CHAPTER FOUR RESULTS

The aim of the current study was to investigate the relationship between gaslighting and psychological abuse; and between gaslighting, psychological abuse, and specific personality traits in women that may lend vulnerability to experience gaslighting/psychological abuse in intimate relationships. There were several hypotheses related to the aims of the study. First, it was hypothesized that gaslighting scores on the Gaslight Questionnaire (GQ) would positively correlate with psychological abuse scores on the Subtle and Overt Psychological Abuse Scale (SOPAS). Relatedly, GQ scores would more strongly correlate with the subtle than the overt factor of the SOPAS. It was also hypothesized that positive correlations between three independent trait constructs - sensory processing sensitivity, intolerance for uncertainty, and neuroticism (i.e., via the Highly Sensitive Person Scale (HSPS), Intolerance for Uncertainty Scale (IUS), Multidimensional Emotional Disorder Inventory-Neurotic Temperament (MEDI-NT), respectively) and the GQ and SOPAS would emerge. And finally, it was hypothesized that positive associations would emerge between the effects of gaslighting, measured by the GQ and split into high and low groups, and the level of psychological abuse (measured by the SOPAS), and the level of the three trait measures (i.e., HSPS, IUS, MEDI-NT, and MEDI ancillary traits). Participants were self-selected/identified females who completed an online survey asking about experiences in an intimate relationship. Subjects completed demographics questions, two survey measures that assessed the level of gaslighting and psychological abuse experienced in a self-identified "worst" relationship, and then they completed three

randomly presented measures assessing individual traits. Total sum GQ scores were investigated in terms of their associations with the total sum of SOPAS and its factors of subtle and overt psychological abuse. Total sum scores for the HSPS, IUS and its subscales of prospective anxiety (IUSPA) and inhibitory anxiety (IUSIA), as well as the MEDI-NT and its multiple supplementary scales (MEDI-PT, DM, AVD, AA, IC, SOM, SEC) (see Appendix N for abbreviations) were investigated in terms of their association with GQ and SOPAS.

This chapter includes a discussion of the demographic information of the female participants, description of the measures used to assess the variables and respective scale reliability, descriptive statistical analyses of the sample, analyses of correlations, validity, independent t-tests, and discussion of the stepwise linear regression analysis, all related to the hypothesis questions.

Demographic Results

A total of 131 individuals initiated the survey online, and completed varying portions of the questionnaire. Of these, 40 participants were found to have completed all questions (i.e., they had complete data) and were retained for analysis purposes. Those that were dropped from the statistical analyses included 57 individuals who did not answer every survey question, and 34 individuals who endorsed one of the identified and previously discussed exclusion criteria. Demographic information for the analytic sample is presented in Tables 1 and 2.

The sample was a homogenous group, with all 40 participants indicating their sex at birth was female (100%) and most identifying their gender identity as female (98%).

The demographics form asked participants for identification in terms of racial and ethnic

categories that were overlapping, and 87.5% of the participants identified as Caucasian. The remaining participants identified as Asian (5%), Hispanic or Latina (2.5%), International (2.5%), and two or more races (2.5%). Most of the participants fell into the age range 25-35 (70%), followed by 46-55 (18%), and 36-45 (12%). In terms of education, two participants (5%) indicated they had attended some high school, one (2.5%) held a high school diploma, seven (17.5%) attended some college, sixteen (40%) held a bachelor's degree, followed by nine participants (22.5%) with a master's degree, and five participants (12.5%) held doctoral or law degrees.

Sexual orientation in the sample was variable. The most frequently reported sexual orientation was heterosexual (57.5%). Of the remaining participants, 10 identified as bi-sexual (25%), three identified as lesbian (7.5%), two identified as questioning (5%), one identified as Asexual (2.5%), and one participant identified as pansexual (2.5%).

In keeping with inclusion criteria, all 40 participants indicated the status of the "worst" relationship ended over a year ago. The length of time the participants were in the "worst" relationship varied. Most participants remained in the relationship for 1 to 3 years (45%), followed by 6 to 10 years (22.5%), 4 to 5 years (20%), 16 to 20 years (5%), greater than 21 years (5%), and 11 to 15 years (2.5%). The majority of the "worst" relationships were reported to be heterosexual (95%), and the remaining two relationships were same sex (5%). The current relationship status of the participants varied, with 30% reporting current single status, 30% reporting current married status, followed by cohabitating or living together (22.5%), divorced (10%), never married (5%), and separated (2.5%). See Tables 1 and 2 for demographic statistics.

Table 1

Demographic Information of the Sample (N = 40).

	N	Percentile %
What is your age?		
18-24	0	0
25-35	28	70
36-45	5	12.5
46-55	7	17.5
56+	0	0
What is your assigned sex at birth?		
Female Male	40	100
Current gender identity?		
Male	0	0
Female	39	97.5
Transgender	0	0
Do not identify as Female, Male, or Transgender	1	2.5
What is your sexual orientation?		
Gay	0	0
Lesbian	3	7.5
Heterosexual	23	57.5
Bi-sexual	10	25
Pan sexual	1	2.5
Questioning	2	5
A-sexual	1	2.5
How do you describe your race/ethnicity?		
White	35	87.5
Black or African American	0	0
American Indian or Alaska Native	0	0
Asian	2	5
Native Hawaiian or Other Pacific Islander	0	0
Hispanic or Latino	1	2.5
Two or more races	1	2.5
International	1	2.5
What is your current relationship status?		
Single	12	30
Married	12	30
Divorced	4	10
Separated	1	2.5
Never married	2	5
Cohabitating/Living together	9	22.5
What is the highest level of education that you received?		
Some high school	2	5
High school	1	2.5
Some college	7	17.5
Bachelor's degree	16	40
Master's degree	9	22.5
Doctorate or Law degree	5	12.5

Participants also answered questions regarding personal experiences with physical and psychological abuse in the "worst" relationship and for the duration of their lived experience outside of the relationship. More than half the participants indicated they had experienced physical abuse (60%) in their lifetime, with (40%) indicating they had not.

Most participants indicated they had not experienced physical abuse in the "worst" relationship (62%), with (38%) indicating they had experienced physical abuse in the "worst" relationship. With respect to psychological abuse, 95% of the sample indicated they had experienced psychological abuse in their lifetime, 5% had not, and 100% reported they had experienced psychological abuse in the "worst" relationship, which provides an inconsistent response as two participants had reported they had not experienced psychological abuse in their lifetime. (See Table 2)

Quantitative Measures

Reliability and Validity. The measures were analyzed, and reliability scale analyses completed for each measure. To evaluate the reliability of the various scales, Cronbach alpha coefficients were calculated for each scale to determine internal consistency of the scale items. Cronbach's alpha coefficients were evaluated using the guidelines suggested by George and Mallery (2016) where > .9 excellent, > .8 good, > .7 acceptable, > .6 questionable, > .5 poor, and ≤ .5 unacceptable. These scores are presented in Table 3, and discussed with each measure below. A Pearson correlation analysis was conducted among the scale means to determine the strength of the linear relationships (i.e., GQ, SOPAS, SublteSOPAS, OvertSOPAS, HSPS, IUS, IUSPA, IUSIA, and the MEDI scales: NT, PT, DM, AVD,

AA, IC, SOM, and SEC). Cohen's standard was used to evaluate the strength of the

Table 2

Demographic information of the sample, with respect to the "worst" relationship and lifetime experiences (N = 40).

	N	%
With respect to the identified "worst" relationship, what is the status?		
Still together; Currently in relationship		
No longer together (required for participation)	40	100
Was your "worst" relationship:		
Heterosexual	38	95
Same sex	2	5
What was the length of the identified "worst" relationship?	0	0
less than 1 year	18	45
1 to 3 years	8	20
4 to 5 years	9	22.5
6 to 10 years	1	2.5
11 to 15 years	2	5
16 to 20 years	2	5
Greater than 21 years	0	0
Have you ever been the victim of physical abuse in your lifetime?		
Yes	24	60
No	16	40
Were you ever the victim of physical abuse in your identified "worst" relationship?		
Yes	15	37.5
No	25	62.5
Have you ever been the victim of psychological abuse in your lifetime?		
Yes	38	95
No	2	5
Were you ever the victim of psychological abuse in your "worst relationship?		
Yes	40	100
No	0	

relationships, where coefficients between .10 and .29 represent a small effect size, coefficients between .30 and .49 represent a moderate effect size, and coefficients above .50 indicate a large effect size (Cohen, 1988). A Pearson correlation requires that the relationship between each pair of variables is linear (Conover & Iman, 1981). These are presented in Table 4, and discussed below.

Gaslighting Questionnaire (GQ). The Gaslight Questionnaire (GQ) was developed to measure the effects of gaslighting on individuals. A 10-point Likert scale was applied to Stern's (2007) 20-item self-report, 'yes/no' Gaslight Checklist (pp. 5-6), to keep scoring consistent with the SOPAS. The 20 item scores ranged from 0 to 9, and demonstrated very good internal consistency with $\alpha = .87$.

Subtle and Overt Psychological Abuse Scale (SOPAS). Psychological abuse was measured by the Subtle and Overt Psychological Abuse Scale (SOPAS) (Marshall, 2000). The SOPAS is a validated 35-item, 10-point, Likert-type instrument developed to measure both subtle and overt psychological and emotional abuse. The 35 items were written so the essence of both subtle and overt psychological abuse factors were captured and operationalized if the male perpetrating partner used a loving, joking, serious, or overtly abusive behavior (personal communication, Marshall, June 14, 2016). The items were scored on a $0 - 9$ Likert type scale. In this study, the SOPAS demonstrated excellent internal consistency for the 35-item full-scale with $\alpha = .95$. The 19-item Subtle SOPAS factor and 16-item Overt SOPAS factor had Cronbach's alpha coefficients of 0.91 and .89 respectively, indicating excellent reliability.

Intolerance for Uncertainty Scale -12 (IUS-12). The inability to tolerate uncertainty was measured by the Intolerance for Uncertainty Scale – 12 (IUS-12)

(Carlton, Norton, & Asmundson, 2007). The IUS-12 measures responses to ambiguity, the future, and uncertainty, and is a short version of the original 27-item Intolerance of Uncertainty Scale (Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994). The 12- items of the IUS were scored on a 5-point Likert scale that ranged from 1 (not at all like me) to 5 (entirely characteristic of me). The IUS-12 has two factors, 7-item prospective intolerance of anxiety (IUSPA), and 5-item inhibitory intolerance of anxiety (IUSIA).

Carlton, et al. (2007) previously found "the total score of the 12-item scale correlated highly (r = .96) with the total score of the 27-item scale" (p. 111). The 12-item IUS in this study demonstrated good internal consistency of α = .82; the IUSPA α = .70, indicated acceptable reliability and the IUSIA α = .87, indicated good reliability.

Highly Sensitivity Person Scale-12 (HSP-12). Sensory-processing sensitivity was measured with the Highly Sensitive Person Scale (HSPS). This is a 12-item short version of the original 27-item scale. It is a self-report scale measuring sensory processing sensitivity, which is separate from neuroticism and emotionality (Aron & Aron, 1997). The HSPS items were all scored on a 7-point Likert scale. The 12-items of the HSPS demonstrated questionable consistency with α = .67 with the study sample.

Previously, Pluess and Bioniwell (2015) found acceptable internal consistency with the HSPS-12, α = .74.

Multidimensional Emotional Disorder Inventory, Neurotic Temperament (MEDI-NT).
The Multidimensional Emotional Disorder Inventory (MEDI) was used to assess neuroticism. The 55-item MEDI is a new self-report dimensional-categorical and hybrid survey measuring neuroticism or neurotic temperament (NT), positive temperament (PT), and shared vulnerabilities and characteristics (phenotypes) of

emotional disorders (Barlow, et al., 2013), including depressed mood (DM), autonomic arousal (AA), avoidance (AVD), intrusive cognitions (IC), social evaluation concerns (SEC), and somatic activity (SOM) (Rosellini, 2013; Rosellini & Brown, 2014). The NT scale was of greatest focus to this study, as the scores on this factor were speculated to correlate with scores on the GQ and SOPAS. The 6-items for the NT scale of the MEDI had a Cronbach's alpha coefficient = 0.77, indicating acceptable reliability. The 7-items of the MEDI-PT scale analysis had a Cronbach's alpha coefficient of 0.67, indicating questionable reliability. The remaining scales of the MEDI all demonstrated good reliability, as follows: 5-item MEDI-AA and MEDI-SOM (α = .85, and 0.81 respectively); 6-item MEDI-IC, MEDI-SEC, and MEDI-DM (α = 0.89, 0.90, 0.82, respectively), and 12-item MEDI-AVD (α = 0.82).

Main Findings

Two primary research questions were explored in the current study. First, is there a strong positive relationship between gaslighting and psychological abuse, and do individuals who report higher levels of gaslighting experiences also endorse greater levels of psychological abuse (operationalized here using the GQ and SOPAS).

Following on this, are gaslighting scores more strongly correlated with the subtle (as opposed to overt) factor of psychological abuse using the respective SOPAS scales. Second, are there specific personality characteristics that correlate with the experience of psychological abuse and gaslighting? Further, would those in the higher gaslight group have scores that would correlate with high scores on the trait variables?

Initially, the pattern of correlations between the GQ and SOPAS were evaluated to explore associations between the constructs, and to see whether subtle (as opposed to

overt) psychological abuse was found to be more strongly correlated with gaslighting. Analyses then determined if experienced psychological abuse correlated with gaslighting.

Next, the patterns of correlations between the three trait constructs of intolerance of uncertainty (Intolerance of Uncertainty Scale [IUS]), sensory processing sensitivity (Highly Sensitive Person Scale [HSPS]), and neuroticism (Multidimensional Emotional Disorder Inventory [MEDI-NT]), as well as the ancillary scales of the MEDI (i.e., PT, AA, AVD, DM, IC, SEC, and SOM), were examined in terms of their relationships to the GQ and SOPAS. To explore this further, gaslighting was divided into high and low groups based on a median split of the Gaslighting scale - and compared with respect to scores on the SOPAS, its factors of subtle and overt, the HSPS, the IUS-12, its factors of prospective anxiety and inhibitory anxiety, and MEDI-NT. The MEDI further measured several emotional and trait phenotypes that have been shown to contribute to transdiagnostic assessment of the mood disorders (Rosellini, 2013; Rosellini et al., 2015), and these remaining MEDI ancillary scales (i.e., PT, AVD, AA, DM, IC, SOM, SEC), were also analyzed with respect to the GQ and SOPAS, as the MEDI-IC scale appeared to explain much of the variance.

Descriptive Statistics Summary

Summary statistics were calculated for means (M) of GQ, SOPAS, SubtleSOPAS, OvertSOPAS, HSPS, IUS, IUSPA, IUSIA, MEDI-NT, MEDI-PT, MEDI-DM, MEDI- AVD, MEDI-AA, MEDI-IC, MEDI-SOM, and MEDI-SEC. The mean, standard

deviation, minimum and maximum range, as well as skewness and kurtosis were calculated for each measure. The GQ scores ranged from 3.30 to 8.35, with a mean of

7.36 ($SD = 1.27$). The SOPAS scores ranged from 3.17 to 8.77, with an average of 7.74

(*SD* = 1.50); these and the scores for the SubtleSOPAS and OvertSOPAS factors can be found in Table 3. The scores for HSPS ranged from 3.25 to 6.50, with an average of 4.75 (*SD* = 0.84), the scores for IUS ranged from 1.67 to 4.25, with an average of 2.91 (*SD* = 0.69), and the MEDI-NT ranged from 1.67 to 8.83, with an average of 5.15 (*SD* = 1.79). The scores for IUSPA and IUSIA subscales were calculated as well as the scores for the remaining scales of the MEDI (i.e., PT, DM, AVD, AA, IC, SOM, and SEC) and all are presented in Table 3.

Skewness and kurtosis were also calculated. When the skewness is greater than or equal to 2 or less than or equal to -2, then the variable is considered to be asymmetrical around the mean. When the kurtosis is greater than or equal to 3, then the variable's distribution is markedly different than a normal distribution in its tendency to produce outliers (Westfall & Henning, 2013). (See Table 3)

Hypothesis Questions

Bivariate correlations were initially calculated to assess the relationship between all study variables (see Table 4). Cohen's standard was used to evaluate the strength of these relationships between the variables. Cohen's *d* determines the strength of the differences between the variables scores, and the greater the differences in the scores, the larger the effect size, where coefficients with values to .2 indicated a small effect size, coefficients with values to .5 indicated a moderate effect size, and coefficients to .8 and above indicated a large effect size (Cohen, 1988). As noted previously, a Pearson correlation requires that the relationship between each pair of variables is linear (Conover & Iman, 1981; Intellectus Statistics, 2017).

Table 3

Summary Statistics for Interval and Ratio Variables (GQ, SPOAS, SubtleSOPAS, OvertSOPAS, HSPS,
IUS, IUSPA, IUSIA, MEDI (NT, PT, DM, AVD, AA, IC, SOM, SEC)

Measure	k	Mean	SD	Min.	Max.	Skewness	Kurtosis	α
GQ	20	7.36	1.27	4.30	9.35	-0.89	-0.10	0.87
SOPAS	35	7.74	1.50	4.17	9.77	-0.59	-0.68	0.95
SubtleSOPAS	19	7.63	1.61	3.47	9.89	-0.66	-0.23	0.91
OvertSOPAS	16	7.88	1.47	5.00	9.81	-0.51	-1.04	0.89
HSPS	12	4.75	0.84	3.25	6.50	-0.14	-0.52	0.67
IUS	12	2.91	0.69	1.67	4.25	0.09	-0.96	0.82
IUSPA	7	3.19	0.66	2.00	4.14	-0.15	-1.35	0.70
IUSIA	5	2.52	1.05	1.00	4.40	0.30	-0.82	0.87
MEDI-NT	6	5.15	1.79	1.67	8.83	-0.19	-0.90	0.77
MEDI-PT	7	5.61	1.34	2.43	8.71	-0.14	0.10	0.67
MEDI-DM	6	4.95	1.70	1.67	8.00	0.09	-0.84	0.82
MEDI-AVD	12	5.03	1.49	2.31	7.62	-0.23	-0.75	0.82
MEDI-AA	5	4.42	2.10	1.00	8.40	0.14	-1.17	0.85
MEDI-IC	6	4.52	2.04	1.00	9.00	0.38	-0.70	0.89
MEDI-SOM	5	4.38	2.03	1.40	8.80	0.45	-0.81	0.81
MEDI-SEC	7	5.29	2.13	1.57	9.00	-0.26	-1.12	0.90

Independent t-Tests were also completed and are included in Table 5. An independent samples *t*-test was used to determine if there were significant differences between the gaslight groups (i.e., Low-GQ1 & High-GQ2) on the various scale-level trait variables. This test uses the difference between the average scores of the two groups to compute the *t* statistic, which is used with the *df* to compute the *p*-value (i.e., significance level). A significant result indicates the observed test statistic would be unlikely under the

null hypothesis. The independent samples *t*-test carries the assumptions of independence of observations, normality, and equality (or homogeneity) of variance (Intellectus Statistics, 2017). The final analysis was a stepwise linear regression, to determine which trait variables were most strongly associated with the gaslighting score. A stepwise linear regression was implemented to select from the group of trait variables (i.e., HSPS, IUS, IUSPA, IUSIA, and MEDI-NT, PT, AA, AVD, DM, IC, SEC, SOM), to determine which made the largest contribution(s) to the variance of the dependent variable of gaslighting.

Hypothesis one: Relationship between gaslighting and psychological abuse. Consistent with study hypotheses, GQ scores were found to have notable associations with the measures of psychological abuse (SOPAS), ($r_p = 0.84$, $p < .001$), indicating a large effect size. There was also a significant positive correlation between GQ and SubtleSOPAS ($r_p = 0.80$, $p < .001$), indicating a large effect size, and a slightly stronger correlation between GQ and OvertSOPAS ($r_p = 0.83$, $p < .001$), which was contrary to expectation.

To further examine the study hypotheses, the variable of Gaslighting was divided into High / Low groups using a median split (i.e., Low-GQ1; and High-GQ2).

Independent t-tests analyzed these groups with respect to the various scales and factors pertinent to the first hypothesis (i.e., SOPAS, OvertSOPAS, SubtleSOPAS). The result of the independent samples *t*-test for SOPAS was significant, $t(32.31) = -4.99$, $p < .001$, suggesting that the SOPAS mean was significantly different between the Low-GQ1 and High-GQ2 gaslight groups. The mean of SOPAS in the low group was significantly lower than the mean of SOPAS in the high group. The result of the Overt SOPAS independent

samples *t*-test was significant, $t(31.34) = -4.67$, $p < .001$, as was the Subtle SOPAS $t(38)$

$= -4.87$, $p < .001$, suggesting that both the Overt and Subtle SOPAS were significantly different

between the Low-GQ1 and High-GQ2 gaslight groups. These results also lend credence to the

first hypothesis, that there appears to be an association between gaslighting and psychological

abuse. Table 4 presents the results of the independent samples *t*-tests.

Hypothesis two: Relationship between Gaslighting, Psychological Abuse, and personality

variables. Also consistent with study hypotheses were the notable associations found between the

GQ, the SOPAS full-scale and factor scores, and the three personality variables. Independent t-

tests analyzed these groups with respect to the various scales and factors and subscales of the

study (i.e., HSPS, IUS, IUSPA, IUSIA, MEDI-NT, MEDI-PT, MEDI-AVD, MEDI-AA, MEDI-

DM, MEDI-IC, MEDI-SOM, and MEDI-SEC).

Bivariate correlations. It was hypothesized that there were specific traits that would correlate

with higher levels of psychological abuse and gaslighting. Specifically, there was a significant

positive association between GQ and MEDI-NT ($r_p = 0.40$, $p =$

.010) and between GQ and IUSIA ($r_p = 0.36$, $p = .021$), both indicating moderate effect sizes.

Table 4

Pearson Correlation Matrix among GQ, SOPAS, SubtleSOPAS, OvertSOPAS, HSPS, IUS, IUSPA, IUSIA, MEDI Scales: NT, PT, DM, AVD, AA, IC, SOM, SEC.

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.GQ	1															
2.SOPAS	.84**	1														
3.Subtle SOPAS	.80**	.98*	1													
4.Overt SOPAS	.83**	.97**	.90**	1												
5.HSPS	.28	.35*	.36*	.32*	1											
6.IUS	.24	.33*	.35*	.30	.24	1										
7.IUSPA	.02	.15	.16	.13	-.03	.81**	1									
8.IUSIA	.37*	.39*	.40*	.35*	.40*	.86**	.39*	1								
9.MEDI NT	.40**	.47**	.49**	.42**	.39*	.42**	.17	.51**	1							
10.MEDI PT	.097	.08	.04	.14	-.25	-.30	-.16	-.33*	-.19	1						
11.MEDI DM	.15	.07	.10	.02	.35*	.42**	.11	.56**	.35*	-.5**	1					
12.MEDI AVD	.32*	.44**	.45**	.39*	.50**	.75**	.45**	.78**	.60**	-.19	.45**	1				
13.MEDI AA	.29	.40*	.44**	.33*	.58**	.47**	.15	.60**	.43**	-.31	.70**	.58**	1			
14.MEDI IC	.43**	.42**	.44**	.36*	.42**	.60**	.34*	.64**	.60**	-.18	.56**	.66**	.68**	1		
15.MEDI SOM	.40*	.51**	.53**	.47**	.50**	.44**	.26	.46**	.60**	-.08	.34*	.55**	.56**	.69**	1	
16.MEDI SEC	.13	.09	.10	.07	.59**	.43**	.18	.52**	.40*	-.40**	.50**	.57**	.39*	.46**	.49**	1

Note. **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed). NT = neurotic temperament; PT = positive temperament; DM = depressed mood; AA = autonomic arousal; SOM = somatic anxiety; SEC = social evaluation concerns; IC = intrusive cognitions; AVD = avoidance. $^*p < .05$, $^{**}p < .01$.

There were also significant associations between GQ and several of the ancillary MEDI scales, notably the MEDI-AVD, MEDI-IC, and MEDI-SOM. The GQ had a significant correlation with MEDI-AVD ($r_p = 0.32$, $p = .042$), MEDI-IC ($r_p = 0.43$, $p = .006$), and MEDI-SOM ($r_p = 0.40$, $p = .010$). The correlation coefficients between GQ and the MEDI-AVD, MEDI-IC, and MEDI-SOM all indicated moderate effect sizes.

There were also notable associations between the SOPAS, its factors, and all three trait measures. Where the GQ did not show strong association with the HSPS, the SOPAS, Subtle SOPAS, and Overt SOPAS factors did. The association between the SOPAS and the HSPS was ($r_p = 0.35$, $p = .027$), SubtleSOPAS and HSPS ($r_p = 0.36$, $p = .024$) and OvertSOPAS and HSP ($r_p = 0.32$, $p = .044$). There were also significant positive correlations between SOPAS and IUS ($r_p = 0.33$, $p = .036$), as well as the IUS with both SubtleSOPAS and OvertSOPAS. Additionally, the SOPAS, and both SubtleSOPAS and OvertSOPAS factors demonstrated significant associations with the IUSIA ($r_p = 0.39$, $p = .013$), ($r_p = 0.35$, $p = .029$), and ($r_p = 0.35$, $p = .027$) respectively. These significant associations, as well as all others, are noted in Table 4.

Independent t – tests. As noted above for hypothesis one, the variable of gaslighting was divided by a median split into Low (i.e., Low-GQ1) and High (i.e., High- GQ2) gaslight groups. Independent t-tests analyzed these groups with respect to the various scales and factors and subscales of the study. There were several notable results with respect to the second hypothesis, and regarding gaslight groups and the personality traits under study, as well as the ancillary traits (i.e., HSPS, IUS, IUSPA, IUSIA, MEDI- NT, and MEDI-PT, MEDI-AVD, MEDI-AA, MEDI-DM, MEDI-IC, MEDI-SOM, and MEDI-SEC).

The independent samples *t*-test for HSPS by the gaslight groups was significant, *t*

(38) = -2.68, *p* = .011, suggesting that the mean of HSPS was significantly different between the

Low-GQ1 and High-GQ2 categories of gaslight groups. The mean of HSPS in the Low-GQ1

gaslight group was significantly lower than the mean of HSPS in the High-GQ2 group. The result

of the independent samples *t*-test was also significant for the IUSIA subscale, *t* (38) = -2.61, *p* =

.013, suggesting that the mean of IUSIA was significantly different between the Low-GQ1 and

High-GQ2 gaslight groups. However, the results of the independent samples *t*-test for the IUS

and IUSPA subscale were not significant, *t* (38) = -1.47, *p* = .149, and, *t* (38) = 0.17, *p* = .867

respectively, suggesting that the mean of IUS and of IUSPA were not significantly different

between the low and high gaslight groups.

With respect to the MEDI and its scales, significant results were found for the NT, and the

ancillary scales of AA, AVD, IC, SOM, and SEC. The results of the independent samples *t*-tests

that were significant are: NT, *t* (38) = -2.20, *p* = .034; *p* = .013; AA, *t* (38)

= -2.29, AVD, *t* (38) = -2.60, *p* = .027; IC, *t* (38) = -3.56, *p* = .001; SOM, *t* (38) = -3.20, *p*

= .003; and SEC, *t* (38) = -2.11, *p* = .041. These results suggest that the means of MEDI- NT,

MEDI-AA, MEDI-AVD, MEDI-IC, MEDI-SOM, and MEDI-SEC were

significantly different between the Low-GQ1 and High-GQ2 gaslight groups for each scale. The

means of these MEDI scales (i.e., NT, AA, AVD, IC, SOM, and SEC) were significantly lower in

the Low-GQ1 than in the High-GQ2 gaslight groups. This supports the hypothesis that increased

effects of gaslighting measured by higher GQ group scores (i.e., those scores in the High-GQ2

group) would have an association with higher scores on the trait variables in the higher gaslight

group(s) (i.e., those scores in the High-GQ2

for HSPS, IUSIA, MEDI: NT, AVD, AA, IC, SOM, SEC). See Table 5 for all results of the

independent t-Tests.

Table 5

Independent Samples t-Tests for the Differences Between Gaslight Groups

Variable	Low-GQ1		High-GQ2		*t*	*p*	*d*
	M	*SD*	*M*	*SD*			
SOPAS	6.81	1.41	8.68	0.90	-4.99	< .001**	1.58
OvertSOPAS	7.00	1.44	8.75	0.87	-4.67	< .001**	1.48
SubtleSOPAS	6.64	1.50	8.61	1.00	-4.87	< .001**	1.54
HSPS	4.43	0.79	5.08	0.76	-2.68	.011*	0.85
IUS	2.75	0.61	3.07	0.74	-1.47	.149	0.47
IUSPA	3.21	0.64	3.17	0.70	0.17	.867	0.05
IUSIA	2.11	0.86	2.92	1.09	-2.61	.013*	0.83
MEDINT	4.56	1.87	5.75	1.54	-2.20	.034*	0.70
MEDIPT	5.46	1.24	5.58	1.46	0.13	.895	0.04
MEDIAVD	4.46	1.49	5.60	1.27	-2.60	.013*	0.82
MEDIAA	3.70	1.76	5.15	2.21	-2.29	.027*	0.73
MEDIDM	3.50	2.42	4.10	2.83	-0.72	4.75	0.23
MEDIIC	3.51	1.66	5.53	1.91	-3.56	.001**	1.13
MEDISOM	3.46	1.99	5.31	1.65	-3.20	.003*	1.01
MEDISEC	4.61	1.97	5.97	2.10	-2.11	.041*	0.67

Note. Degrees of Freedom for the *t*-statistic for GQ = 23.96, SOPAS = 32.31, OvertSOPAS = 31.34;
SubtleSOPAS, HSPS, IUS, IUSPA, IUSIA, and MEDI scales: NT, PT, AVD, AA,
DM, IC, SOM, SED = 38. *d* represents Cohen's *d.*
*p < .05, **p < .001

Linear stepwise regression analysis. A linear stepwise regression was conducted to evaluate

whether one or more personality variables (i.e., HSPS, IUS, IUSPA, IUSIA, MEDI-NT, and

MEDI-PT, MEDI-AVD, MEDI-AA, MEDI-DM, MEDI-IC, MEDI-

SOM, and MEDI-SEC) would emerge as the strongest predictor of gaslighting. Step 1 of the

regression analysis revealed MEDI-IC to be the strongest predictor of gaslighting (measured by

the GQ). The stepwise regression indicated only MEDI-IC as the significant predictor of GQ: F

(1, 38) = 8.483, p < .006. The stepwise correlation coefficient was .43, indicating approximately

18.2% of the variance in gaslighting (GQ)

could be accounted for by intrusive cognitions (MEDI-IC) (see Table 6). None of the other variables entered the equation at step 2 of the analysis. See Table 6 for stepwise regression data.

Table 6

Stepwise Linear Regression summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.427 [a]	.182	.161	1.15881

a. Predictors in the Model: (Constant), MEDI-IC Mean.
b. Dependent Variable: GQ Mean

Summary

A total of 40 adult female participants fully completed the entire online survey and were the basis for the statistical analyses. The sample was a largely homogenous group consisting entirely of female participants of mostly Caucasian ($n = 35$) origin. Most participants were between the ages of 25-35 (70%), and over half (57%) identified as heterosexual. Physical abuse was experienced by 60% of the participants in their lifetime and 38% had experienced physical abuse in the "worst" relationship. All 40 members of the sample reported they experienced psychological abuse in the "worst" relationship.

The statistical analyses revealed numerous notable results. The experience of psychological abuse and the effects of gaslighting were strongly associated. There was a slightly stronger association found between overt psychological abuse than subtle psychological abuse and gaslighting; this difference was minimal. Gaslighting scores were also associated with neuroticism and inhibitory anxiety of intolerance for uncertainty. Additionally, those who experienced high levels of effects of gaslighting (i.e., in the high GQ group) also experienced high levels of psychological abuse, both

subtle and overt, as well as higher levels of sensory processing sensitivity, inhibitory anxiety related to intolerance for uncertainty, and neuroticism than those in the lower gaslight group. Further, those in the high gaslighting group also were found to experience higher levels avoidance, depressed mood, intrusive cognitions, somatic anxiety, and social evaluative concerns, which were ancillary findings related to the emotional phenotypes the MEDI assesses. An interesting result from the stepwise regression revealed that intrusive cognitions (i.e., MEDI-IC) appear to be a main contributor to the effects of gaslighting in this study.

These various significant results help clarify the relationship between effects of gaslighting and the experience of psychological abuse, which was a main goal of the study. The data show a strong correlation between gaslighting and psychological abuse, both in total sum scores, with both factors, and by group (i.e., high or low). This correlation was one of the main hypotheses and purposes of the study, and appears to be supported by the data. The data also reveal a cluster of traits that may lend individuals vulnerable to experiencing gaslighting and psychological abuse in intimate adult relationship, specifically high sensory processing sensitivity, the inhibitory anxiety subscale of intolerance for uncertainty, neuroticism, as well as additional emotional phenotypes of avoidance, autonomic activation, intrusive cognitions, social evaluative concerns, and somatic anxiety. The data analyses appear to support the study hypothesis that there are positive associations between gaslighting, psychological abuse, and the three traits under study (i.e., high sensory processing sensitivity, intolerance for uncertainty, neuroticism, and ancillary phenotypes). Further, these appear to be traits that may lend vulnerability to experiencing psychological abuse and effects of gaslighting.

CHAPTER FIVE DISCUSSION

In brief review, gaslighting is a term that comes from psychoanalytical literature, and came to

usage after the play written in 1938 called *Gaslight* (Hamilton, 1939) that became a famous 1944

movie of the same title, starring Ingrid Bergman (Mrs.

Manningham) and Charles Boyer (Mr. Manningham). Both the play and the movie show how Mr.

Manningham uses specific tactics that have come to be referred to collectively as gaslighting, in

attempt to make Mrs. Manningham believe she is crazy, can't trust what she perceives, and bend

to his whim (i.e., via presenting false information, denial, moving household items to confuse her,

minimization, diversion, deliberate vagueness, covert intimidation, veiled threats, projecting

blame, brandishing anger, feigning innocence, ignorance, and/or confusion, etc.…). Mr.

Manningham does not physically abuse Mrs. Manningham; never once does he even threaten to

physically harm her. His behavior is covert, deliberate, malicious, intentional, and repetitive.

As previously discussed in chapter II, gaslighting works off principles of projective and defensive

identification (Klein, 1946; Bion, 1962; Ogden, 1979 & 1982) and takes both the gaslighter and

gaslightee (Stern, 2007) to be effective; hence, the hypothesis that specific traits of the gaslightee

may lend vulnerability to enter and remain in relationship with a gaslighter. As this study initially

began, gaslighting had been referred to via case study and anecdotally discussed in literature

(Simon, 2010; Stern, 2007; McGregor & McGregor, 2014; Welch, 2008; Barton & Whitehead,

1969) and had not been labeled as a form of psychological abuse. However, in recent articles, due

to a vastly changed current political climate, gaslighting has been used more frequently, and

in reference to psychological abuse (i.e., Duca, 2016; Fox, 2017; Gabbard, 2017; Lee, 2017; Kovacs, 2017; Stosny, 2017).

The purpose of the current study was twofold. First, it was to elucidate gaslighting as a form of psychological abuse, and second to explore potential personality variables that may render someone vulnerable to this type of behavior. In this study, the sample was all female and all had been in a relationship they considered to have been a "worst" relationship, where they believed they experienced psychological abuse. The participants completed an online survey comprised of demographics questions, two questionnaires that measured psychological abuse and effects of gaslighting, and three personality measures for sensory processing sensitivity, intolerance for uncertainty, and neuroticism. The ancillary scales of the measure used to assess neuroticism, the MEDI-NT, were also analyzed (MEDI: PT, AA, AVD, DM, IC, SEC, SOM) as these measured ancillary emotional phenotypes. It was hypothesized that there would be a strong correlational relationship between gaslighting and psychological abuse, and more specifically with subtle psychological abuse. It was also hypothesized that there would be notable relationships between gaslighting, psychological abuse, and the three identified personality factors of sensory processing sensitivity, intolerance of uncertainty, and neuroticism. The emotional phenotype analyses were ancillary.

This chapter provides interpretation of the research data presented previously. It will explore each hypothesis and provide an explanation of how the data can be interpreted. It will also provide exploration and discussion of important ancillary results. The chapter also discusses limitations of this study, ideas for further research, and the importance of this study to clinical work.

Interpretation of Results Gaslighting and Subtle and Overt

Psychological Abuse

The first hypothesis of the study was that gaslighting would positively correlate with psychological abuse, and even more specifically with subtle than the overt psychological abuse. The expectation was that there would be a strong association between increased experiences of psychological abuse perpetuated by the partner (i.e., the gaslighter) in the intimate "worst" relationship and the effects of gaslighting on the gaslightee. It was expected that a stronger relationship between effects of gaslighting and experienced subtle psychological abuse more so than overt psychological abuse would emerge.

The study results indicated that there is a strong relationship between psychological abuse and gaslighting. This appears to provide some initial validation for a relationship between the two forms of abuse. Further, experiences of both subtle and overt psychological abuse have a strong relationship with effects of gaslighting, and the difference between the two is minimal. However, contrary to expectations the correlation between the GQ and SOPAS overt abuse scale was slightly larger in this study. This may be explained in several different ways. It is possible the scale used to measure subtle and psychological abuse was not sensitive enough, or the gaslighting questionnaire was not sensitive enough. The pairing between the two may have been a mismatch, as the Gaslight Questionnaire was assessing effects on the participant, and the Subtle and Overt Psychological Abuse Scale was measuring behaviors of the partner.

It is also possible that there were issues with coding the subtle and overt scale items of the SOPAS, due to the scale author differentiating the subtle from overt abuse

items in 2017 (Marshall, personal communication, May 20, 2017), versus originally in 1995. Marshall stated that she was unsure if she coded all items similarly in 1995, as admittedly, her thinking had changed (Marshall, personal communication, May 20, 2017). To this end, it is also possible that the 20-items under the second half of the SOPAS might all be more representative of gaslighting behaviors than an overtly abusive behavior, as the directions to the participant were to determine if the partner ever engaged in any of the behaviors in a "loving, joking, or serious way" (Marshall, 1999). This defines gaslighting, as the gaslighter often uses the tactics of gaslighting in a loving, joking, or serious manner (Stern, 2007; McGregor & McGregor, 2014; Louis De Canonville, 2015). For example, he may lovingly tell the gaslightee she overreacts to his behavior, tells her he was just joking when she is hurt by his remarks or behavior, denies her experiences, ignores her feelings, etc… (e.g., Smith & Sinanan, 1972; Calef & Weinshel, 1981; Dorpat, 1996; Hamilton, 1939).

It is also possible that the SOPAS is measuring more subtle forms of abuse than overt in general, and this was not captured in this study. As noted above, the second half of the SOPAS, which includes the last 20 items, directs the participant to report if the partner did these things in a "loving, joking, or serious manner." Items 16, 18, 19, 21, 24, 28, 29, 30, and 32, are coded as overt. However, these might be construed by a gaslightee very differently, and more subtly, than the overtly abusive way they are currently coded. For example, in a "loving, joking, or serious manner" item 28 states: "act like you over- react or get too upset," item 21 states: "remind you of times he was right and you were wrong," and item: 32 states: "blame you for his problems." If these things are said to a gaslightee in a loving, joking way, with commensurate tone of voice and without overt

malice or sarcasm, the gaslightee might perceive these very differently than if stated with malice or sarcasm. Projective and defensive identification may have an impact on how a gaslightee interprets these statements. This deserves further exploration in future studies.

Prior literature on gaslighting is anecdotal in nature, (e.g., Simon, 2010; MacGregor & McGregor, 2014; Louis De Canonville, C., 2015) and provides rich description of subtle as well as overt psychologically abusive tactics that are employed by the gaslighter and the resultant effects of gaslighting. In total, the data from this study provide initial support that both subtle and overt psychological abuse (i.e., gaslighting tactics, as defined by the SOPAS) and effects of gaslighting on the gaslightee have a strong relationship, and this research does show a strong positive correlation between these constructs.

The results of this study indicate both subtle and overt psychological abuse contribute to effects of gaslighting on an individual, and the effects of gaslighting on an individual are considerable. Smith and Sinanan (1972), as previously discussed, described a 29-year-old client whose husband had attempted to make her believe she was experiencing "madness" (p. 686). He threatened to commit her, told her she saw things that she did not, and over a period of two years consistently told her she was ill like her family members who did have psychiatric illnesses. His ongoing maltreatment over this span of time included both subtle and overt behaviors that did induce a stress reaction in this young mother of six children that resulted in medical attention (p. 686). According to Smith and Sinanan, this young woman was of no financial means, and could not get away from her gaslighter. As in the movie *Gaslight*, she was never physically harmed, yet the

effects of his abusive gaslighting behaviors (both subtle and overt) resulted in her hospitalization. Additional anecdotal support for the psychologically abusive effects of gaslighting come from Calef and Weinshel (1981). They describe tactics (both overt and subtle) a father used on his family, particularly his wife, to create mental instability and increase his control. This man intentionally created fear in his family by repeatedly driving erratically and fast on city streets (overt behavior), while behaving in a calm and nonchalant manner, ignoring their screams and fear, telling them they overreacted. His calm nonchalant ignoring of fear and terror, while telling his family they overreact and denying their experience is all subtle. He regularly created a sense of panic and fear, which is overt, then dismissed, denied, and diminished their experiences, which is subtle. He used ridicule and denial, overt and subtle respectively, never physically harming any of them, which is also a subtle tactic especially when coupled with fear, and the gaslighted wife considered herself the sick one (p. 49). Calef and Weinshel also describe numerous iterations of husbands gaslighting their wives when they had been engaging in extramarital affairs, using gaslighting tactics to make the wife believe she was going crazy, particularly using denial and ridicule when she begins to suspect the affair, despite her desire for it not to be true. Then by Calef and Weinshel's descriptions, the gaslighter would blame the wife for the affairs once discovered, resulting in the wives feeling emotionally unstable and not in control of their own minds (p. 52). An important aspect of gaslighting in this example is the wives' desire for the affair not to be true. This hints at the previously discussed aspect of gaslighting involving the introject being accepted by the gaslightee (Bion, 1956; Dorpat, 1996; Klein, 1956) which will be further explored in

the discussion regarding the traits involved in gaslighting. The traits that the study revealed may play a role in this acceptance of the introject.

Numerous authors note how the tactics of gaslighting are so abusive they result in the gaslightee feeling as though they are no longer in control of themselves, their minds, and the result is feeling they are losing (or have lost) the ability to identity with their own sense of self and sense of reality, as well as the ability to trust their own judgment (Simon, 2010; Stout, 2005; Moreno-Manso, Blázquez-Alonso, García-Baamonde, Guerrero-Barona & Pozueco-Romero, 2013; MacGregor & McGregor, 2014; Louis De Canonville, C., 2015; Portnow, K., 1996; Stern, 2007). Gaslighting is abusive. The study results indicate a very strong correlation between the experience of subtle and overt psychological abuse by an intimate partner (i.e., a gaslighter) and the effects of gaslighting on the gaslightee's experience in their own world.

Associations Between Gaslighting, Psychological Abuse, and Traits

There is also evidence for associations between gaslighting, psychological abuse, and the specific traits that were thought to lend individuals vulnerable to experience gaslighting: Sensory processing sensitivity, intolerance for uncertainty, neuroticism, and the important ancillary phenotype contributors. The study analyses revealed the importance of these associations as well as the contribution of specific emotional phenotypes to the experience of gaslighting.

Effects of gaslighting as a construct was associated most strongly with the inhibitory anxiety subscale of intolerance for uncertainty, neuroticism, and the ancillary emotional phenotypes of avoidance, intrusive cognitions, and somatic anxiety. This indicates that those who experienced the increasing effects of gaslighting as a general

construct, also reported that they experienced greater inhibitory anxiety, neuroticism, avoidance behaviors, intrusive cognitions, and body based (somatic) anxiety.

Hong and Lee (2015) discuss the inhibitory anxiety of intolerance for uncertainty as related to a "paralysis and impaired functioning arising from uncertainty…and might entail an avoidance-based strategy….in which such individuals 'freeze up' under uncertainty and engage in some form of maladaptive cognitive preservation (e.g., thinking of possible threats and delaying making decisions" (p. 606). This cognitive preservation may work in conjunction with the intrusive cognitions, increased autonomic activity, somatic anxiety, and avoidance, and together keep an individual from defending themselves. Or it may keep an individual from externalizing what they are told about themselves via the gaslight process (i.e., believing they are to blame, things are all their fault, they are not well, they are overreacting or getting too upset, etc.…). This freezing up may contribute to the defensive identification and acceptance of the projection. When being either gaslit, psychologically abused, or both, it appears based on all the traits explored in the study, that the numerous ancillary traits such as avoidance and autonomic activity are also aspects of intolerance for uncertainty's inhibitory anxiety.

High vs. Low Gaslight Groups, Psychological Abuse, and Traits

When looking at those individuals who experienced the highest levels of effects from gaslighting effects (i.e., those in the high gaslight group vs. low gaslight group), gaslighting was found to be highly associated with psychological abuse and both subtle and covert psychological abuse factors. The associations for both subtle and overt factors were nearly equally strong associations, but there was a slightly stronger association to overt than subtle psychological abuse. Jones et al. (2005) found that the SOPAS may

report on a unidimensional construct of psychological abuse, and this may be what the data is depicting, as there is minimal statistical difference between the factors of subtle and overt. And as reported earlier, it is possible that the SOPAS is measuring more of the gaslighting effects than overt psychological abuse as perceived by the gaslightee.

The evidence further indicates that those with the highest levels of effects of gaslighting also report high levels of sensory processing sensitivity, inhibitory anxiety of intolerance for uncertainty, and neuroticism, as well as the ancillary scales of avoidance, autonomic activity, intrusive cognitions, somatic activation, and social evaluative concerns. As above, the inhibitory anxiety subscale of intolerance for uncertainty may have a dynamic interactive relationship with many of the traits in the ancillary scales.

Ancillary Intrusive Cognitions (MEDI-IC) and Its Variance

The final analysis of the study was a stepwise regression analysis to see which of the personality variables were most strongly predictive of gaslighting experiences.

Results indicate that only intrusive cognitions emerged as a predictor, accounting for almost 19% of the variance in gaslighting. As Hong and Lee (2015) note above, when an individual "freezes up" they may engage in cognitive preservation and get stuck with their intrusive thinking that inhibits decision making. This appears to be an analog to the intrusive cognitions as described by Rosellini, Boettcher, Brown, and Barlow (2015).

They describe intrusive cognitions as cognitions that "reflect the experience of intrusive and nonsensical thoughts, images, and impulses" (p. 15). It is possible that this discovery of the contribution of intrusive cognitions is what maintains much of the other emotional phenotypes in a negative thinking cycle, and thus creates the confusion, self-doubt, autonomic anxiety, somatic concerns, intolerance for uncertainty, and neuroticism. It may

also be a contributor to increased sensory processing sensitivity. This is very worthy of future exploration.

Interpretations Summary

The traits initially discussed (i.e., neurotic, sensitive, anxious, etc.…) by the authors in Chapter II (e.g., Calef & Weinshel, 1981; Gass & Nichols, 1988; Barton & Whitehead, 1969; Loring, 1994; Louis De Canonville, 2015; Lund & Gardner, 1977, McGregor & McGregor, 2014; Simon, 2010; Stout, 2005), describe vulnerabilities in women who have reported experiences of gaslighting. Their case descriptions formed the basis for the traits that were explored in this study, and Bella Manningham (i.e., from *Gaslight*) embodies all traits under study. The results show that gaslighting is strongly associated with psychological abuse. Further, there appear to be traits (i.e., high sensory processing sensitivity, inhibitory anxiety, and neuroticism) that may have contributed vulnerability to experience psychological abuse and resultant effects of gaslighting in intimate relationships. The ancillary analyses indicate that avoidance, autonomic activation, intrusive cognitions, social evaluative concerns, and somatic activation are all also related to either experiencing psychological abuse, gaslighting, or both. Importantly, intrusive cognitions may be an emotional phenotype that plays an important role in understanding this complex dynamic.

Limitations of the Study

There were several notable limitations to the study. The size of the sample was one limitation to this study, reducing statistical power. Expanding the sample would lend greater strength to the research findings, as this was a correlational study, utilizing sum and mean scores, and differences between groups. It is noted that the mean of any

random variable will be approximately normally distributed as sample size increases according to the Central Limit Theorem (CLT). Therefore, with a sufficiently large sample size ($n > 50$), deviations from normality will have little effect on the results (Stevens, 2009). The initial hope was to obtain between 100 and 150 complete surveys. Unfortunately, there were 57 respondents who completed almost all, but not all responses and these were excluded from the analyses. Replicating this study with a larger sample would bolster, or disprove, current findings. Another major limitation of the study was the homogeneity of the participants, as well as the overlapping demographics categories with respect to race and ethnicity. Most of the participants were white/Caucasian and all identified as female. Different results may have been found with more diversity in the sample, and with non-overlapping demographic categories.

Additionally, eighteen of the respondents were in the "worst" relationship between 1 to 3 years. It is possible that traits these participants exhibited were somehow influenced by the length of the relationship, especially with respect to intrusive cognitions, which may be exacerbated by psychological abuse and gaslighting. With more participants in each of the relationship length groups, more diversity in age of participants, and more diversity in individuals of all genders and identities, very different results and might be uncovered.

Another limit of the study was the relationship type itself. This study involved an "intimate adult" and "worst" relationship (Follingstad, 2014). Gaslighting can occur in any close relationship, and other types of relationships might reveal different or similar results. Gaslighting occurs between people in close intimate relationship, for example between parent and child, between friends, between employers and bosses, between

siblings, and even between individuals of different rank in the military. Assessing diversity in relationship type would provide another view to the interaction between psychological abuse and gaslighting.

It is important to note that this was an online survey, and it is impossible to be certain of the veracity of the responses. While there were significant associative results found that elucidated the traits under study, as well as associated the experience of psychological abuse with the effects of gaslighting, the participants may not have been completely truthful. Another more truthful sample might reveal different results. In line with this, it is prudent to note there may have been a social desirability effect, with individuals more strongly endorsing the gaslighting and psychological abuse questions, as it was noted in the informed consent and instructions for the participants to consider their "worst" relationship when answering the relationship questions.

Recommendations for Future Research

A larger and more diverse population of individuals would give much strength to future studies. While posting this survey to numerous blog sites, repeated inquiry as to why men could not complete the survey were received by the website monitor, as these individuals stated they fit the requirements, save for the required gender. As noted, gaslighting can occur in any close relationship and looking at those relationships and the identified traits of this study could reveal additional important data. Further, if men are included in future studies, it would be important to do a preliminary survey to determine if there are traits specific to men's experience of gaslighting and abuse that should be examined.

It is also recommended that additional trait vulnerabilities be explored related to gaslighting. One trait that needs further exploration is that of dependency (Lackhar, 2000; Pincus & Gurtman, 1995). Are individuals who are more dependent on others more susceptible to gaslighting? Do dependency issues contribute to defensive identification and acceptance of the introject from the projector, and if so, how does sensory processing sensitivity, intolerance for uncertainty, neuroticism, and the emotional phenotypes of avoidance, autonomic arousal, intrusive cognitions, somatic anxiety, and social evaluative concerns contribute to the experience? Is dependency another predictor of gaslighting in the way intrusive cognitions appears to be?

Another trait to be explored is the need to be right, particularly as it relates to gaslighting. Are individuals with a high need to be right more or less vulnerable to gaslighting, as a favorite gaslighter tactic is to make sure the gaslightee knows he or she is wrong, and the gaslighter projects this very effectively. If the gaslightee accepts the introject, agreeing with the gaslighter which then reduces intrusive cognitions, autonomic and somatic anxiety, and settles experiences of neuroticism, sensitivity, and confusion, then this need (to be right) may be satiated via the gaslighting dynamic.

This research also revealed the potential importance of intrusive cognitions in maintaining the dynamic of gaslighting (e.g., Rosellini & Brown, 2014; Barlow, et.al. 2013; Dugas, et. al., 2013). This emotional phenotype deserves more exploration in the future. A fuller understanding of this emotional phenotype may provide additional information to the understanding of why individuals enter psychologically abusive and gaslighting relationships, and possibly why they remain. What is it about the IC? How does this cognitive thinking pattern interact with the projections from a gaslighter, and

how does it impact the introject, the object of the projection, and the defensive identification process? It is important to fully understand this predictor variable.

The way in which overt and covert psychological abuse were operationalized in the current study using the SOPAS may also require additional attention, given the potential for conceptual overlap. And as previously discussed, this needs further clarification within the SOPAS itself. It is possible this instrument, particularly the second half, is measuring gaslighting behaviors, due to the instructions of "in a loving, joking, or serious manner does your partner…." (Marshall, 1999). Also, if the abusive behavior was carried out in "a loving, joking, or serious way," and if it was an overt behavior, it may have been perceived as less overtly abusive, especially if done in a joking, loving way. For example, if a gaslighter tells a gaslightee, when he is internally very mad and angry but not visibly so, that she 'always ruins everything, and that he wouldn't have the problems he does, and they wouldn't have the relationship problems they do, if she wouldn't overact and get so upset, when he is just trying to help her understand,' and all this is said in a relatively kind and caring tone of concern. This statement is a combination of several items in the second half of the SOPAS (i.e., #'s 3, 25, 28, 30, and 32). Only item 25 is an actual subtle item, per the current version of the SOPAS. This entire scenario might be interpreted as subtle by a gaslightee. Further clarification of the items, and which are subtle and which are overt, is highly recommended for future studies. A co-occurring issue is that participants were asked to decide, as much as 15 to 20 years after the relationship had ended, what their partners behavior had been. Memory effects may be also have been an issue.

Another future recommendation would be to explore other psychological abuse measures in association with the traits in the study (e.g., Follingstad, 2011; Shephard & Campbell, 1992), in addition to further examination of the SOPAS and its constructs. It is also important to further assess the Gaslight Questionnaire, to determine its construct, and test/retest validity. While the GQ scale used in the current study demonstrated good internal consistency, more is needed to fully explore the psychometric properties of the tool. It is also important to consider if the use of the 10-point Likert scale, instead of the yes/no checklist in The Gaslight Effect (Stern, 2007), impacted the outcome. It is recommended to use the yes/no checklist in future studies. This may more fully capture those who experienced gaslighting effects. It is possible the memory effects of a relationship 15 to 20 years in the past impacted decision points on the 10-point Likert scale. It may have been easier for participants to remember that "Yes, this happened" or "No, it didn't."

Clinical Implications

There are several significant clinical implications to this study. First, this study provided an in-depth exploration of gaslighting, a type of psychological abuse with resultant effects on a gaslightee, that is frequently overlooked or not understood by clinicians. By elucidating this topic, it is hoped that increasing numbers of clinicians become familiar with this concept from a clinical and not colloquial frame. Additionally, there is now evidence, with data, albeit minimal, that perhaps individuals who experience high levels of gaslighting and psychological abuse manifest a cluster of traits that lend them vulnerable to this form of abuse. This information may help increase understanding of how and why individuals get into (i.e., they may be targeted due to their traits,

vulnerabilities, and acceptance of projected introjects) and stay in abusive relationships (i.e., due to inhibitory anxiety and intrusive cognitions). For example, an individual may experience intrusive cognitions, inhibitory anxiety due to intolerance of uncertainty, high neuroticism, high sensory processing sensitivity (which impacts and is impacted by autonomic arousal), causing avoidance responding, and these traits combined cause the "freeze up" Hong and Lee (2015) describe. These traits combined and working in interaction may also contribute to acceptance of the gaslighter's introjects via defensive identification. This may keep the individual from acting to stop the gaslighting or psychological abuse, on an intrapersonal level.

This is not just a mental but also a body based experience for the individual.

Mental processes (i.e., intrusive cognitions), increased autonomic activity (i.e., due to the sensory processing sensitivity and neuroticism), and inhibitory anxiety may be involved in this body based experience. Increased knowledge and understanding of this dynamic process, of the possible presence of traits, of the meaning and classification of these traits and emotional phenotypes, as well as the of the various and multiple ways they are experienced and expressed within an individual, can only serve to help an individual learn to tolerate the discomfort, treat the symptoms, and learn to live with their set of traits that make them human.

This study provides evidence to bolster this topic from a research perspective, and not just with colloquial usage. It also elevated intrusive cognitions as a component of both gaslighting and psychological abuse and it is important to note that Rosellini, Boettcher, Brown, and Barlow (2015) state it is particularly evident with individuals with trauma histories:

although this [intrusive cognitions] is the defining feature of several obsessive- compulsive and related disorders, research also suggests that knowledge of IC is important because this phenotype is also related to generalized anxiety….

Likewise, the DSM-5 discusses the experience of intrusive thoughts in several differential diagnoses sections, particularly for the trauma spectrum disorders. (p. 15)

This is important for clinicians who work with individuals who have been in psychologically abusive or gaslighting relationships to fully understand, as intrusive (e.g., nonsensical) cognitions are often found in individuals with trauma histories, generalized anxiety, and/or obsessive disorders. As this aspect of the study was revealed to predict the effects of gaslighting, it is prudent to understand that psychologically abusive gaslighting relationships may share features with trauma reactions, and Hayes and Jeffries (2015) clearly state that individuals in psychologically abusive and gaslighting relationships can be terrorized by these behaviors and suffer severe PTSD reactions, of which intrusive cognitions are a part.

Both inhibitory anxiety and intrusive cognitions appear to play a key role in the results of this study, with these participants. Inhibitory anxiety, as discussed, is a subscale of intolerance for uncertainty. When this anxiety is elevated, due to increased uncertainty about something, the individual experiences increased autonomic and somatic anxiety (also phenotypes of the study), which are very uncomfortable body based experiences.

When this is experienced, and when one inhibits behavior (e.g., taking no action to anger a gaslighter), anxiety is reduced, which is a reinforcer. Anything that reduces the discomfort associated with anxiety is reinforcing to the brain and body. When inhibitory

anxiety is elevated by uncertainty, and a gaslighter makes it "clear" what should be done, and when the gaslighter is relationally important, be it a spouse, partner, parent, boss, or friend who uses tactics that increase distress associated with inhibitory anxiety - when the gaslightee capitulates to the demand, anxiety is reduced, uncertainty is reduced, and this interaction is reinforced.

Intrusive cognitions also were revealed to play a crucial role in predicting gaslighting and may thus play a role in accepting the projected introjects via defensive identification. Intrusive cognitions are by definition intrusive, unwanted, and non-sensical thoughts (Rosellini, 2014; Barlow, et. al., 2013). So are projections. The intrusive cognitions that predict gaslighting may also prime a person for acceptance of the projections from the gaslighter. This also works in concert with avoidance of confrontation due to the above mentioned autonomic anxiety, social evaluative concerns, and somatic anxiety. Understanding this combination and cluster of traits and phenotypes may be a key to unlocking the interpersonal dynamic of gaslighting. A clinician can use the tools and techniques from CBT, ACT, and DBT to facilitate change in a gaslightee's thinking and free her from the "gaslight tango" (Stern, 2007). Freedom from this dance will free her mind, reduce intrusive cognitions, increase distress tolerance, build skills for managing inhibitory anxiety, and give her full and complete control of her own thoughts and feelings again. This research provides evidence that intrusive cognitions while an anecdotal and ancillary aspect of this research, became a prominent feature worthy of much further exploration.

Summary and Conclusion

Today, the term gaslighting has gained in colloquial usage due to the political environment. The term gaslighting has been recently paired colloquially with psychological abuse (i.e., Duca, 2016; Fox, 2017; Gabbard, 2017; Ghitis, 2017; Lee, 2017; Kovacs, 2017; Stosny, 2017). Prior to this election, the two terms were rarely used in concert. Welch (2008) was first to apply the term gaslighting to politics, and he states it is continuing to be used by political figures to manipulate outcomes. It is imperative that clinicians increase their awareness of how gaslighting is used in any manner, and it is deserving of further study as a phenomenon separate from psychological abuse in general, so it does not become normalized as a tool of manipulation.

How do we keep gaslighting from happening? This is an important question and this exploratory study illuminates several important factors to consider going forward, to this aim. This study highlights that gaslighting may be created by and from anxious temperaments, whether within the gaslighter who uses projective identification to project his anxiety into the gaslightee, or via defensive identification with the gaslightee, who due to her (in this study) own traits and emotional phenotypes accepts the projections from the gaslighter and defensively identifies with and incorporates the introject. As discussed in Chapter II, this process of projective and defensive identification facilitates the changing sense of herself and her reality (Klein, 1946; Ogden, 1982), and is worthy of further exploration.

The study also highlighted several important aspects of the traits that may be involved in gaslighting. While the main traits of high sensory processing sensitivity and neuroticism form a foundation of how the gaslightee experiences her world, it is the other

traits this study identified that may make her especially vulnerable to the introjects. Intrusive cognitions and inhibitory anxiety may be two sides of the same coin. Both involve thoughts and involve body based experiences, and both may keep the gaslightee locked in the dance of gaslighting.

Increased awareness of this topic of gaslighting, and the how and why of it can increase understanding of the dynamic, increase understanding of why individuals (ourselves or others) react with anxiety and inhibition (i.e., freezing up), and increase understanding of why some individuals are more bothered by and vulnerable to gaslighting than others (i.e., differing clusters of traits).

The current research is a step toward increasing understanding of this complex, psychoanalytic, interpersonal and intrapersonal process, and it elucidates why some individuals may have increased propensity to experience this form of abuse. The current study sought to elucidate gaslighting as psychological abuse via a correlational study.

Gaslighting and psychological abuse measures were correlated with three trait measures, and several ancillary emotional phenotypes, with several that rose to importance. As hypothesized the gaslighting and psychological abuse measures did demonstrate notable association. Further, both gaslighting and psychological abuse demonstrated notable association with the traits under study, particularly when examining those individuals who experienced the most extreme gaslighting. Sensory processing sensitivity, intolerance for uncertainty, and its inhibitory anxiety aspect, and neuroticism all were highly associated with those who experienced the most gaslighting. Inhibitory anxiety was strongly associated with experiences of both psychological abuse and effects of

gaslighting. With respect to the ancillary traits, intrusive cognitions became an emotional phenotype and construct that cut across all other traits as a predictor of gaslighting.

This study provided data where none had been applied before, to uncover and reveal the abusive nature of gaslighting. Gaslighting is a form of interpersonal manipulation, but it is also far more than that. Gaslighting is very strongly correlated with both subtle and covert psychological abuse, and there appear to be at least several traits that may lend particular vulnerability to experience this form of abuse in intimate adult relationships. These traits may lend the gaslightee vulnerable to accepting the projected introjects from the gaslighter, via projective and defensive identification processes, thus activating her inhibitory anxiety and intrusive cognitions, which work in concert with her sensory processing sensitivity, neuroticism, and anxiety, keeping her locked in a macabre tango. This study is an initial foray to learn how to best teach the gaslightee how to stop the dance, or completely change the music.

To empower individuals who have been gaslit is a future goal of the outcome of this study. This was an initial exploratory attempt to begin to uncover a complex, dynamic, psychoanalytic and very interpersonal and intrapsychic process. Additional goals prompted by outcomes of this exploratory study are to increase understanding of the gaslighting process, to continue to explore additional measures (or adjust the current ones), to identify additional contributing traits, and to create trait based recovery models from psychologically abusive gaslighting that incorporates understanding of the complex individual array of traits involved, using the MEDI transdiagnostic profile approach.

"You've always had the power my dear.…you just had to learn it for yourself," Glenda The Good Witch in the Wonderful Wizard of Oz (1939).

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Appendix B: The Gaslight Questionnaire

Adapted from The Gaslight Effect (Stern, 2007)

Respond to the statements below while thinking about yourself when you were in the
identified "worst" intimate relationship, or if you currently feel this way.
On a scale of 1 to 9, where do you rank yourself on the following experiences or
feelings about yourself, experienced while in the "worst" relationship?

0	1	2	3	4	5	6	7	8	9
never									almost daily

0 = never; 1 = once; 2 = only a couple of times; 3 = every few months; 4 = about
every other month; 5 = about once a month; 6 = about twice a month; 7 = about
every week; 8 = a few times a week; 9 = almost daily

1. You constantly second-guessed yourself.
2. You asked yourself if you are too sensitive, on a daily basis.
3. You often felt confused and even crazy at work.
4. You were always apologizing to your mother, father, boyfriend, boss.
5. You wondered frequently if you are a "good enough" girlfriend/wife/employee/friend/daughter.
6. You couldn't understand why, with so many apparently good things in your life, you weren't happier.
7. You bought clothes for yourself, furnishings for your apartment/home, or other personal purchases with your partner in mind, thinking about what he would like instead of what would make you feel great.
8. You frequently made excuses for your partner's behavior to friends and family.
9. You found yourself withholding information from friends and family so you didn't have to explain or make excuses.
10. You knew something was terribly wrong, but you could never quite express what it was, even to yourself.
11. You started lying to avoid the put-downs and reality twists.
12. You had trouble making simple decisions.
13. You thought twice before bringing up certain seemingly innocent topics of conversation.
14. Before your partner came home, you ran through a checklist in your head to anticipate anything you might have done wrong that day.
15. You had the sense that you used to be a very different person--- More confident, more fun-loving, more relaxed.
16. You started speaking to your partner through their secretary/administrative assistant so you didn't have to tell him things you were afraid might upset him.

17. You felt as though you couldn't do anything right.
18. Your kids began trying to protect you from your partner.
19. You found yourself furious with people you'd always gotten along with before.
20. You felt hopeless and joyless.