

## **Explaining the Deterioration of Elderly Consumers' Behaviour through the Broken**

### **Windows Theory**

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### **Abstract**

This study investigates whether a visible signal of physical decay – specifically, the lack of front teeth – may represent an antecedent of a deterioration of the elderly consumers' buying behaviour. To this end, the study compares the purchase decision-making process, shopping motivations, emotional states arising from the shopping experience, and materialistic tendency of elderly consumers missing their front teeth with those of elderly consumers who do not display this lack. Findings reveal that the former consumers are likely to engage in unplanned purchases, pursue erratic goals, experience high levels of arousal when shopping, and are more materialist than the latter ones. Furthermore, the same consumers reported that the quality and quantity of their consumptions decreased since they lost their front teeth. Such results derive from the negative social perception of physical deterioration and call for marketing approaches aimed at improving these consumers' quality of life.

**Keywords:** Broken Windows Theory, consumption behaviour, elderly consumers, front teeth, physical decay

## Introduction

In 1982, Wilson and Kelling published an article that laid the foundations of the so-called *Broken Windows Theory* (BWT). They observed that small signs of disorders, such as a broken window in a building left unattended, may lead to a generalized process of urban decay and invite serious forms of crime. The authors stated that “if a window in a building is broken and is left unrepaired, all the rest of the windows will soon be broken” (p. 2). A few years later, their argumentation was supported by a social psychological experiment by Zimbardo (2004) who abandoned two used cars in two different urban areas: the first one in the Bronx borough of New York (an icon of urban decay during the '70s and '80s), and the second one in Palo Alto, California (a city that, since the '50s, has been hosting advanced research centres). He noticed that, in both cases, the cars were attacked by local people and destroyed within a couple a days. This provided evidence of the importance of rapidly dealing with disorder to contrast broader phenomena of social degradation.

Processes of decay, however, do not regard only material things or urban contexts as, from a broader perspective, they can be considered intrinsic to human existence. Due to the aging process, all individuals normally experience a progressive deterioration of their health conditions which limits their ability to perform daily activities (e.g., dressing, eating, bathing, etc.) and alter their interpersonal lifestyle (cf. Baron 2008). This process of deterioration generally has dramatic repercussions on older consumers' buying habits, as it may pose the need for dietary restrictions, medicine intake, use of mobility aids, etc. (Yoon, Cole and Lee

2009). Aside from physiological changes requiring medical treatment, however, even apparently minor ailments – such as the loss of front teeth – may have relevant consequences on older consumers’ behaviour, and this is due to the conscious (or unconscious) negative perception of themselves through the eyes of other people. The specialised literature (e.g., Hickey and Salter 2006) indicates, indeed, that individuals missing front teeth are often a negative stereotype and may be victims of social stigmatisation (cf. Macia et al. 2009). As a result, the same individuals may feel negative about their image and not motivated to care about themselves (for instance, they may not engage in regular dental care). This, in turn, may worsen their problem, thus exacerbating the initial situation. Furthermore, following the reasoning of Wilson and Kelling’s (1982) BWT, such a behavioural tendency could have even broader consequences on these individuals’ life, as it may result in the deterioration of many of their daily habits, including consumption behaviour.

Considering the possible detrimental consequences this phenomenon may have on elderly consumers’ behaviour, the present research investigates whether a negligible, but visible, sign of physical decay in older consumers – specifically, the lack of front teeth – may be a precursor of an ongoing process of deterioration in consumption behaviour, here intended as a progressive decrease of the quality and quantity of consumption. To find evidence of such a phenomenon, this study compares the purchase decision making process of older individuals who visibly miss their front teeth with that of individuals who do not

display this lack. The former are here referred to as *Broken Windows* (BW) consumers, the latter as *Non-Broken Windows* (NBW) consumers. Moreover, to shed further light on the differences between the two groups, our research also addresses other relevant determinants of consumption – namely the utilitarian/hedonic motivations driving shopping decisions (Jones, Reynolds and Arnold 2006), the emotional states engendered by the shopping experience (Machleit and Eroglu 2000), and individuals' level of materialism (Burroughs and Rindfleisch 2002) – and investigates the differences between the two groups of subjects.

This paper is articulated as follows: the subsequent four sections examine the peculiarities of consumption in late life, the utilitarian/hedonic meaning of consumption for the elderly, the emotional valence that shopping has for these consumers, their materialistic tendencies, respectively. Next, the research goal and the method adopted to attain it are illustrated. Then, results are presented and, after discussing them, their marketing implications are clarified. Finally, in the light of the study limitations, some avenues for future research are indicated.

### **Consumption in Later Life**

The aging process is generally accompanied by physiological changes that significantly alter older individuals' daily life (Yoon and Cole 2008). Visual impairments, for example, diminish their ability to access written information, reduced auditory capacity causes them difficulties in understanding speech, while, the decline of their cognitive abilities, may cause

them deficits in short memory and limit their information processing and learning capacity. In addition, stressful events – from retirement, to the onset of illnesses, the loss of one’s spouse, etc. – may dramatically alter their interpersonal life.

All the above indicated changes may have relevant repercussions on older consumers’ buying habits (Moschis 2012) and can be expected, in particular, to alter their purchase decision-making process (Guido 2014). According to Wilkie (1994), this process encompasses five fundamental stages, namely: i) the acknowledgement of a certain need; ii) the search for information about the products/services suitable to satisfy such a need; iii) the comparison of the diverse products/services the industry offers to satisfy the need in discussion; iv) the selection of the product/service reputed able to efficaciously and effectively satisfy the need at issue; and v) the usage of the selected product/service.

Specifically, as regards the first stage, the reduction of cognitive abilities may not allow elderly consumers to clearly acknowledge their consumption needs and hence identify the products/services suitable to accomplish them. As regards the second stage, the elderly often experience difficulties in accessing and processing information (Nasco, Hale and Thomas 2012). This is basically due to the reduction of mobility and sensory function which forces them to rely on messages having a simple content and allowing them to more easily understand what is being communicated. In addition, it should be also considered that, according to the so-called *Socio-emotional Selectivity Theory, SST* (Löckenhoff and Cartensen 2004), the elderly tend to perceive the attainment of knowledge-related goals – such as the

acquisition of new information – as difficult to achieve and requiring considerable cognitive efforts. Consequently, they prefer to rely on the advices of close family members, rather than searching for external information. As regards the third stage (i.e., comparison of diverse purchase alternatives), the reduction of cognitive abilities substantially limits older individuals' capacity to compare diverse products/services. As a result, they are likely to consider a more restricted set of alternatives than younger individuals (Evanschitzky and Woiesetschläger 2008). As for the fourth stage (i.e., purchase decision), the specialised literature (e.g., Yoon, Cole and Lee 2009) suggests that aging tends to speed-up decision-making: indeed, in several cases, elderly consumers have been found to rely on heuristic processing, i.e., decision shortcuts. While, as for as the fifth stage (i.e., usage of the purchased products/services), the elderly may experience more or less difficulties in using given products/services, which depends on the extent to which their necessities (e.g., ease of opening product packages, readability of labels, etc.) have been taken into account in the design of the same products/services.

The alteration of the overall purchase decision-making process may be particularly intense for individuals who have to cope with stressful life events (e.g., age-related ailments, accidental injuries, loss of family members, etc.) as well as age-related impairments (e.g., reduced vision, tooth loss, etc.). In these cases, it can be expected that consumption decisions become less planned and more rapid (Mathur, Moschis and Lee 2008). However, more vulnerable individuals, such as those affected by age-related ailments

or impairments, may take sub-optimal decisions and purchase products/services that might only in part suite their needs or, even worse, negatively impact their wellbeing (Moschis et al. 2011).

For these individuals, consumption may also acquire a peculiar valence, as – aside from its utilitarian function – it may be aimed at fulfilling a wish for pleasure, regulating their emotional state and/or accomplishing a desire for material possessions. These inclinations, however, may drive individuals to indulge in consumption activities that might also threaten their welfare. Subsequent sections discuss in depth the hedonic and emotional valence that consumption has for the elderly, their materialistic tendency, and the possible adverse effects of these consumption activities.

### **Hedonic and Utilitarian Meaning of Consumption for the Elderly**

For many elderly – especially those who are healthy, affluent, and no longer involved in working activities, growing children, or in the other duties that characterise their earlier life – old age may represent a time for pleasing experiences (Mathur, Sherman and Schiffman 1998). They may indeed engage in a variety of leisure activities – from travelling, to visiting museums and exhibits, shopping, gambling, playing sports, etc. – providing them with opportunities to socialize and cope with boredom (Myers and Lumbers 2008). As far as shopping is concerned, in particular, for elderly consumers it does not exclusively represent a task-related behaviour (directed at purchasing a product/service suitable to accomplish a given need). Instead, it is also a chance to spend their time in an enjoyable and pleasing



manner (Cox, Cox and Anderson 2005). This means that elderly consumers are likely to consider shopping as an activity aimed at simultaneously accomplishing hedonic as well as utilitarian pursuits. The former, according to Tauber's (1972) taxonomy of shopping motivations (see Guido 2006), are connected with the chance to experience: i) diversion; ii) sensory stimulation; iii) peer group attraction; iv) self-gratification, as well as with the opportunity to: v) communicate with others; and vi) do physical activity. While, the latter are connected with the opportunity of: i) purchasing desired things at competitive prices ("pleasure in bargains"); ii) making good deals ("pleasure in bargaining"); iii) freely choosing a given product/service; iv) being served by store employees ("status and authority"); and v) being on one's own. Elderly consumers may attach greater or lesser importance to these two categories of pursuits. Aside from the shopping context, the literature suggests that an excessive search for diversion may also have negative effects on these consumers' wellbeing (Zarnek and Lichtenberg 2008). Such a topic, however, has been barely investigated in relation to elderly consumers' shopping behaviour and, therefore, the hedonic vs. the utilitarian shopping orientation of elderly consumers remains far from being well understood.

### **Emotional Valence of Shopping for the Elderly**

Shopping has a relevant emotional meaning (Machleit and Eroglu 2000). Through the offered products/services, music, visual tools, etc. shopping environments are intended indeed to generate positive emotional states. These positive emotional states have been basically classified by Mehrabian and Russell (1974) as: i) *pleasure*, concerning the sense of gratification or happiness experienced by an individual; ii) *arousal*, concerning the level of stimulation perceived by an individual; and iii) *dominance*, concerning the sense of control an individual believes he/she can exert on the external environment. All of them represent a relevant aspect of the shopping experience of elderly consumers, as, for these individuals, experiencing these emotional states, may be a way to cope with their need for diversion and novel stimuli (Drolet, Williams and Lau-Gesk 2007). This is likely to be particularly true for individuals plagued by age-related ailments who may consider shopping as a means to keep their mind diverted from distressing thoughts and substitute negative feelings, such as loneliness or nostalgia, with positive feelings such as joy and enthusiasm (Mathur, Moschis and Lee 2008). Indeed, for these individuals, shopping may turn to have a sort of “compensatory” function and may be directed at achieving an emotional reward (Ying and Yao 2006) and reduce the stress deriving from the negative stereotype associated with aging (Levy 2003; Pasupathi and Löckenhoff 2002). In these cases, however, consumption may also have harmful psychological and financial consequences (Dittmar 2005). Despite its relevance, however, this topic remains under-researched. This motivated the Authors to

concentrate on the shopping experience of older individuals missing their front teeth, here considered as a group of consumers likely to attach a particular meaning to their consumption activities.

### **Materialistic Tendencies of Elderly Consumers**

The present generation of older consumers is more wealthy and healthy than the past ones and can find on the market a variety of products/services to satisfy its diverse necessities (Meyers and Lumbers 2008). Such an increased spending capacity and wider availability of goods are both likely to heighten these consumers' desire for possessions and new experiences, and hence their level of materialism. Materialism can be defined as the tendency to attach notable importance to material things, which are considered as a barometer of self-worth and a relevant source of satisfaction with one's life (Burroughs and Rindfleisch 1997). It also represents a "set of centrally held beliefs about the importance of possessions in one's life" (Richins and Dawson 1992, p. 308) and, according to Belk (1985), synthesises three main behavioural tendencies that respectively drive individuals to: i) carefully control their belongings (*possessiveness*); ii) refuse to share them with others (*non-generosity*); iii) desire others' possessions (*envy*).

For individuals who are normally stingy and ungenerous to others, the above illustrated behavioural tendencies can be considered as a distinctive feature of their identity. This means that, for these individuals, materialism assumes the role of a personality-like trait. While, for other individuals (for instance, those who are likely to think that nothing good will

happen in the future), materialism may be connected with relatively transitory mental states, such as feelings of insecurity, low self-esteem or also depression (Park and John 2011). For this second category of individuals, the tendency to pursue materialistic goals (rather than prizing interpersonal relations) becomes a way to cope with such negative feelings (Kasser and Grow Kasser 2001; Pieters 2013). As a result, they can be expected to attach great importance to possessions and to amass material things, in order to reduce their sense of insecurity and maintain their own identity (Burroughs and Rindfleisch 2002).

Materialistic tendencies and hoarding behaviours are common among elderly individuals (Urie and Kilbourne 2008). With less time in life, the elderly tend indeed to attribute a symbolic meaning to possessions and may be convinced that they will live on through them. Furthermore, since in their late life individuals seek to experience positive feelings (Löckenhoff and Cartensen 2004), the likelihood that they will engage in pleasing activities – such as purchasing desired things – tends to progressively grow. Existing research has also found that this materialistic inclination is particularly strong in individuals characterised by poor health conditions, and hence less satisfied with their life (Wei and Talpade 2009). As a consequence, it can be expected that also the elderly missing their front teeth may be inclined to attach great importance to material things. Such a tendency, however, may also be harmful for them – and for older consumers, in general – as it may lead, for instance, to excessively hoard possessions; and this, in turn, may cause health concerns, threatening the consumers' wellbeing (LaSalle-Ricci et al. 2006; Roster 2014).

## **Research Objectives**

This study embraces Wilson and Kelling's (1982) BWT and aims to understand if a small signal of poor personal care – in the specific case of this research, the lack of front teeth – can be considered as the precursor of a deterioration process of elderly consumers' behaviour. To this end, it compares the consumption decision-making process of BW subjects (i.e., individuals missing their front teeth) with that of NBW ones (i.e., individuals that do not display such a visible cue of physical decay). To shed more light on BW subjects' consumption pattern, the study also addresses the utilitarian/hedonic shopping motivations, the emotional states engendered by the shopping experience, and the level of materialism of both the investigated consumer groups, and seeks, in this way, to detect possible differences among them. The following section illustrates the methodology adopted in this research.

## **Method**

To achieve the above illustrated research goal an empirical research was performed. This research involved collecting primary data about elderly individuals. The sampling procedure and the survey instrument adopted to collect these data are described in the following sections.

### *Sampling Procedure*

A total of 204 older consumers, aged between 60 and 90, were surveyed by means of a paper-and-pencil questionnaire. They were approached by one of the authors in four retirement communities randomly selected among those located in a Southern Italian city of about 80,000 inhabitants and its neighbouring towns. The author noticed that one hundred of these individuals lacked their front teeth, whereas the remaining respondents did not display this signal of personal carelessness. The former were, therefore, classified as “BW” subjects, whereas the latter were classified as “NBW” subjects. All the approached individuals were helped by the author to fill in the questionnaire, whose structure is illustrated in the following.

### *Questionnaire*

The survey instrument employed in this research consisted of 167 closed-ended questions whose responses were measured on a 7-point Likert scale ranging from 1 = “Strongly disagree” to 7 = “Strongly agree”. It was structured into four sections, the first of which was designed to gather information about respondents’ *consumption decision-making process*. This section included five sets of items developed on the basis of Bassi and Guido’s (2006) customer satisfaction scale and ten semi-structured interviews carried out in a preliminary stage of this study. Each set of items assessed a specific stage of the purchase decision-making process. Particularly, the first one tapped respondents’ capacity to clearly identify their own consumption needs (e.g., “My intention to purchase a certain product arises from

my daily-life necessities”); the second set assessed the ease/difficulty respondents experience in collecting information about the products/services likely to accomplish their needs (e.g., “I am used to gather information about a certain product before purchasing it”); the third set assessed the extent to which respondents are interested in comparing the diverse products/services available on the market (e.g., “I am used to compare diverse products before making a purchase decision”); the fourth set of items assessed the ease/difficulty respondents experience when making a purchase decision (e.g., “After having purchased something I am always sure that I have made the right choice”); the fifth set of items assessed respondents’ ease/difficulty in using the purchased products/services (e.g., “I usually find it difficult to use the products/services I have purchased”). This section of the questionnaire also included a battery of items whose completion was reserved only to BW subjects. Such items were indeed designed to appraise how the loss of front teeth affected their consumption behaviour and were developed on the basis of information gathered through the semi-structured interviews. They asked respondents to indicate their level of agreement with the following statements: “Since I lost my teeth..” “..I feel less motivated to purchase new products/services”; “..I am less interested in collecting information about new products/services”; “..I am less interested in comparing diverse purchasing alternatives”; “..I feel less confident when I have to make a purchasing decision”; “..I feel less confident when I use the products/services I have purchased”; “..I reduced my consumptions”; “..the quality of my consumptions worsened”.

The second section of the questionnaire was employed to assess respondents' *shopping motivations* by means of a scale that Guido (2006) developed to measure Tauber's (1972) six utilitarian motivations and five hedonic motivations. The former were measured by means of 39 items (e.g., "I love to hunt for bargains"; "I only shop when I have to buy something"; etc.), while the latter were measured through 15 items (e.g., "I enjoy hanging out with friends at the mall"; "I like meeting people while shopping"; "I enjoy looking at store displays").

The third section of the questionnaire was designed to measure participants' emotional reactions to the stimuli arising from a shopping environment. In accordance with Mehrabian and Russell's (1974) *Pleasure-Arousal-Dominance* (PAD) model, such emotional states were surveyed by means of three subscales, each including six semantic differential items. Specifically, the sub-scale directed at measuring *pleasure* included the items "annoyed-pleased"; "unsatisfied-satisfied"; "unhappy-happy"; "bored-relaxed"; "melancholic-contented"; "despairing-hopeful". The sub-scale directed at measuring *arousal* included the items "sluggish-frenzied"; "un-aroused-aroused"; "sleepy-wide awake"; "calm-excited"; "relaxed-stimulated"; "dull-jittery". The sub-scale directed at measuring *dominance* included the items "submissive-dominant"; "influenced-influential"; "controlled-controlling"; "guided-autonomous"; "cared for-in control"; "awed-important".

The fourth section of the questionnaire assessed respondents' level of *materialism* through a scale proposed by Belk (1985). Such a scale consists of three sets of items. The



first one, including nine items, assesses individuals' *possessiveness* (e.g., "I get very upset if something is stolen from me, even if it has little monetary value"); the second one, including 7 items, is directed at assessing individuals' *non generosity* (e.g., "I do not like to lend things, even to good friends"); the third one, including eight items, is directed at assessing individuals' *envy* (e.g., "I am bothered when I see people who buy anything they want").

Finally, the questionnaire also tapped respondents' socio-demographic data, namely, gender, age, level of education, and annual income.

## Results

Analyses started by processing demographic data relative to the surveyed groups of elderly consumers, that is, gender, age, education, and annual income. Then, the purchase decision-making process of the two groups was assessed in order to investigate the presence of possible differences among them. Finally, differences concerning their shopping motivations, their utilitarian/hedonic tendencies, the emotional states arising from their shopping experience, and the respective levels of materialism were also investigated.

### *Demographic characteristics of BW and NBW subjects*

The analysis of demographic data revealed that the group of BW subjects was almost equally distributed among male and female respondents. About half of them resulted younger than 75, while the others resulted older than 75 (Table 1). While, as regards NBW subjects, about 60% of them consisted of male respondents and individuals younger than

75. As for the level of education, the majority of respondents in both groups proved to have a primary education (73% for BW subjects and 67% for NBW subjects). Only 1% of BW subjects were found to have a tertiary education, while, in the case of NBW subjects, this percentage resulted equivalent to 4%.

As regards respondents' annual income, in the case of BW subjects, it was ascertained that 63% of them, fell into the lower income segment considered in the research (i.e., 10,000 euro), whereas 1% of them fell into the higher income segment (i.e., 30,000 euro). While, in the case of NBW subjects, it was ascertained that 40% of them fell into the lower income segment, whereas 9% of them fell into the higher income segment.

Table 1

Demographics of BW and NBW subjects

	BW		NBW	
	Frequency	Percent	Frequency	Percent
<i>Gender:</i>				
Males	57	57	61	58.70
Females	43	43	43	41.30
<i>Age:</i>				
≤ 75	54	54	64	61.50
> 75	46	46	40	38.50
<i>Education:</i>				
None/primary	73	73	67	64.50
Secondary	26	26	33	31.70
Tertiary	1	1	4	3.80
<i>Income:</i>				
Less than 10,000	63	63	40.04	38.50
10,000-30,000	36	36	55.02	52.90
More than 30,000	1	1	8.95	8.60

Note:  $N_{(BW)} = 100$ ;  $N_{(NBW)} = 104$ ; BW = Broken Windows subjects; NBW = Non-Broken Windows subjects.

*Consumption behaviour of BW and NBW subjects*

The analysis of the decision-making process underlying BW and NBW subjects' purchase decisions was directed first of all at synthesising the scores respondents assigned to the diverse items included in the first section of the questionnaire, in order to obtain a single measure for each of the five stages of consumption decision-making process. Before doing so, Cronbach's alpha coefficients relative to these five set of items were computed. Such computations yielded satisfactory results ( $\alpha_{\text{(Needed recognition)}} = .65$ ;  $\alpha_{\text{(Information search)}} = .70$ ;  $\alpha_{\text{(Product/service comparison)}} = .68$ ;  $\alpha_{\text{(Purchase decision)}} = .76$ ;  $\alpha_{\text{(Usage)}} = .85$ ), consequently, the items employed to asses a specific stage of consumption decision-making process were totalled in order to obtain a single indicator for each stage of such a process. Next, the mean values of these indicators were calculated (see Table 2) and the obtained results revealed that, compared to NBW subjects, BW subjects are less capable of clearly identifying their consumption needs ( $M_{\text{(BW)}} = 23.21$ ;  $M_{\text{(NBW)}} = 27.92$ ), less interested in searching for

Table 2

Differences in the consumption decision-making process of BW and NBW subjects

	BW		NBW		Comparisons		
	Mean	SD	Mean	SD	F	p	$\eta^2$
Need recognition	23.21	5.49	27.92	5.93	26.42	.00	.11
Information search	31.43	1.04	40.40	1.01	36.78	.00	.15
Product/service comparison	58.65	.92	67.43	.90	44.65	.00	.18
Purchase decision	39.89	.55	39.27	.54	.61	.43	.00
Usage	41.52	.71	47.09	.70	29.63	.00	.13

Note:  $N_{\text{(BW)}} = 100$ ;  $N_{\text{(NBW)}} = 104$ ; BW = Broken Windows subjects; NBW = Non-Broken Windows subjects; covariates: age, gender, income, education.

information about products/services ( $M_{(BW)} = 31.43$ ;  $M_{(NBW)} = 40.40$ ) and compare alternative products/services ( $M_{(BW)} = 58.65$ ;  $M_{(NBW)} = 67.43$ ). BW and NBW subjects were found not to differ from each other with respect to the ease/difficulty experienced in making a purchase decision ( $M_{(BW)} = 38.89$ ;  $M_{(NBW)} = 39.27$ ). However, compared to NBW subjects, BW ones proved to experience more difficulties in using the products/services they purchased ( $M_{(BW)} = 41.52$ ;  $M_{(NBW)} = 47.09$ ). The statistical validity of the above indicated differences between the examined groups was tested by means of a series of ANCOVA (Analysis of Covariance) tests, in which demographic variables (age, gender, income, education) were considered as covariates. The findings of these tests confirmed that BW and NBW subjects differ from each other in relation to the diverse phases of consumption decision-making process except for the purchase decision stage.

To obtain further information about the purchase behaviour of BW subjects, answers provided to the questions aimed to assess how their consumption decision-making process changed in consequence of the loss of front teeth were processed. Also in this case, basic descriptive statistics (means and standard deviations) were calculated. Findings allowed to establish that, since BW subjects started losing their teeth, they felt less motivated to purchase new products/services ( $M = 5.28$ ,  $SD = 1.64$ ), less interested in collecting information about products/services ( $M = 4.93$ ,  $SD = 1.34$ ) and comparing diverse purchase alternatives ( $M = 5.03$ ,  $SD = 1.38$ ), less confident when making a purchase decision ( $M = 5.26$ ,  $SD = 1.30$ ), and experienced difficulties in using the purchased products/services ( $M =$

4.98, SD = 1.45). These respondents also acknowledged that, since they lost their front teeth, they reduced their consumptions (M = 4.56, SD = 1.27) and that the quality of the products/services they use worsened (M = 4.04, SD = 1.48).

To understand if differences between the examined groups are connected with the ageing process, analyses focussed on BW and NBW subjects aged over 75 and compared the scores relative to the five phases of consumption for these two sub-groups of respondents by means of five ANCOVA tests. Also in these tests, demographics were considered as covariates (Table 3). However, in this case, findings revealed that, for all the considered measures, BW and NBW subjects aged over 75 do not differ from each other. Which implies that, for very old individuals, the deterioration of consumption seems to be a phenomenon unrelated to the loss of front teeth.

Table 3

Differences in the consumption decision-making process of BW and NBW subjects older than 75

	BW		NBW		Comparisons		
	Mean	SD	Mean	SD	F	p	$\eta^2$
Need recognition	21.70	.56	22.96	.60	2.23	.13	.02
Information search	26.22	1.32	28.43	1.42	1.22	.27	.01
Product/service	54.36	1.23	57.36	1.33	2.88	.09	.03
Purchase decision	40.23	.48	41.00	.52	1.13	.29	.01
Usage	37.50	.99	39.31	1.06	1.47	.22	.01

Note:  $N_{(BW)} = 46$ ;  $N_{(NBW)} = 40$ ; BW = *Broken Windows* subjects; NBW = *Non-Broken Windows* subjects; covariates: age, gender, income, education.

*Utilitarian/Hedonic pursuits, emotional states, and materialism of BW and NBW subjects*

The investigation of respondents' utilitarian/hedonic pursuits grounded on the analysis of the responses concerning Tauber's (1972) shopping motivations. Also in this case, the reliability of the scale used to tap such motivations was firstly assessed by computing the Cronbach alpha coefficients relative to each motivation. Such an analysis yielded adequate results, as alpha coefficients were found range between .67 and .94. Consequently, the items measuring the same motivation were averaged in order to obtain a single indicator for each motivation. Next, the mean values of such indicators were computed (Table 4). To establish the presence of possible differences between BW and NBW subjects in relation to such motivations, a series of ANOVA tests was performed (Table 4). Findings revealed that

Table 4

Differences in the shopping motivations of BW and NBW subjects

	BW			NBW			ANOVA test	
	M	SD	SE	M	SD	SE	F	Sig.
<i>Utilitarian motivations</i>								
Pleasure in bargains	3.52	1.80	.15	4.85	1.09	.13	29.76	.00
Pleasure in bargaining	3.36	1.79	.15	4.72	1.50	.18	28.03	.00
Freedom to choose	3.87	1.75	.14	5.94	.74	.09	82.07	.00
Enjoying being on one's own	3.66	1.82	.15	5.40	.95	.11	51.38	.00
Status and authority	3.63	1.45	.12	4.30	1.41	.17	9.35	.00
<i>Hedonic motivations</i>								
Diversion	4.47	1.03	.08	3.63	.90	.11	31.70	.00
Sensory stimulation	4.86	1.63	.13	3.57	1.75	.21	25.94	.00
Communication with others	4.49	1.44	.12	2.95	1.10	.13	57.31	.00
Physical activity	4.26	1.84	.15	2.56	1.49	.18	41.72	.00
Peer group attraction	4.59	1.88	.15	2.67	1.63	.20	49.53	.00
Self gratification	4.09	1.19	.10	2.92	.96	.12	47.24	.00

Note:  $N_{(BW)} = 100$ ;  $N_{(NBW)} = 104$ ; BW = Broken Windows subjects; NBW = Non-Broken Windows subjects.

NBW subjects scored high on the set of utilitarian motivations (e.g.,  $M_{(Pleasure\ in\ bargains)} = 4.85$ ;  $M_{(Pleasure\ in\ bargaining)} = 4.72$ ), whereas BW subjects scored high on the set of hedonic motivations (e.g.,  $M_{(Diversion)} = 4.47$ ;  $M_{(Sensory\ stimulation)} = 4.87$ ). Differences between the two groups resulted significant for all the surveyed shopping motivations.

Then, following a procedure employed by Guido (2006), the scores relative to the diverse hedonic shopping motivations were summed in order to obtain a single measure of the hedonic pursuits of BW and NBW subjects. Similarly, the scores relative to the hedonic shopping motivations were summed to obtain a single measure of the hedonic pursuit of the examined groups of respondents. The mean values of these measures were subsequently determined (Table 5) and, to establish if BW and NBW subjects differ from each other in relation to such measures, two ANCOVA tests, in which the surveyed demographic variables (gender, age, income, and education) were considered as covariates, were performed. The results of such tests revealed that BW subjects are typified by a stronger hedonic pursuit than NBW subjects ( $M_{(BW)} = 176.08$ ,  $M_{(NBW)} = 114.75$ ;  $p = .00$ ). Conversely, NBW subjects proved to be characterised by a stronger utilitarian pursuit than BW subjects ( $M_{(NBW)} = 57.33$ ;  $M_{(BW)} = 89.33$ ;  $p = .00$ ).

An analogous methodology was followed to compute single indicators of the three emotional states encompassed by the PAD model (i.e., *pleasure*, *arousal*, and *dominance*) and the three dimensions of materialism encompassed by Belk's (1985) framework (i.e., *possessiveness*, *non-generosity*, and *envy*). With regard to the dimensions of the PAD model,

the employed sub-scales proved to sufficiently reliable ( $\alpha_{(Pleasure)} = .94$ ;  $\alpha_{(Arousal)} = .93$ ;  $\alpha_{(Dominance)} = .79$ ). The average indicators of such dimensions revealed that BW subjects experience higher levels of pleasure and arousal than NBW subjects ( $M_{(Pleasure, BW)} = 33.39$ ;  $M_{(Pleasure, NBW)} = 27.13$ ;  $P = .00$ ;  $M_{(Arousal, BW)} = 30.42$ ;  $M_{(Arousal, NBW)} = 21.01$ ;  $p = .00$ ). While, the difference in terms of dominance over the external environment between the two groups proved to be less sharp ( $M_{(Dominance, BW)} = 28.22$ ;  $M_{(Dominance, NBW)} = 24.3$ ;  $p = .00$ ). ANCOVA tests (in which demographic variables were considered as covariates) confirmed the statistical validity of such differences (Table 5).

As for the dimensions of materialism, all the employed sub-scales reached the minimum reliability threshold ( $\alpha_{(Possessiveness)} = .67$ ;  $\alpha_{(Non-generosity)} = .65$ ;  $\alpha_{(Envy)} = .94$ ). Furthermore,

Table 5

Utilitarian/hedonic pursuits, emotional states and materialism of BW and NBW subjects

	BW		NBW		Comparisons		
	Mean	SD	Mean	SD	F	p	$\eta^2$
<i>Util./Hedon. motivations</i>							
Utilitarianism	57.33	1.34	89.33	1.32	279.231	.00	.58
Hedonism	176.08	28.10	114.75	32.48	216.08	.00	.52
<i>PAD</i>							
Pleasure	33.39	.55	27.13	.54	62.41	.00	.24
Arousal	30.42	.68	21.01	.67	93.70	.00	.32
Dominance	28.22	.443	24.31	.43	38.63	.00	.10
<i>Materialism</i>							
Possessiveness	49.53	6.09	45.99	6.11	38.63	.00	.16
Non-generosity	31.53	6.51	28.39	6.19	9.030	.00	.04
Envy	40.74	11.02	24.56	8.20	129.79	.00	.39

Note:  $N_{(BW)} = 100$ ;  $N_{(NBW)} = 104$ ; BW = Broken Windows subjects; NBW = Non-Broken Windows subjects; covariates: age, gender, income, level of education.



with respect to all the examined dimensions, BW subjects resulted more materialist ( $M_{(\text{Possessiveness, BW})} = 49.55$ ;  $M_{(\text{Non-generosity, BW})} = 31.53$ ;  $M_{(\text{Envy, BW})} = 40.74$ ) than NBW subjects ( $M_{(\text{Possessiveness, NBW})} = 45.99$ ;  $M_{(\text{Non-generosity, NBW})} = 28.39$ ;  $M_{(\text{Envy, NBW})} = 24.56$ ). Also in this case, ANCOVA tests confirmed the significance of the detected differences.

### Discussion

This study attempted to extend Wilson and Kelling's (1982) BWT (which postulates that small signals of disorder such as litter, graffiti, etc. may trigger a process of degradation of a social environment) to elderly consumers' behaviour. It was aimed in particular at understanding if the lack of front teeth in the elderly can be considered as the precursor of a progressive deterioration of consumption behaviour. To achieve this goal, the study addressed, first of all, the purchase decision-making process and sought to investigate the presence of possible differences between BW subjects and NBW subjects. Such differences were evaluated in relation to the diverse stages of this process (i.e., need recognition, information search, product/service comparison, purchase decision, and usage of the purchased goods/services). Findings revealed the presence of statistically significant differences between BW and NBW subjects with respect to all stages, except for purchase decision. Compared to NBW subjects, BW subjects resulted less able to clearly identify their consumption needs, less interested in gathering information about products/services, and less motivated to compare diverse purchase alternatives. They also proved to experience more difficulties in using the purchased products/services than NBW subjects. This suggests

that, the deterioration of BW subjects' consumption behaviour regards both the pre-purchase and post-purchase stages of consumption. The difference between BW and NBW subjects, however, were not detected for respondents older than 75, which indicates that, beyond this age threshold, the deterioration of consumption seems to not only regard individuals missing their front teeth.

The obtained results also allowed to establish that, compared to NBW subjects, BW subjects are more likely to appreciate the epicurean and ludic side of shopping and to be driven by hedonic motivations. To a certain extent, this result indicates that the loss of front teeth is likely to be a prominent driver of elderly individuals' tendency to pursue hedonic goals. It suggests that BW subjects pursue hedonic goals to cope with the negative feelings connected with their bodily deterioration and the related sense of social discrimination (cf. Mandel and Smeesters 2008). Which seems to be in line with the findings of Ferraro et al. (2005) who demonstrated that low body esteem (together with exposure to death-related stimuli) drives people to pursue hedonic consumption over the utilitarian one.

Coherently with the above illustrated result, the analysis of the emotional states determined by the shopping experience revealed that, compared to NBW subjects, BW subjects experience higher levels of pleasure and arousal. This finding indicates that the loss of front teeth is likely to limit BW subjects' time perspective, which in turn, according to Löckenhoff and Carstensen's (2004) SST, drives these individuals to prioritise emotional goals. This means that BW subjects' awareness about the progressive worsening of their

physical condition can be considered a relevant driver of their search for emotional wellbeing.

Analogous argumentations may explain the high level of materialism of BW subjects. This study ascertained indeed that they tend to be more possessive, un-generous, and envy than NBW ones, which means that physical deterioration may lead these individuals to believe that material possessions will make them happy. Such a finding adds to the stream of research which ascertained that perception of limited time left and death anxiety might induce materialism (e.g., Arndt, Greenberg and Cook 2002) and, together with the previously illustrated results (see, also, Guido, Amatulli and Peluso 2014; Guido, Amatulli and Natarajan 2015), provides support to Richins' (2013) view of materialism and hedonism as closely interrelated constructs.

Taken as a whole, the results of this research suggest that the peculiar consumption pattern of BW subjects is likely to derive from the negative perception they have of themselves which in turn is shaped by the negative perception society has of physical deterioration (Goldenberg et al. 2000; Levy 2003). The purchase behaviour of these individuals proved indeed to be driven only to a limited extent by rational considerations and to essentially represent a means to achieve a sense of satisfaction. Such a sense of satisfaction helps them cope with the physical deterioration deriving from aging and the associated social stigmatisation (Pasupathi and Lockenhoff; Taylor and Langer 1977). This latter tendency, however, may also have detrimental effects for these consumers. Attempts

to escape aversive mental states may indeed result in self-destructive behaviours such as alcohol abuse, disinhibited eating, etc. (Mandel and Smeesters 2008). In our research, it was found that BW subjects are not able to clearly identify their needs and do not engage in an accurate selection of their products/services suited to satisfy these needs. This implies that their consumption choices may not be effective (indeed, it was found that they often encounter difficulties in using the purchased products/services) and may be also likely to have deleterious consequences on their physiological and psychological wellbeing.

### **Policy implications**

Our results suggest that the lack of front teeth may determine a progressive deterioration of BW subjects' consumption, which, in turn, may threaten these consumers' health and general wellbeing. In light of this result, private and public organisations could undertake opportune initiatives to diminish this risk and improve the welfare of BW consumers. Firstly, health ministries and health-care organisations could design *ad hoc* programs targeted to such consumers and aimed to promote tooth care. They could provide free dental care and tooth care products to older consumers, offer them discounted medical rates, and also launch social marketing campaigns aimed to incentivise dental care. In doing so, they could reduce the likelihood that older individuals could experience a deterioration of their consumptions. Secondly, consumer organisations could seek to increase manufactures', service providers', and distributors' awareness of BW subjects' peculiar consumption patterns, so that they would develop market approaches able to improve

these consumers' wellbeing. Thirdly, regulatory authorities may also ask manufactures and service providers to increase the safety of their products/services, or even develop new products/services that comply with more stringent safety standards, that can be easily used by BW consumers. Importantly, such companies should also provide these consumers with effective post-purchase services (e.g., maintenance, supply of spare parts, etc.) in order to guarantee a proper use of their products/services. Finally, in order to simplify older consumers' buying decisions, distributors may deliver them simple and easily understandable information, and instruct salespersons to devote special attention to such consumers during the product/service selection. Such strategies could be beneficial to BW consumers' welfare and elderly consumers in general.

### **Limitations and Future Research**

This study is not without limitations. First of all, it should be noted that it essentially had an exploratory nature and hence only a relatively small sample of elderly consumers located in a specific geographical area was investigated. To confirm our conclusions, future research is therefore recommended to investigate broader samples of elderly consumers and compare data gathered in diverse geographical locations. It is also important to observe that information about the consumption patterns of BW and NBW subjects as well as the other constructs object of research were gathered through self-reported measures which may only in part reflect the differences between the two groups of consumers. Thus, to deal with this limitation, future studies could examine them by employing other research techniques,

such as participant observations. Finally, to obtain more general results about the effects of deteriorating health conditions and elderly consumers' behaviour, future research could address other signals of physical decay likely to negatively affect elderly individuals' self-perception.

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