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Formulas for prevention, narrative versus non-narrative formats. A comparative analysis of their effects on young people’s knowledge, attitude and behaviour in relation to HPV

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Abstract

Introduction: This article presents the results of a study that empirically compares the effectiveness of narrative and non-narrative formats on Facebook to influence knowledge about HPV and promote more preventive attitudes and behaviours. Methods: A univariate inter-subject experimental design was used with 114 young participants, where the independent variable, with a two-level treatment, was “format
type”, and the stimulus were two Facebook profiles presenting the same information about HPV but in two different formats: narrative and non-narrative. **Results:** The non-narrative expository profile produced greater increase in knowledge, while the narrative profile led to greater change in more responsible preventive attitudes and behaviours. **Discussion and conclusions:** This research confirmed the persuasive effectiveness of the narrative format against the non-narrative format in social networks. Mediational mechanisms are explained, and new strategies are recommended to improve young people’s understanding of the disease.

**Keywords**
Narrative persuasion; social networks; Facebook; human papilloma virus; prevention; sexual health

**Contents**
1. Introduction. 2 Methods. 2.1.1. Methodological strategies. 2.1.2 Population and sample. 2.1.3. Data collection instruments. 2.1.4. Procedure. 3. Results. 4. Discussion and Conclusions. 5. References.

Translation by **CA Martínez-Arcos**
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**1. Introduction**

Despite human papilloma virus (HPV) vaccination and prevention campaigns have been carried out in recent years, the persistence of this virus in certain types of cancer, like cervical cancer, continues to cause 270,000 deaths a year and more than 500,000 new diagnostics (1). Currently, young people have the highest rates of HPV infection (2). In these cases, prevention and early detection can stop this infection and its oncological development, which is completely preventable (3). However, previous research has shown the existence of great ignorance about HPV in society and among young people (4, 5 y 6). This ignorance is a risk factor since, on the one hand, it stops people from taking appropriate preventive measures and, on the other hand, it leads to the formation of prejudices and stigmatisation of the disease (7 and 8). In order to provide citizens with useful information and reduce the risk of infection among young people, it is necessary to carry out more interventions that take into account the characteristics, preferences and needs of our target audience in more accessible and attractive formats that allow for greater awareness of HPV and are capable of causing a positive change in attitudes and behaviour towards HPV prevention.

Numerous research studies on persuasion and the media have shown the importance of the format and its effects on change in knowledge, attitudes, and behaviours in health issues (9, 10 and 11). These works have shown that a narrative format, which is information offered through the experience of a person, causes positive results in spectators, helps the understanding of the disease, awakens empathy and involvement, and allows for the transmission of knowledge, the acquisition of new values and healthy behavioural change (12, 13, 14, 15, 16). The narrative format has also been shown to be more effective in persuading than expository messages and formats, which provide information as a list of concepts, without narrative continuity (17, 18, 19).

To study this persuasive effect authors have compared the effect of information presented in expository formats and narrative formats, throughout a patient’s personal story or a person’s experience. For example,
Murphy and his team (2013) exposed two groups of women to an 11-minute long video about HPV, cervical cancer, and their prevention and detection. One of the groups was exposed to the non-narrative format, which included the opinion of experts and graphics, while the other group was exposed to a sequence showing a mother and two daughters talk about HPV. The study showed that the narrative format had greater effect on participants’ knowledge and caused a more positive attitude towards check-ups (17).

Oliver, Dillard, Bae and Tamil (2012) came to similar conclusions in their research. They exposed participants to health news in a narrative format, illustrated by a specific person and his expertise, and in a non-narrative format with quotes from experts. Their experiment revealed the narrative format had a greater positive effect on the attitude and intention of behaviour towards stigmatised groups (18). In the same way, Moyer-Gussé and Nabi (2011), in their research on narrative persuasion on issues of child motherhood and safe sex, exposed participants to two television programmes: one in a narrative format focused on the experience of two students, and the other in a non-narrative format with the characteristics of news and informative shows. The research showed a greater increase in the intention of using a condom during sex in women who were exposed to the stimulus in a narrative format (19).

These analyses have always been conducted in traditional platforms, such as the press, film and television series. This article aims to study the effectiveness of the narrative format in comparison to its non-narrative counterpart in new social platforms such as Facebook. Thanks to its accessibility and popularity, with about 25 million users (of which 40% are 13-to-34-year-olds) (20), these platforms are useful tools for promoting health as they allow users to reach a large audience, adapt intervention strategies and help in the dissemination of information (21, 22, 23, 24).

Researchers such as Gold and his team (2012) have shown the persuasive effect of the narrative format on Facebook for the promotion of sexual education through the provision of information through characters in the form of a Facebook profile (25). These narratives help in the acquisition of knowledge, personal reflection and the sharing of models of behaviour and beliefs (26). However, there are no studies comparing expository and narrative formats in social networks. Therefore, the purpose of this research is to study the way in which the discourse on HPV can be articulated in social networks in an appealing way and to perform a comparative analysis of the persuasive effectiveness of the various formats posted on Facebook on young people’s knowledge of HPV, and attitudinal and behavioural change. Thus, the research questions are as follows:

RQ1: Will a Facebook profile on HPV in narrative format cause a greater effect on young people’s knowledge than a profile in a non-narrative format?

RQ2: Will a Facebook profile on HPV in narrative format cause a more responsible preventive attitude in young people than a profile in a non-narrative format?

RQ3: Will a Facebook profile on HPV in narrative format cause a more responsible preventive behaviour in young people than a profile in a non-narrative format?
2. Methods

2.1.1. Methodological strategies

A univariate inter-subject experimental design was used to study the change generated by the stimulus (the Facebook profiles) taking as dependent variables the “knowledge”, “attitude” and “behaviour” of young people towards different aspects of HPV, such as the importance of condom use during sex and the intention of getting tested for HPV, and as independent variable the “format type” of the Facebook profile. This variable is broken down into two levels of experimental treatment: “expository profile” versus “narrative profile”. Both profiles presented the same information on HPV but did so in different formats: an “expository” or non-narrative format profile (which presented information objectively with an informative style) and a “narrative” format profile (which presented the same information but through the experience of a person). First the values of those items with more positive evaluation were inverted in a descendant way to match the direction of the scales. After the test of normality, the obtained data were analysed with the Wilcoxon test, to analyse the differences pre and post stimulus for each profile, and through a linear regression and correlation analysis to study the relationship between variables. The tests were performed using the statistical program SPSS 21.

2.1.2. Population and sample

A sample of 114 volunteer students from the Complutense University of Madrid was used. The age of participants ranged from 18 to 23 years (\(M =19.18; SD=1.46\)); 75% of them were women and the remaining 25% were men.

2.1.3. Data collection instruments

A 15-item survey questionnaire based on previous research studies was used for data collection (Moyer-Gusé, Chung and Jain, 2011; Murphy et al., 2011; Murphy et al., 2013) and to evaluate the dependent variables “knowledge” of HPV, “attitude” and “intention of behaviour” towards HPV prevention. Its validity and understanding were pilot tested with a group of communication researchers to make sure only the most appropriate items for the object of study remained in the questionnaire.

**Knowledge.** It was evaluated through 9 open questions adapted from other studies (Murphy et al., 2013), such as for example: “What is HPV?”, “How is HPV detected?” and “What HPV prevention measures exist?”. Answers were coded with a list of possible correct answers (for example, “a sexually transmitted disease” would be taken as a correct answer to the question “What is HPV?”), assigning 1 to a correct answer and 0 to an incorrect answer. This questionnaire was applied before (pre-test) and immediately after exposure to the stimulus (post-test) in order to observe the increase in knowledge about HPV. Cronbach’s alpha for the scale was .63 in the pre-test and .50 in the post-test.

**Attitude.** It was evaluated through 4 items in a 7-point Likert scale adapted from other research studies (Murphy et al., 2011). Questions assessed young people’s perception of the importance of check-ups, their attitude towards condom use during sex, the embarrassed to ask the partner to use a condom during sex, and their attitude towards getting tested for HPV. An example of these items is: “For me it is important to use condoms when I have sex”. Attitude was measured in the pre-test (Cronbach’s \(\alpha=.67\)) and the post-test (Cronbach’s \(\alpha=.78\))
**Intention of behaviour.** It was measured through two items on a 7-point Likert scale adapted from other research studies (Moyer-Gusé, Chung, and Jain, 2011; Murphy et al., 2011) that assess young people’s behaviour towards unprotected sexual intercourse or getting tested for HPV. An example of the items used is: “Currently, it is likely I will have sexual intercourse without a condom”. Behaviour was measured before (pre-test) and after the stimulus (post-test). Cronbach’s alpha for the scale was .80 in the pre-test and .72 in the post-test.

### 2.1.4. Procedure

Subjects were randomly distributed to independent experimental groups, balancing sex and age. Subjects were given questionnaires for the evaluation of the dependent variables before the exposure to the Facebook profiles. Both groups were exposed to the Facebook profiles for 15 minutes as they were projected and navigated by the researcher. The exposure time and the type of navigation was identical in both groups. After being exposed to the profiles, participants were asked to answer once again the questionnaire of the measurement of the dependent variables, allowing for pre and post treatment analysis.

Two Facebook profiles about HPV were created as stimulus material. These profiles addressed the relation of HPV with cervical cancer, general information, importance of check-ups and cervical smear/Papanicolaou test, the prevalence of the virus in men and prevention. Both profiles contained the same number and types of publications (videos, images, links to specialised sources and informative posters) following the recommendations of previous research on social networks and mediation, which recommend the use of multimedia, links to specialised sources, short publications, and frequent interventions to make attractive a Facebook profile about health matters (Zang, Tsark, Campo and Teti, 2015; Syred, Naidoo, Woodhall and Baraitser, 2014; Veale, Sacks-Davis, Weaver, Pedrana, Stoové and Hellard, 2015). In the narrative profile, the information was presented through the story of a real subject, a girl diagnosed with HPV who, while waiting for the results to know whether the infection is high or low risk, tells its own story and gives information on the profile through posts and videos. In the expository profile the information was the same but had an informative tone and a more impersonal language. To guarantee the internal validity of the stimulus, the time of exposure to the profile, the header of the page and the profile picture remained constant in both profiles.

### 3. Results

The narrative profile proved to be less effective than the expository profile in the acquisition of knowledge in the short term. The Wilcoxon test shows that in the case of the narrative profile the increase went from $=2.69$ to $=6.45$ ($z= -5.675$, $p= .000$), while in the expository profile the increase was higher, going from $=2.96$ to $=7.06$ ($z= -7.341$, $p= .000$). Therefore, hypothesis 1 was not confirmed.

The results of the answers to the different items show the aspects of knowledge and the degree to what participants have improved according to the profile (Table 1). In the case of the narrative profile, the greatest increase occurred in items 2 to 5 on contagion, where correct answers increased 41%; in prevalence in men and women the increase was 41%, in detection the increase was 66%, and in visible symptoms the increase was 79%. In the case of the expository profile, all items showed a greater increase, standing out the increase in correct answers on prevalence on men and women, with 65%; on detection, with 63%; on symptoms, with 79%; and on the name of the HPV test, the cervical smear test, with 65%.
Hypothesis 2 has been confirmed. The data show greater increase in the positive attitude towards prevention after viewing the narrative format profile in comparison to the expository format profile (Table 2). The Wilcoxon test shows a significant difference \( z = -2.603, p = .009 \) between the assessments carried out before the stimulus in the narrative format \( (=5.11) \) and after it \( (=5.47) \). In the case of the expository format the differences between the assessments before \( (=5.33) \) and after the stimulus \( (=5.50) \) are lower \( (z = -1.724, p = .085) \). The analysis of the items shows that these changes occur above all in the importance of getting periodic check-ups in both the narrative profile \( (=3.90; =5.36; p = .000) \) and the expository profile \( (=4.07; =4.78; p = .001) \) and in a less embarrassing feeling to ask the partner to get tested for HPV above all in the expository format \( (=4.44; =4.76; p = .087) \).

### Table 2. Pre and post Wilcoxon ranks\(^a\) for attitude by profiles

<table>
<thead>
<tr>
<th>N</th>
<th>Average rank</th>
<th>Sum of ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>10(^b)</td>
<td>13.55</td>
<td>135.50</td>
</tr>
<tr>
<td>23(^c)</td>
<td>18.50</td>
<td>425.50</td>
</tr>
<tr>
<td>9(^d)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7(^e)</td>
<td>15.43</td>
<td>108.00</td>
</tr>
<tr>
<td>27(^f)</td>
<td>18.04</td>
<td>487.00</td>
</tr>
<tr>
<td>8(^g)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**. Correlation is significant at the level of 0.10 (bilateral).
**. Correlation is significant at the level of 0.05 (bilateral).
***. Correlation is significant at the level of 0.001 (bilateral).
Hypothesis 3 has been confirmed. The narrative profile causes greater intention of responsible behaviour than the expository profile. The data show a significant difference ($z = -3.261; p = .001$) between the evaluations made before (=4.21) and after (=4.89) the exposure to the narrative profile. In the case of the expository profile we also found a significant difference ($z = -3.583; p = .000$) before (=5.33) and after the stimulus (=5.50) although to a lesser degree. The analysis of the items separately shows that there are hardly any changes in the intention of having sexual intercourse without a condom in both the narrative profile ($z = -.248; p = .804$) and the expository profile ($z = -.473; p = .636$). The largest increase is found in the intention of getting tests for HPV (Figure 1 and Figure 2), where there is a significant change in both profiles, being higher in the narrative profile (=3.60; =5.02; $z = -4.704; p = .000$) than in the expository profile (=3.13; =4.01; $z = -4.125; p = .000$).

Figure 1. Change in intention to get tested for HPV (narrative profile)
Figure 2. Change in intention to get tested for HPV (expository profile)

Source: Authors’ own creation

Due to the results obtained, an analysis of bivariate correlation between the dependent variables “knowledge”, “attitude” and “behaviour” was performed to establish the relationship between them. The data in Table 3 show a significant low correlation between knowledge and attitude ($r = .156; p = .098$) although the effect of knowledge over attitude is very small ($R^2 = .052; \beta = -.247; p = .008$). There is no significant correlation between knowledge and behaviour ($r = .073; p = .439$). There is however a significant moderate correlation between attitude and intention of behaviour ($r = .411; p = .000$) with a significant effect of attitude over the intention of behaviour ($R^2 = .146; \beta = .382; p = .000$).

Table 3. Correlations between the knowledge, attitude and behaviour variables

<table>
<thead>
<tr>
<th>Spearman’s rho</th>
<th>Knowledge</th>
<th>Attitude</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spearman’s rho</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Knowledge</td>
<td>-</td>
<td>.125</td>
<td>.046</td>
</tr>
<tr>
<td>Attitude</td>
<td>.125</td>
<td>-</td>
<td>.411**</td>
</tr>
<tr>
<td>Behaviour</td>
<td>.046</td>
<td>.411**</td>
<td>-</td>
</tr>
</tbody>
</table>

* Correlation is significant at the level of 0.10 (bilateral).
** Correlation is significant at the level of 0.05 (bilateral).
*** Correlation is significant at the level of 0.001 (bilateral).
To better understand this effect a correlation analysis was performed on the various items that form the variables “attitude” and “behaviour” (Table 4). There is a low but significant correlation between the importance of check-ups and the attitude towards condom use during sex ($r = .226; p = .016$) and a high significant correlation between the importance of check-ups and the intention of getting tested for HPV ($r = .442; p = .000$). There is also a significant moderate correlation between the importance of condom use during sex and not feeling embarrassed to ask the partner to use a condom ($r = .327; p = .000$). Finally, there are low but significant correlations between feeling embarrassed to ask the partner to use a condom during sex and getting tested for HPV ($r = .240; p = .010$) and feeling embarrassed to ask the partner to use a condom during sex and the intention of having sexual intercourse without a condom ($r = .205; p = .029$).

**Table 4. Correlations between knowledge and different items about attitude and behaviour**

<table>
<thead>
<tr>
<th>Spearman’s rho</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Importance of check-ups</td>
<td>-</td>
<td>.226 *</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2. Importance of condom use</td>
<td>.030</td>
<td>.327 ***</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3. Embarrassment to ask partner to use a condom</td>
<td>.143</td>
<td>1.19</td>
<td>2.40 **</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4. Embarrassment to ask partner to get tested for HPV</td>
<td>0.59</td>
<td>523 ***</td>
<td>205 **</td>
<td>042</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5. Behaviour towards sex without a condom</td>
<td>442 ***</td>
<td>078</td>
<td>.036</td>
<td>168</td>
<td>.169</td>
<td>-</td>
</tr>
<tr>
<td>6. Behaviour towards getting tested for HPV</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* Correlation is significant at the level of 0.10 (bilateral).
** Correlation is significant at the level of 0.05 (bilateral).
*** Correlation is significant at the level of 0.001 (bilateral).

**4. Discussion and conclusions**

The main objective of this study was to empirically examine the persuasive effectiveness of information presented in narrative and non-narrative formats on the social networking site Facebook to determine whether the structured narrative format produces greater impact on knowledge about HPV and more preventive behaviours and attitudes than the more traditional non-narrative expository format (with the same information). The study was carried out with a group of university students because young people are, on the one hand, a high-risk group since they have the highest rate of HPV infection and show great ignorance of the disease (Stephen and Thomas 2014; Navarro-Illana *et al.*, 2014; Bustamante-Ramos *et al.*, 2015), and on the other hand, they are frequent users of social platforms like Facebook (Kemp, 2012).

The data show that young people in general have low knowledge about HPV and do not take the necessary preventive measures, which makes them a risk group (Castellsagué *et al.*, 2012; Medina *et al.*, 2014). Significant changes in both Facebook profiles show the effectiveness of the interventions made in this social network by means of different and attractive resources that combine media, short texts and links to experts, and varied, simple and accurate information. It was highlighted that although both profiles significantly increased users’ knowledge, contrary to expectations, the participants who consumed the
expository profile showed greater increase, above all in the case of technical names such as the Papanicolaou test. These data contradict the results obtained in previous research studies where the narrative format was associated with greater awareness (Igartua, 2011; Murphy et al., 2011; Cueva et al., 2015). This fact can be due to the way the viewer engages with the narrative profile, which is more loaded with emotions and can make other psychological mechanisms, such as narrative transportation and identification, to interference when processing the message (Niederdeppe et al., 2011; Moyer-Gusé, 2008; Slater and Rouner, 2002). Future research should consider the way of presenting the information or make it more repetitive in the narrative formats to achieve greater acquisition of relevant knowledge when it is more technical and specialised. Moreover, the “engagement” variable should be investigated.

In terms of the attitude variable, we generally observed that the narrative format produces a more responsible attitude in relation to HPV prevention above all in the importance of check-ups. In addition, the narrative format also proved to be more effective in more responsible behaviour change, above all in the disposition to getting tested for HPV. We can therefore confirm that the consumption of the narrative presented in a Facebook profile produces greater persuasive effects on attitude and behaviour than the same information presented in non-narrative format. These data are in line with the studies carried out in other media platforms (Murphy et al., 2013; Oliver et al., 2012; Moyer-Gusé and Nabi, 2010). However, due to the scarcity of research that analyse these persuasive differences in social networks like Facebook, this work provides crucial information for future research in the field of persuasion and mediation, and for the creation of better interventions in health and other sectors.

On the other hand, with regards to condom use, no big changes resulted in any of the profiles, this may be due to the fact that the initial values were already quite high: for example, 81% of the young people exposed to the narrative profile and 94% of the young people exposed to the expository profile considered it was important to use condoms during sex before the stimulus; 88% of the participants exposed to the narrative profile and 89% of the participants exposed to the expository profile did not feel embarrassed to ask their partner to use a condom during sex. However, between 20% and 30% of the young participants would maintain sexual intercourse without a condom after the stimuli. According to the analysis, these cases are due in part to the fact that participants, particularly women, feel embarrassed to ask their partners to use condoms during sex. These data should be considered for future interventions in sexual education in order to change certain beliefs and deep-rooted prejudices in women on sexuality issues and allow for open dialogue among young people.

Contrary to expectations, the analysis has also shown that there is no significant correlation between knowledge and a more responsible and preventive attitude or behaviour. Our results suggest new research on the role of knowledge in these variables, as well as the various factors involved in the creation of attitude and behaviour.

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