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Self-concealers: Do they conceal what we always assumed they do?

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ABSTRACT

The present investigation empirically examined the relation between self-concealment and three secret typologies reported in the literature. For this aim a general population sample of 221 participants completed an online questionnaire that included the Self-concealment Scale (Larson & Chastain, 1990). Respondents also wrote down their most important secret. It was found that SC is positively associated with keeping secrets that concern convictions of personal inadequacy, sorrows, and worries that relate to oneself. In addition, it is concluded that self-concealed information refers in particular to secrets regarding personal inadequacy, sorrow, and worry. Implications for secrecy research are discussed and suggestions for future research are made.

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1. Introduction

Virtually everyone has secrets (Vangelisti, 1994). These may concern a wide range of topics, ranging from seemingly trivial events (e.g., caloric intake) to the most traumatic experiences (e.g., sexual abuse in childhood). The idiosyncratic way in which individuals ascribe importance to any given event limits an objective ranking. However, secrets can be clustered based on their contents (such as financial secrets, relational secrets, etc.), allowing one to compare the prevalence of certain secret topics across groups of people and cultures.

1.1. Categorizing secret topics

Several attempts have been made to cluster or categorize secrets based on their contents. The first attempt was by Yalom (1970), who found three themes of secret topics that were most frequently reported: (1) Convictions of Personal Inadequacy (feeling inadequate, ineffective, ignorant), (2) a Sense of Interpersonal Alienation (feeling a distance from others, choosing to ignore needs or emotions of others), and (3) Sexuality-Related Information (sexual preferences, experience). Second, Vangelisti (1994) asked participants to anonymously write down the issues they kept or were keeping secret from or with their family. Factor analysis of the 613 secrets that were anonymously disclosed revealed three main underlying categories: (1) Taboos (sexual preferences, extramarital affairs, substance abuse, etc.), (2) Rule Violations (drinking/

partying, disobedience, tax fraud, etc.), and (3) Conventional Secrets (religious and political beliefs, personal anecdotes, personality conflicts, etc.). Finally, based on a review of the secrecy literature, Wegner and Lane (1995) constructed a questionnaire containing 50 secrecy-prone topics that ranged from overly trivial (such as eating rich food) to important and highly personal (cheating on a lover, masturbation). Participants were asked to rate to what extent they kept or would keep these topics secret. These ratings were submitted to principal axis factor analysis and revealed four underlying factors labeled: (1) Worries (thoughts about things that could happen to them), (2) Sorrows (mainly items that measure failure and sadness), (3) Sins (moral transgressions), and (4) Offenses (taboo violent and sexual acts). Some other typologies exist, for example that by Weiner and Shurman (1984), but these originated in a clinical context and mostly concern therapy-related themes and abnormally disturbed behavior such as violent acts, crimes, and drugs or medication taken. The three typologies and the accompanying 10 categories of Yalom, Vangelisti, and Wegner and Lane are summarized in Table 1 with several examples of secrets for each category.

1.2. Self-concealment

Not only are there large differences in secret topics, also large individual differences in the tendency to conceal information exist: some people are more secretive than others. The best known personality trait that is characterized by keeping secrets is self-concealment (SC; Larson & Chastain, 1990). SC refers to the stable tendency to conceal personal information from others, independent of environmental pressures, and is considered by Larson and Chastain (1990) as an overactive case of boundary regulation in the maintenance of privacy. SC is defined as withholding "personal

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Table 1
Typologies of Yalom (1970), Vangelisti (1994) and Wegner and Lane (1995).

Typology	Secret categories	Example secrets
Yalom (1970)		
	Conviction of Personal Inadequacy	Failure
	Sense of Interpersonal Alienation	Being in love, being different than others
	Sexuality-Related Information	Masturbation, sexual fantasies and preferences
Vangelisti (1994)		
	Taboos	Substance abuse, illegalities, sexual preferences, marital difficulties
	Rule Violations	Disobedience, premarital pregnancy
	Conventional Secrets	Religious and political beliefs, personal anecdotes, personality conflicts
Wegner and Lane (1995)		
	Worries	Losing keys or wallet, getting mugged or hit by someone
	Sorrows	Being lonely, a lie one told, illness
	Sins	Substance use, thoughts about God or Satan
	Offenses	Killing someone, stealing, incest

information (thoughts, feelings, actions, or events) that is highly intimate and negative in valence" (Larson & Chastain, 1990; p. 440), to distinguish it from less personal kinds of secrets that people may have. Since the seminal paper by Larson and Chastain (1990), the field of SC research has been growing steadily to over 121 papers published in ISI journals in 2011, relating SC to maladaptive socioemotional regulation and negative outcomes (Uysal, Lin, & Knee, 2010; Wismeijer, van Assen, Sijtsma, & Vingerhoets, 2009).

However, these conclusions are based on studies (including our own work) that assume that self-concealed information indeed refers to negatively valenced, highly intimate, and personal information, as opposed to concealing other kinds of information. This focus on personally relevant information likely led to the strong psychosocial research approach on SC with social distress, rejection sensitivity, attachment, and social support as often researched predictors of SC. Unfortunately, to date, this assumption has not been empirically tested. This is remarkable, considering the large amount of research on SC that is based on this assumption and given the explicit thematic boundaries Larson and Chastain (1990) defined for self-concealed information. Without testing the contents of self-concealed information it cannot be ruled out that other kinds of secrets may have been studied as well (such as negatively valenced information that does not refer to personal details), limiting the validity of earlier SC research. Therefore, the aim of this study is to investigate how SC is related to the assignment of self-reported secrets, based on their contents, to various secret typologies reported in the literature. Doing so may also inform on whether self-concealed information is indeed characterized by personal information that is highly intimate and negative in valence. This is the first study that explicitly examines the contents of secrets in relation to SC. To this aim, self-reported major secrets of a sample drawn from the general population were categorized in the typologies of Yalom (1970), Vangelisti (1994) and Wegner and Lane (1995), and the associations between SC and

these typologies were computed. In addition, the SC scores of each category were compared. For each of the three typologies separately hypotheses will be formulated below.

1.3. Hypotheses

1.3.1. Yalom's typology

Yalom's Conviction of Personal Inadequacy category most closely resembles self-concealed information as it entails personal aspects that are negatively valenced and may concern highly intimate thoughts one has about oneself. The category of Sense of Interpersonal Alienation may not necessarily be as related to negatively valenced and personal information as Conviction of Personal Inadequacy is, and therefore may less strongly represent self-concealed information. Finally, Sexuality-Related Information, the third category, indeed refers to personal and intimate secrets, yet may not be negatively valenced and, more importantly, form a taboo topic that applies to the majority of people and are not specific for self-concealers. Hence, it is hypothesized that (H1) SC is positively associated with Convictions of Personal Inadequacy and that (H2) SC is less strongly positively or not associated with Sense of Interpersonal Alienation and Sexuality-Related Information. In addition, it is hypothesized that (H3) the mean SC score is significantly higher in Convictions of Personal Inadequacy compared with the other two categories of Yalom's typology.

1.3.2. Vangelisti's typology

Self-concealed information is considered to be ordinary (conventional) private information (Larson & Chastain, 1990; Wismeijer et al., 2009), as opposed to unconventional secrets such as sexual abuse, tax fraud, having an affair, etc. Therefore, it is expected that (H4) SC is positively associated with Conventional Secrets. There is no reason to suggest that self-concealers commit more rule violations than others. Given the generally inhibited nature of self-concealers (Kelly, 2002; Wismeijer, 2011), one would rather expect the opposite. In addition, it is also not expected that SC is associated with concealing taboo topics as these, as was mentioned earlier, generally apply to all members of a given population, and not just to self-concealers. Hence, it is hypothesized that (H5) SC is less strongly associated with the remaining Taboos and Rule Violations categories. Finally, it is hypothesized that (H6) the mean SC score is significantly higher in Conventional Secrets compared with the other two categories by Vangelisti (1994).

1.3.3. Wegner and Lane's typology

The last set of hypotheses regards the typology by Wegner and Lane. The Sorrows category is characterized by items that mainly reflect personal failure and sadness. In addition, SC is strongly and positively associated with negative emotions and negatively associated with subjective well-being in general (Uysal et al., 2010; Wismeijer & Van Assen, 2008), corresponding with the negative emotional state of secrets that fall in the Sorrows category. Therefore, it is hypothesized that (H7) SC is positively associated with Sorrows. The Worries category also bears resemblance with self-concealed information. Recent research (Masuda et al., 2011; Wismeijer et al., 2009) has shown that SC is positively associated with maladaptive mood regulation, Neuroticism, rumination, and psychological inflexibility. Therefore, it is hypothesized that (H8) SC is positively associated with the Worries category. However, as worries refer primarily to future situations and therefore do not characterize self-concealed information as much as sorrows do, in the event that both associations are significant it is also hypothesized that (H9) the relation between SC and Sorrows is stronger than between SC and Worries. The remaining two categories, Sins and Offenses, are expected to correlate weakly or not at all with SC as both refer to secrets related to rule violations, which

is not a particularly important aspect of self-concealed information. That is, the tenth hypothesis states that (H10) SC is weakly or not associated with the Sins and Sorrows categories. Finally, it is hypothesized that (H11) the mean SC score is significantly higher in the Sorrows category compared with the other three categories of Wegner and Lane (1995).

2. Method

2.1. Participants and procedure

The sample consisted of 221 participants who responded to a call in the Dutch national media (newspapers and magazines) to participate in online psychological research. There was no monetary compensation. The online questionnaire was designed so that one could only go to the next question when the preceding question was answered. Hence, it was impossible for subjects who completed the questionnaire to have missing values. Of the 2775 people who participated, 652 (24%) completed the questionnaire. At the end of the questionnaire participants were given the choice to write down what they considered their one and most important secret, 221 participants (34%) chose to do so. Example secrets are: "I read my husband's emails", "I always worry that other people find me boring", "I often wish I did not have children", and "people think I drink a lot but nobody knows that I actually drink at least a bottle of wine per day". The data of these participants are used in this study. The sample consisted of 164 women (74%) and 57 men (26%) with an average age of 29.3 years (SD = 11.8). Age ranged from 17 to 67 years, with no significant difference between men and women.

2.2. Measures

2.2.1. Self-concealment

SC was assessed employing a Dutch translation of the Self-concealment Scale (SCS; Larson & Chastain, 1990). The SCS measures the tendency to keep negatively valenced private and intimate information secret and consists of 10 items that are rated on 5-point adjectival scales (lowest score 1 means 'does not apply to me', intermediate score 3 means 'moderately applies to me', highest score 5 means 'completely applies to me'). Example items are "I usually do not share personal information with other people", "There are lots of things about me that I keep to myself", and "I have negative thoughts about myself that I never share with anyone". All items are positively worded with respect to the construct of interest, thus higher ratings indicate higher SC. Cronbach's α was equal to .78 and Guttman's $\lambda 2$, a lesser known but more valid measure of internal consistency than Cronbach's alpha (Guttman, 1945; Sijtsma, 2009), equaled .80.

2.2.2. Secret categories

Four undergraduate students and the author independently placed each secret into one or more of the combined total of 10 categories (three from Yalom, three from Vangelisti, and four from Wegner and Lane). First, the contents of the 10 categories as defined or described by the original authors were examined by all five individuals, and discussed to avoid possible misunderstandings. Subsequently, a trial selection of 50 randomly chosen secrets was categorized by each rater independently. The results were compared and disagreements were discussed. Several disagreements were detected: most were systematic or concerned occasional mistakes, only a minority concerned true disagreements. Fleiss' κ (a measure of interrater reliability when >2 independent raters assign categorical ratings to a number of items) for this trial was .53, suggesting moderate agreement (Landis & Koch, 1977).

Without the systematic (and thus repeating) errors, κ was .64. The disagreements were discussed until consensus was reached. This led to the joint development of a working definition and several ground rules for each category. These were subsequently applied to all 221 secrets (including the 50 secrets of the trial coding phase). Fleiss' κ for all 221 secrets was .78, suggesting substantial agreement.

2.3. Data analytic strategy

A one-sample Kolmogorov–Smirnov Goodness-of-Fit test showed that SC was normally distributed. Secrets that could be placed into more than one category within one typology (for example, when a secret could be placed in both the Convictions of Personal Inadequacy and Sense of Interpersonal Alienation categories of Yalom's typology) were excluded from the analyses. Table 2 shows the numbers of secrets that were assigned to each category. In total 173 out of 221 secrets (78%) could be assigned to one of the categories of Yalom's typology, 35 secrets (16%) could be assigned to more than one category and 13 secrets (6%) could not be assigned to any of Yalom's categories. In addition, 165 (75%) could be placed within one of Vangelisti's categories, 37 secrets (17%) could be assigned to multiple categories and 29 secrets (9%) could not be assigned to any of the three categories of Vangelisti. Finally, 137 secrets (62%) could be assigned to one of the four categories of Wegner and Lane's typology, 74 secrets (33%) could be assigned to multiple categories and 10 secrets (5%) were not deemed to fit in any of the four categories. The largest number of secrets were assigned to Yalom's category of Sexuality-Related Information ($n = 119$), the lowest number of secrets were assigned to Yalom's category of Interpersonal Alienation related secrets ($n = 14$). Interestingly, Wegner and Lane's Offenses category showed a near perfect overlap with Vangelisti's Rule Violations category.

To compute the associations between SC and the 10 nominal secret categories, the sample was divided into a SC_{low} and SC_{high} group, using the median SC-score (18.08). The associations were then computed using nine Chi-square tests (χ^2) with the conservative Yates Continuity Correction for multiple testing. As Levene's test indicated unequal variances ($p \leqslant .001$ for all three typologies), three one-way Welch's variance-weighted ANOVA's (denominated F_w) were used to compare the SC scores of the categories within each typology with each other. To identify significant post hoc comparisons, pair-wise comparisons were executed (three for Yalom's and Vangelisti's typologies, four for Wegner and Lane's typology) using Games–Howell tests as these are less sensitive to unequal group sizes and variances and are generally preferred in heteroscedastic one-way designs (Games & Howell, 1976; Grissom, 2000). All analyses were done using SPSS 18.0.

3. Results

Mean SC was 19.48 (SD = 6.93) for the total sample, there was no significant gender difference. Hence, only the results for the total sample are reported. Chi-square tests for independence with Yates Continuity Correction indicated positive associations between SC and the Convictions of Personal Inadequacy category and between SC and the Sorrows category ($\chi^2(1, n = 40) = 5.04$, $p = .02$, $\varphi = .23$; $\chi^2 (1, n = 38) = 4.63$, $p = .03$, $\varphi = .21$, respectively) and a negative correlation between SC and the Sexuality-Related Information category, $\chi^2(1, n = 119) = 4.04$, $p = .04$, $\varphi = .12$. Hence, hypotheses H1, H5, H7, H9, and H10 were confirmed, H2 was partially supported and H4 and H8 were rejected.

To test the remaining hypotheses H3, H6, and H11, three one-way Welch ANOVAs with Games–Howell post hoc comparisons were executed and for each typology the SC scores of the pertain-

Table 2
Means and standard deviations for SC as a function of secret category and contrasts for each category.

Typology	Category	N	Total SC		F_w	Games–Howell post hoc comparison
			Mean	SD		
Yalom (1970)		173			18.94[***]	
	Convictions of Personal Inadequacy[a]	40	26.02	6.1		a > b[*]
						a > c[***]
	Sense of Interpersonal Alienation[b]	14	19.21	6.82		
	Sexuality-Related Information[c]	119	18.94	6.58		
Vangelisti (1994)		165			18.13[***]	
	Taboos[a]	76	19.72	6.13		c > a, b[***]
	Rule Violations[b]	39	18.98	5.12		
	Conventional Secrets[c]	50	25.31	6.95		
Wegner and Lane (1995)		137			27.24[***]	
	Worries[a]	17	23.37	6.42		a > c[*]
						a > d[***]
	Sorrows[b]	38	28.09	7.36		b > a[*]
						b > c, d[***]
	Sins[c]	37	17.62	5.26		
	Offenses[d]	45	15.36	6.89		

Note. F_w = Welch Anova.
[*] $p < .05$.
[***] $p < .001$.

ing categories were compared with each other. Table 2 shows the means and standard deviations of SC for all 10 categories (fourth and fifth columns), and the results of the omnibus Welch ANOVA reported as F_w (sixth column). In addition, the significant post hoc comparisons using Games–Howell tests are shown in the last column of Table 2. For each typology, the omnibus test of the main effect of secret category on SC was statistically significant: Yalom $F_w(2, 32.646) = 18.94$, $p < .001$, est $\omega^2 = .162$, $\eta^2 = .173$; Vangelisti $F_w(2, 99.053) = 18.13$, $p < .001$, est $\omega^2 = .172$, $\eta^2 = .183$; Wegner and Lane $F_w(2, 41.398) = 27.24$, $p < .001$, est $\omega^2 = .351$, $\eta^2 = .366$.

Post hoc comparisons using Games–Howell correction showed that for the Yalom typology, SC was significantly higher in the Convictions of Personal Inadequacy category compared to the Sense of Interpersonal Alienation (mean dif = 6.81 $p < .01$, 95% CI [1.43, 12.19]) and Sexuality-Related Information categories (mean dif = 7.08, $p < .001$, 95% CI [4.32, 9.83]), confirming H3. Regarding Vangelisti's typology, the post hoc comparisons showed that SC was significantly higher in the Conventional Secrets category compared to the Taboos (mean dif = 5.59, $p < .001$, 95% CI [2.79, 8.39]) and Rule Violations categories (mean dif = 6.33, $p < .001$, 95% CI [3.61, 9.05]), confirming H6. Finally, in the Wegner and Lane typology, SC was significantly higher in the Sorrows category compared to the Worries (mean dif = 4.72, $p < .05$, 95% CI [.20, 9.99]), Sins (mean dif = 10.47, $p < .001$, 95% CI [7.04, 13.89]), and Offenses categories (mean dif = 12.73, $p < .001$, 95% CI [7.23, 15.61]), confirming H11. Unexpectedly, SC was also higher in the Worries category compared to the Sins (mean dif = 5.75, $p < .05$, 95% CI [.92, 9.82]) and Offenses categories (mean dif = 8.01, $p < .001$, 95% CI [2.64, 11.42]).

4. Discussion

The aim of this study was to investigate how SC was related to the assignment of self-reported secrets into various secret typologies. For this aim the typologies of Yalom (1970), Vangelisti (1994) and Wegner and Lane (1995) were used. Eight hypotheses were confirmed, one was partially confirmed, and two hypotheses were rejected. It was found that SC was positively associated with the Convictions of Personal Inadequacy (Yalom) and Sorrows categories (Wegner and Lane) and negatively associated with the Sexuality-Related Information category (Yalom). Perceiving oneself as inadequate and experiencing sorrows (hence negative emotions)

fit well within the definition of SC that states that SC is a tendency to conceal private, personal information that is in particular negatively valenced by the individual (Larson & Chastain, 1990). In addition, the correlational findings also corroborate studies that have shown SC to be positively associated with maladaptive mood regulation (Masuda et al., 2011; Uysal et al., 2010; Wismeijer et al., 2009) and psychological symptoms such as anxiety and depression (Kelly & Yip, 2006). No significant associations were found between SC and categories such as Taboos, Rule Violations, Offenses, and Sins, suggesting that SC is indeed primarily related to a subset of privately held convictions of negative aspects of oneself as opposed to keeping many secrets in general.

It is not clear how to interpret the negative association between SC and the category of Sexuality-Related Information while a small positive or no correlation was predicted. An, admittedly speculative, explanation is that as high self-concealers have smaller social networks and prefer to stay relatively aloof from others (Cepeda-Benito & Short, 1998; Wallace & Constantine, 2005), they may therefore less frequently deploy sexual activities one would likely keep secret (other than those generally accepted and regarded as a matter of privacy such as masturbation). Hence, it may be that the more one is a self-concealer, the less sexual activities one has to keep secret.

Contrary to expectations, no association was found between SC and the Conventional Secrets category. A closer look at the secrets that were assigned to this category, however, learned that many did not specifically refer to oneself or were neutrally valenced. Examples are not always tidying up the bed after waking up, being too lazy to turn down the heating at night, not being careful with rental cars, or always taking home amenities from hotel rooms such as soaps or shower caps. These secrets do fall within the Conventional Secrets category yet are not specifically related to SC and may therefore explain the lack of a significant association.

The findings from the Welch ANOVAs suggest that SC has considerably more conceptual overlap with the Convictions of Personal Inadequacy category than with the Sense of Interpersonal Alienation or Sexuality-Related Information categories. In addition, the higher scores of SC in the Sorrows category compared to the other categories from Wegner and Lane corroborate the literature that consistently reports a negative relation between SC and subjective well-being (Wismeijer & Van Assen, 2008; Yoo, Goh, & Yoon, 2005). Together, these findings support the view that SC in-

deed refers in particular to information regarding oneself that one perceives as negative.

An unexpected finding was that SC was also higher in the Worries category compared to the Sins and Offenses categories. The finding, however, makes sense in the light of Lane and Wegner's (1995) preoccupation model of secrecy. According to this cognitive model, keeping secrets requires intentional thought suppression to prevent a slip-of-the-tongue or actions that may inadvertently lead to disclosure of the secret. However, in his well-known white-bear paradigm studies, Wegner (1994) has shown that thought suppression leads to a paradoxical increase of thoughts related to what is being suppressed. The high SC scores in the Worries category (although they are lower compared to the Sorrows category) may hence reflect the cognitive burden of the secret on the individual.

One may wonder if SC is not merely a proxy for low self-esteem or neuroticism, given the consistently reported negative association between SC and subjective well-being (Larson & Chastain, 1990; Kelly & Yip, 2006). However, Wismeijer and Van Assen (2008) have shown that SC predicts subjective well-being above and beyond neuroticism and extraversion, widely regarded as the two most powerful predictors of subjective well-being (Diener, 2000; Vittersø, 2001). Hence, the influence of SC on subjective well-being and possibly other outcome measures is not limited to a distress and anxiety component of SC, components that are shared with, for example, neuroticism or low self-esteem.

There are certain limitations to this study. First, an indirect method was used to relate the secrets to SC. After the secrets were categorized into the typologies, the latter were subsequently related to SC scores and inferences were drawn regarding how personal, intimate, and negatively valenced these secrets were. This indirect method requires more assumptions than a direct method (such as about the degree to which the various categories may represent self-concealed information), potentially introducing error. However, as this was the first study to relate the contents of secrets to SC, preference was given to use known and validated typologies to embed the findings in the existing literature. In addition, the typologies are theme based, and therefore can be rated more objectively than subjective characteristics such as valence that are highly idiosyncratic. Second, of the 2775 participants that started filling out the online questionnaire, only 652 completed the questionnaire, suggesting a possible selection effect. However, such an effect may have attenuated rather than inflated the results as it is likely that high (as opposed to low) self-concealing participants in particular aborted completing the questionnaire as it included items assessing personal beliefs, opinions, and feelings. This is also suggested by the relatively high percentage of individuals (34%) that disclosed their secret after having completed the entire questionnaire. A final limitation is that it is impossible to know whether the secrets that were disclosed are in fact real, as respondents may have been too apprehensive to disclose their true, personal secret. However, participants could only disclose their secret after having completed the entire questionnaire. Hence, it makes little sense to complete every question of a rather long questionnaire only to write down a nonsense secret at the end that is not even obligatory.

Future research may explore additional ways to categorize the large pool of secret themes in order to better understand what themes are most frequently kept secret and relate these to specific personality traits or, e.g., cultural differences. In addition, future research may more directly assess the degree to which self-concealed information adheres to the definition of SC, for example

by asking the participants to rate the secrets themselves in terms of these characteristics. Research is also needed on who we are most likely to share our secrets with, if at all, as one may assume it is easier to share one's secret with some people than with others. To date, very little research exists on potential confidants and their characteristics.

It is concluded that self-concealed information refers to convictions of personal inadequacy, sorrows, worries, and conventional secrets and not so much to offenses or rule violations. This suggests SC may indeed consist of the tendency to conceal negatively valenced, personal information in particular.

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