Do people get into these risky situations voluntarily?", on a scale ranging from 1 (involuntarily) to 7 (voluntarily); and "To what extent does the risk of sunlight exposure appear to be immediate, or is it likely to occur later?", on a scale ranging from 1 (immediate) to 7 (late).

Protective behaviors. In a scale from 1 (never) to 7 (always), individuals were asked to identify what types of protection they use when they are exposed to sunlight: use of sunscreen with a protection factor less than 30; use of sunscreen with protection factor 30 or higher; applying protector every 2 hours; drinking plenty of water throughout the day; wearing light and light clothes on hot days; wearing hats and sunglasses on hot days; protecting yourself in

the shade of the parasol (Cronbach's $\alpha = .68$). These protection tips were retrieved from the general recommendations from General Directorate of Health. (<https://www.dgs.pt/saude-a-a-z.aspx?v=8e00381f-52ce-45fb-b5a0-35fe84fa926a&v=8e00381f-52ce-45fb-b5a0-35fe84fa926a#saude-de-a-a-z/calor/recomendacoes-gerais>).

Frequency schedule. Participants were asked to indicate the hours they usually go to the beach (e.g., 8 am - 9 am; 10 am - 11 am, etc.).

Health literacy. The reduced scale of the HLS-EU-Q16 instrument was used. It consists of sixteen questions that are divided into three major groups: health care (e.g., "... find information on treatments of illnesses that concern you?"), disease prevention (e.g., "... why do you need health screenings?") and health promotion (e.g., "... understand information in the media on how to get healthier?"). The sixteen questions were retrieved from the validated health literacy scale for the Portuguese population (Pedro, Amaral & Escoval, 2016).

A composite variable was created through this scale, whose Cronbach's $\alpha = 0.91$.

Chapter III - Results

3.1. Descriptive analyses

The mean values of the responses obtained in the 2 items that tapped knowledge on sunlight exposure risk are presented in Table 2. Individuals responded at the midpoint of the scale (partly false, partly true), suggesting uncertainty in the responses.

Individuals also considered that the impact of sunlight exposure on themselves was moderately elevated and they demonstrated high health literacy, as well as high protective behaviors. Participants believed that people voluntarily expose themselves to the sun, as well as the risk of the effects of sunlight exposure occurring later in time. Finally, the study participants had very positive attitudes towards sunlight exposure.

Table 2

Descriptive statistics of the variables.

	Mean	Standard Deviation
Knowledge of risks	2.85	1.09
Knowledge of benefits	3.23	1.13
Personal risk perception	5.82	1.02
Health literacy	3.04	.43
Protective behaviors	5.08	1.02
Voluntary exposure	5.41	1.36
Mediation in time	5.20	1.46
Attitudes	5.09	1.54

Note: The knowledge variables range between 1 and 5, the health literacy between 1 and 4, all others between 1 and 7.

3.2. Hypothesis testing

The sample was divided into 2 groups according to the mean of protective behaviors: those using below-average protection behaviors and those using above average, and correlations were made to verify the existence of the hypothesized processes.

H1 expectations were to find a negative relation between the knowledge about the risks of sunlight exposure and the perception of risk (risk normalization process) when individuals use positive illusions to cope with the threat of sunlight exposure. As such,

accordingly to the pilot test results, we expected to find this process in the individuals that go to the beach between 12 am and 3 pm but report a use above the average of protective measures ($n = 41$). This hypothesis was corroborated, as the relationship between knowledge of risks and risk perception is negative in this population (see Table 3). Regarding the relationship between knowledge of benefits of sunlight exposure and risk perception, a marginally significant positive relationship was found between variables, counterintuitively, suggesting that higher knowledge of benefits was related to higher risk perception.

Table 3

Correlations between knowledge and risk perception in the population that goes to the beach between 12 am and 3 pm and uses protection measures above the average.

Measures	<i>M</i>	1	2	3
1. Knowledge of risks	2.90	-		
2. Knowledge of benefits	3.29	-.12	-	
3. Personal risk perception	5.90	-.44**	.30 ⁺	-

Note: Knowledge measures ranges from 1 to 5, personal risk perception ranges from 1 to 7.

** $p < .010$, ⁺ $p = .053$.

Furthermore, in the group of individuals that go to the beach outside the hazardous time ($n = 74$), the process of normalization did not emerge, as the relationship between the knowledge of risks and risk perception is non-significant (Table 4). The relationship between knowledge of benefits and risk perception was also non-significant.

Table 4

Correlations between knowledge and risk perception in the population that does not go to the beach between 12 am and 3 pm and uses protection measures above the average.

Measures	<i>M</i>	1	2	3
1. Knowledge of risks	2.66	-		
2. Knowledge of benefits	3.31	.16	-	
3. Personal risk perception	6.05	-.16	-.01	-

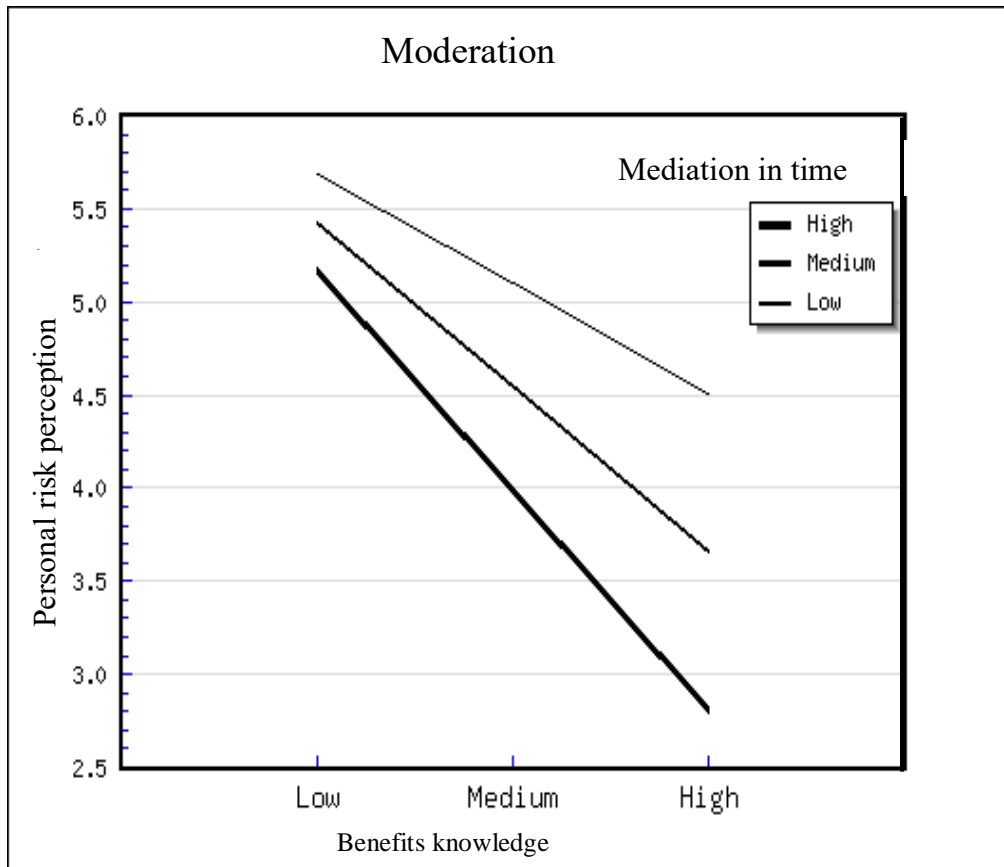
Note: Knowledge measures ranges from 1 to 5, personal risk perception ranges from 1 to 7.

We expected the risk normalization effect to be moderated by three variables. The perception of voluntary exposure to risk was expected to have a negative impact on the relation between knowledge of risks and risk perception (H2). However, this hypothesis was not corroborated. Additional analysis for the variable knowledge of benefits did not illustrate any other effects.

The effect of mediation in time was hypothesized to have a negative impact on the relation between knowledge of risks and risk perception (H3). This hypothesis was not corroborated but an effect was found for knowledge of benefits. A model including this variable, the variable mediation in time and the interaction between the two explains 15.3% (adjusted $R^2 = 0.15$) of the variation of personal risk perception ($F(3; 37) = 3.40, p = 0.028$). The interaction effect is marginally significant ($t(40) = -1.84, p = 0.073$), which shows that there is a moderation effect and this provoke a negative effect ($B = -0.21$) on personal risk perception. Figure 1 illustrates that when participants perceive the consequences of the risk as mediated on time, the perception of risk decreases with the increase of knowledge of benefits. When the moderator variable entered the model, the previously positive relation became negative and, thus more comprehensible. A negative relation between knowledge of the benefits and risk perception is more expected than a positive one.

Figure 1

Moderation graph of the effect of the variable mediation in time on the relationship between knowledge of benefits and personal risk perception.

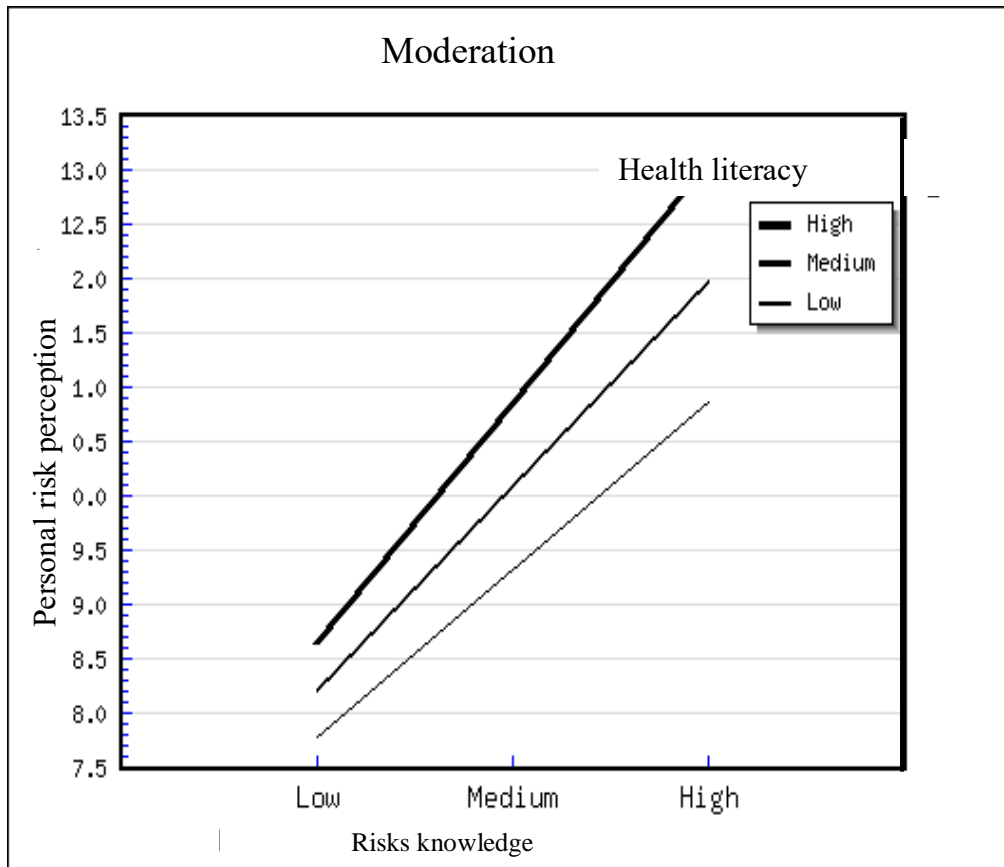


Health literacy was expected to have a positive impact on the relation between knowledge of risks and risk perception (H4). This hypothesis was corroborated. We verify that a model including the variable knowledge of risks, health literacy and the interaction between both explains 22.7% (adjusted $R^2 = 0.23$) of the variation of personal risk perception ($F(3,37) = 4.91, p = 0.006$). The interaction effect is marginally significant ($t(40) = 1.95, p = 0.059$), which shows that there is a moderation effect and it has a positive effect ($B = 0.66$) on the personal risk perception. Figure 2 illustrates that as health literacy increases, the perception of risk increases with increasing knowledge of risks. As such, health literacy appears to minimize the process of risk normalization.

Additional analysis for the variable knowledge of benefits did not illustrate any other effects.

Figure 2

Moderation graph of the effect of health literacy on the relationship between knowledge of risks and personal risk perception.



A multiple regression analysis was also conducted to understand how knowledge on risks and on benefits are simultaneously related to risk perception of exposure to sunlight. Results are illustrated in Table 5. Risk perception is both related to knowledge on risks, negatively, and on benefits, positively. It is more significantly and more strongly related to knowledge on risks than on benefits.

Table 5

Multiple regression analysis predicting personal risk perception.

Variables	B	SE B	β
Knowledge of risks	-0.37	0.13	-0.41**
Knowledge of benefits	0.24	0.13	0.26+

$R^2_{\text{adjusted}} = .22; F(2;38) = 6.63, p = .003$

Note: Knowledge measures ranges from 1 to 5.

Chapter IV - Discussion

This study intends to understand if there is a process of risk normalization in individuals who expose themselves to the sun on the beach, during 12 am and 3 pm, a timing that is within the hazardous period that is unrecommended by health experts. The hypotheses on this study were based on risk perception normalization and on how positive illusions (in concrete the adoption of particular protective behaviors) account for it. As expected, results illustrate that this effect emerged when individuals exposed themselves to sunlight and used protective measures above the average, suggesting the protective behaviors allowed individuals to lower their risk perception. Of importance, protective measures, such as applying sunscreen and drinking water, allow to reduce risk but do not make individuals immune to it, especially during exposition between 12 am and 3 pm.

Data analysis also evidenced that when the knowledge was about the risks of sunlight exposure (skin cancer), the risk normalizing effect tends to occur. Conversely, when participants were asked about the benefits of sunlight exposure (vitamin D development), this knowledge was not negatively but positively related to risk perception.

It was expected that the fact that sunlight exposure was either voluntary or involuntary, moderated the relationship between knowledge of risks and the perception of risk, since normalization is more likely when individuals voluntarily exposes themselves threats. The effect was not found in this study. It might be the case that this variable would amplify this effect when we are considering exposure to sunlight in different scenarios, such as recreational and work. In this study participants were only asked to focus on exposure to sunlight on the beach, and this is something people usually do voluntarily.

An effect found in this study was the moderation of the mediation of the consequences in time, which has a negative impact on the perception of personal risk perception. When individuals considered that the probability of health problems related to sunlight exposure occur late in time, knowledge of benefits is related to lower risk perception. The introduction of this moderator variable contributes to the understanding of the relationships between knowledge of benefits and risk perception. When mediation of the consequences in time is not considered, the relation between those variables is positive. This result suggests that public health messages that aim to communicate risks and benefits should take into account the psychological distance of the health consequences of sunlight exposure.

Another effect visualized was the moderation that health literacy has in the relationship between knowledge and risk perception. The greater the health literacy of an

individual, the greater is their knowledge and their perception of personal risk perception. Individuals with higher literacy appear to have greater knowledge and they might be more concerned regarding the harmful effects of excessive sunlight exposure, thus being less vulnerable to the effect of positive illusions in their risk perception. In a similar vein, DeWalt et al. (2004) showed that patients with asthma and with high literacy present better techniques of applying doses of inhaler.

The secondary goal of this work was to understand how knowledge of risks and benefits could simultaneously relate to risk perception. Data analysis suggests that risk perception is related to both, although in opposite (and counterintuitive) directions, and more strongly to knowledge of risks. The risk normalization effect might be more prevalent. This result is in line with evidence suggesting that the current public health messages regarding sunlight exposure and vitamin D is causing confusion in the population (e.g., Youl, Janda, & Kimlin, 2009). Public health messages should be designed to be more understandable. Nowadays individuals have to deal with so much information that it is really complicated to choose which information we should follow and use as certainty to be the correct information.

4.1. Study limitations and suggestions for future research

The present study reveals some methodological limitations that must be provided in future studies. This study is correlational, therefore it is more difficult establishing causal relationships between variables. Nonetheless, relationships between variables that emerged in the study are supported by a substantial set of research on risk perception (e.g., Luís et al., 2016; Lima, 2004; Sjöberg, Holm, Ullén & Brandberg, 2004). Furthermore, the knowledge measures were single items and this might difficult capturing different aspects of knowledge towards risks and benefits of sunlight exposure.

However, it is necessary that future studies should: a) cover a large sample size in order to find effects of smaller size, b) understand better the differences between knowledge of risks and benefits, and their relationship to the need to normalize risk, c) reflecting on reducing exposure and vulnerability to risk.

Conclusion

Sun-related health problems have been increasing in recent times and, thus, the promotion of adequate exposure behaviors have become crucial, alongside with the changing of mindsets (Lucas et al., 2006). Public health policy needs, simultaneously, to diminish excessive sunlight exposure and deal with possible risk normalization and to promote insufficient sunlight exposure, and, thereby, deal with increasing information complexity. There is a need to reinvent risk messages about sunlight exposure and to emphasize how continuous practices of the use of sun protection is essential (see Youl, Janda, & Kimlin, 2009). Although there is conflicting literature on the benefits and hazards of sunlight exposure at the most unrecommended hours, and it causes confusion on individuals, it is essential that efforts are made to reduce the distance between risk communication and the effects of undue solar exposure, in order to reverse the likely trend of increased cases of skin cancer.

It is also important to note that the psychological origins of the intention to be exposed to the sun and of the intention to protect oneself from the sun might be different (Jackson & Aiken, 2000). So, it may happen that the use of protective measures has an opposite effect to what is expected - that individuals should protect themselves from the sunlight but also that they cannot expose themselves in the hours of greater heat - because it allows them to be more exposed to the sun (Sjöberg, Holm, Ullén & Brandberg, 2004).

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ANNEXES

Annex A: Study pilot

Questionário

O seguinte questionário faz parte de um estudo para uma tese de Mestrado em Psicologia Social e das Organizações, no ISCTE-IUL, a ser concretizado pela aluna Gabriela Gaspar e orientado pela Dr.ª Sílvia Luís.

Este é anónimo, confidencial, não tem respostas certas ou erradas e tem uma duração média de 5 minutos. Pretende explorar as motivações que levam as pessoas a ir à praia/piscina/rio. Os dados são anónimos e confidenciais, servindo apenas propósitos académicos e sendo eliminados ao fim de 5 anos.

A participação é voluntária, sendo que poderá desistir do estudo a qualquer momento sem qualquer penalização e sem ter de dar qualquer justificação, e não terá nenhum benefício pessoal, mas permitirá avançar no conhecimento e na ciência relativa a esta área.

Em caso de dúvida sobre o questionário, poderá contactar através do seguinte e-mail: gfga@iscte-iul.pt.

Se tiver compreendido e estiver de acordo com estas condições por favor preencha o Formulário e depois carregue em "Enviar".

De que horas a que horas costuma frequentar a praia/piscina/rio? Por favor indique um intervalo de tempo que mais se adequa ao seu comportamento. *

A sua resposta deve ser feita com um intervalo de tempo (por exemplo das 11h - 14h).

Texto de resposta curta

Classifique o intervalo temporal, em termos de possíveis impactos negativos na sua saúde. *

O período temporal que deve classificar na seguinte escala é o que escolheu na resposta anterior.

	1	2	3	4	5	6	7	
Nada prejudicial para a minha saúde	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Muito prejudicial para a minha saúde

Por favor indique até 3 motivos para explicar a resposta anterior. *

Texto de resposta longa



Terminou o questionário!

Muito obrigada!

Annex B: Questionnaire

Questionário

Gostaria de solicitar a sua colaboração num estudo que tem como objectivo saber de que forma as pessoas apanham sol. A sua participação consiste no preenchimento de um questionário que tem uma duração média de **10 minutos**.

O questionário é **anónimo e confidencial**, servindo apenas propósitos académicos e sendo eliminados ao fim de 5 anos.

A sua participação é **voluntária**, sendo que poderá desistir do estudo a qualquer momento sem qualquer penalização e sem ter que o justificar. Não obterá nenhum benefício pessoal, mas a sua participação contribuirá para avançar no conhecimento nesta área.

Caso seja **menor de idade**, deverá por favor mostrar este questionário a um dos seus pais ou encarregado de educação para assegurar o consentimento parental, permitindo assim que os seus dados possam ser utilizados neste estudo.

Não existem respostas certas ou erradas neste questionário. Apenas a sua experiência pessoal e opinião sincera interessa. É importante que responda a todas as questões para que os dados possam ser corretamente analisados.

Este estudo integra-se no mestrado em Psicologia Social e das Organizações no ISCTE-IUL. Se for necessário esclarecer alguma dúvida ou desejar um resumo dos resultados deste estudo queira por favor contactar-me através do endereço gabriela_gaspar@iscte.pt, ou contactar a minha orientadora de tese, Sílvia Luís, cujo endereço é silvia_luis@iscte.pt.

Caso esteja de acordo com estas condições carregue no botão abaixo para iniciar o questionário.

Muito obrigada pela sua colaboração!

Gabriela

Costuma frequentar praia, piscina e/ou rio muitas vezes durante a época balnear?

	Nunca (1)	2	3	Algumas vezes (4)	5	6	Muitas vezes (7)
Praia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Piscina	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Costuma apanhar sol de outra maneira? Qual?

Running Head: Risk Normalization of Sunlight Exposure

Utilizando uma escala que varia de 1 (discordo totalmente) a 7 (concordo totalmente), indique em que medida concorda com as seguintes afirmações:

	Discordo totalmente (1)	2	3	Não concordo nem discordo (4)	5	6	Concordo totalmente (7)
Vou à praia/piscina/rio quando o sol está menos forte.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Penso que a exposição solar é saudável, apenas quando se exagera é que se torna prejudicial.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apanhar sol entre as 12h e as 15h faz mal à minha pele, sendo que antes e depois desse horário não faz mal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nas horas de maior calor pôr protector solar protege-me do sol.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nas horas de maior calor, beber água protege-me do sol.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nas horas de maior calor, estar à sombra protege-me do sol.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apanho sol quando o sol não está muito alto.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apanho sol quando não está muito calor.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apanho pouco sol.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Apanhar sol na praia/piscina/rio é:

Desagradável (1)	2	3	4	5	6	Agradável (7)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Aborrecido (1)	2	3	4	5	6	Divertido (7)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Mau (1)	2	3	4	5	6	Bom (7)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Running Head: Risk Normalization of Sunlight Exposure

Assinale as horas a que costuma frequentar estes locais:

	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h	15h-16h	16h-17h	17h-18h	18h-19h	19h-20h	Não frequento
Praia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Piscina	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As próximas questões dizem respeito à sua opinião e conhecimento quanto aos riscos relacionados com apanhar sol, isto é, com a exposição solar.

Por favor assinale o número que melhor descreve a sua experiência ou opinião.

Considero que os riscos da exposição solar para a saúde humana são:

Muito baixos (1)	2	3	Médios (4)	5	6	Muito elevados (7)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

As pessoas sujeitam-se a estes riscos voluntariamente?

Involuntariamente (1)	2	3	Em parte involuntariamente, em parte voluntariamente (4)	5	6	Voluntariamente (7)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A probabilidade de ocorrerem problemas de saúde relacionados com a exposição solar é:

Muito baixa (1)	2	3	Médio (4)	5	6	Muito alta (7)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Na eventualidade de desenvolver problemas de saúde relacionados com a exposição solar, qual seria a sua gravidade?

Nada grave (1)	2	3	Moderadamente grave (4)	5	6	Muito grave (7)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Qual o impacto da exposição solar para a sua saúde?

Muito baixo (1)	2	3	Médio (4)	5	6	Muito alto (7)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Numa escala de muito difícil (1) a muito fácil (4), qual o grau de dificuldade que sente a... :

	Muito difícil (1)	Difícil (2)	Fácil (3)	Muito fácil (4)	Não sei (5)
Encontrar informação sobre tratamentos de doenças que o/a preocupam?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Saber mais sobre onde obter ajuda especializada quando está doente?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compreender o que o seu médico lhe diz?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compreender as instruções do seu médico ou farmacêutico sobre a toma do medicamento que foi receitado?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avaliar quando pode necessitar de uma segunda opinião de outro médico?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Usar a informação que o seu médico lhe dá para tomar decisões sobre a sua doença?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seguir as instruções do seu médico ou farmacêutico?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encontrar informação para lidar com os problemas de saúde mental como o stress ou a depressão?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compreender os avisos de saúde relativos a comportamentos como fumar, falta de atividade física e excesso de álcool?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compreender porque precisa de fazer rastreios?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avaliar se a informação nos meios de comunicação sobre os riscos para a saúde é de confiança?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Decidir como se pode proteger da doença com base em informação dos meios de comunicação?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Saber mais sobre as atividades que são boas para o seu bem-estar mental?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compreender conselhos sobre saúde vindos de familiares ou amigos?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compreender a informação nos meios de comunicação em como se manter mais saudável?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avaliar quais os comportamentos diários que estão relacionados com a sua saúde?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Running Head: Risk Normalization of Sunlight Exposure

Por favor indique se as seguintes afirmações são verdadeiras ou falsas.

1. Como maior órgão do corpo humano, a pele é responsável pela proteção do organismo e necessita de muitos cuidados.

Certamente falso (1)	Provavelmente falso (2)	Em parte falso, em parte verdadeiro (3)	Provavelmente verdadeiro (4)	Certamente verdadeiro (5)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Se a pele não for cuidada, pode apresentar vários problemas.

Certamente falso (1)	Provavelmente falso (2)	Em parte falso, em parte verdadeiro (3)	Provavelmente verdadeiro (4)	Certamente verdadeiro (5)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. A pele menos pigmentada está melhor protegida do que as restantes.

Certamente falso (1)	Provavelmente falso (2)	Em parte falso, em parte verdadeiro (3)	Provavelmente verdadeiro (4)	Certamente verdadeiro (5)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. O cancro de pele é o tipo de cancro mais comum em Portugal.

Certamente falso (1)	Provavelmente falso (2)	Em parte falso, em parte verdadeiro (3)	Provavelmente verdadeiro (4)	Certamente verdadeiro (5)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Os raios ultravioleta são essenciais à pele, principalmente entre as 11h e as 16h.

Certamente falso (1)	Provavelmente falso (2)	Em parte falso, em parte verdadeiro (3)	Provavelmente verdadeiro (4)	Certamente verdadeiro (5)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. É pouco provável vir a desenvolver cancro da pele após excessivas exposições ao sol.

Certamente falso (1)	Provavelmente falso (2)	Em parte falso, em parte verdadeiro (3)	Provavelmente verdadeiro (4)	Certamente verdadeiro (5)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Os raios ultravioleta são o fator ambiental que mais afeta o funcionamento e a estrutura da pele.

Certamente falso (1)	Provavelmente falso (2)	Em parte falso, em parte verdadeiro (3)	Provavelmente verdadeiro (4)	Certamente verdadeiro (5)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. A exposição solar casual (5 a 15 minutos, 2 a 3 vezes por semana) não permite manter níveis de vitamina D elevados.

Certamente falso (1)	Provavelmente falso (2)	Em parte falso, em parte verdadeiro (3)	Provavelmente verdadeiro (4)	Certamente verdadeiro (5)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Numa escala de 0 a 100, em que 0 significa "não sei nada" e 100 significa "sei tudo", quanto considera que sabe actualmente sobre os riscos associados à exposição solar?



Na mesma escala, quanto conhecimento considera que precisa ter para lidar adequadamente com possíveis riscos associados à exposição solar?



Running Head: Risk Normalization of Sunlight Exposure

Indique, na seguinte escala, se utiliza algum tipo de proteção quando apanha sol:

	Nunca (1)	2	3	Algumas vezes (4)	5	6	Sempre (7)
Utilizo protetor solar com fator de proteção inferior a 30	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilizo protetor solar com fator de proteção 30, ou superior	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aplico protetor de 2 em 2 horas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bebo muita água ao longo do dia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visto roupa leve e clara nos dias de muito calor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilizo chapéus e óculos de sol nos dias de muito calor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Protejo-me na sombra do guarda-sol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Indique com que frequência lhe ocorreram as seguintes situações:

	Nunca (1)	2	3	Algumas vezes (4)	5	6	Muitas vezes (7)
Escaldão ou queimadura solar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alergia ao sol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insolação	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Caso tenha ocorrido uma(s) dessas situações, qual foi o(s) motivo(s)?

Teve cancro da pele?

Sim

Não

Conhece alguém que tenha tido cancro da pele?

Sim

Não

Caso tenha tido cancro da pele, ou conheça alguém que tenha tido, tem conhecimento da(s) causa(s)?

Sexo:

Masculino

Feminino

Idade:

Caso seja menor de idade, mostrou este questionário a um dos seus pais ou encarregado de educação?

Sim

Não

Running Head: *Risk Normalization of Sunlight Exposure*

Assinale qual é o seu fotótipo cutâneo:

- 1) Pele muito clara. Geralmente pessoas com cabelo louro ou ruivo, com olhos azuis ou verdes, ou com sardas. Este fototipo não bronzeia e queima muito facilmente.
- 2) Pele clara. Geralmente pessoas com cabelo louro ou castanho, e que ficam com sardas depois de apanhar sol. Este fototipo raramente bronzeia e queima muito facilmente.
- 3) Pele clara a média. Geralmente pessoas com cabelo louro escuro ou castanho. Este fototipo bronzeia progressivamente mas pode queimar.
- 4) Pele média. Geralmente pessoas com cabelo castanho. Este fototipo bronzeia e queima pouco.
- 5) Pele média a escura. Geralmente pessoas com cabelo castanho ou preto. Este fototipo bronzeia muito e raramente queima.
- 6) Pele escura ou muito escura. Geralmente pessoas com cabelo preto. Este fototipo raramente queima.

Zona de residência:

- Aveiro
- Beja
- Braga
- Bragança
- Castelo Branco
- Coimbra
- Évora
- Faro
- Guarda
- Leiria
- Lisboa
- Portalegre
- Porto
- Santarém
- Setúbal
- Viana do Castelo
- Vila Real
- Viseu
- Madeira
- Açores

Habilitações Literárias:

- Básico
- Secundário
- Licenciatura
- Mestrado
- Doutoramento

Profissão

A situação financeira do seu agregado familiar permite-lhe satisfazer as necessidades de:

	Sempre	Quase sempre	Às vezes	Algumas vezes	Nunca	Não responde
Alimentação	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Habituação	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Saúde	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Educação	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Outra	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>