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Personal Characteristics and Loneliness: Is there a Relationship?

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Abstract: **The relationship between personal characteristics of Self- Esteem, Social Avoidance, and Introverted was investigated among *(N=150)* randomly selected persons, male and female between the ages of 18 – 65 years within the South Eastern region of the United States. Instrumentation for the study included the Leutenburg and Liptak (2014) Personal Characteristics Scale published by the Whole Person Mental Health and Wellness Resources in Minnesota, USA. Statistical analysis using SPSS 28 software included Descriptive statistics, Pearson Correlation, ANOVA, and Multiple Regression. Results of the Pearson Correlation revealed a statistically significantly positive correlation between [Self-Esteem and Introverted *r = .431, p < .001]; [Self Esteem and Total Loneliness r = .691, p < .001]; [Social Avoidance and Introverted r = .199, p = .014]*; [Social and Total Loneliness *r = .666, p < .001]*; and [Introvert and Total Loneliness *r = .752, p < .001]*. The alternative hypothesis was accepted, and the null rejected. However, there was a positive but not a significant correlation between [Self-Esteem and Social Avoidance *r = .132, p = .107].* Furthermore, results of the relationship mapping showed a strong connection and influence among the four variables - Self- Esteem, Social Avoidance, Introverted, and Total Loneliness. This connection and influence are indicated by larger nodes and thicker links. The map also showed varied relationship counts of strong [92 – 129; normal 75, and weak 1 – 31]. A one-way ANOVA revealed significant differences in mean scores among the three variables in their relation to Loneliness: Self- Esteem *[F(25, 124) = 6.07, p < 0.001,* effect size, eta squared (η^2), was 0.55, indicating a large effect]; Social Avoidance [F(25, 124) = 5.77, p < 0.001, effect size, eta squared (η^2), was 0.54, indicating a large effect]; and Introverted *[F(25, 124) = 9.93, p < 0.001,* effect size, eta squared (η^2), was 0.67, indicating a large effect]. A Tukey's HSD post hoc test was not performed as the number of cases needed were not enough. The ANOVA results showed statistically significant differences in the way each variable impacted Loneliness. Both the ANOVA and relationship mapping results were supported by the large effect sizes to justify the practical significance of these variables. A multiple regression was also run to test if low Self-Esteem, Social Avoidance, and Introverted scores do predict Loneliness. The results indicated that the three variables statistically significantly predicted Loneliness, [*F(3, 146) – 3853.48, p<.001, R^2 = .988]*. Low Self-Esteem, Social Avoidance, and Introverted scores significantly predicted Loneliness *[(β = .557, p < .001)].*

Keywords: **Personal Characteristics, Loneliness, Self-Esteem, Social Avoidance, Introverted, Effect Size.**

I. INTRODUCTION

The concept of loneliness has been an area of research among social scientist and psychologist for a long time. Studies has produced mixed results regarding the causes and coping strategies. By nature, we are social beings connected to each other to ensure adequate interactions and survival or coping skills. However, our level of interaction and connectedness gives us some sense of satisfaction. It is this satisfaction that drives us to seek out our loved ones and invest in relationships. For many individuals, inadequate levels of interactions and connectedness results in the sense of loneliness – the feeling that something is lacking. Often, the need arises to compensate for and eliminate that void we feel inside us. So, we make

friends, join social groups, and seek to make up for lost connections and eliminate that social void in our lives. As research continues into the phenomenon, it becomes more complex to truly understand loneliness.

Leutenburg and Liptak (2014) noted that loneliness is not necessarily been alone and that there are people who do things in solitude, yet not lonely. They love to be alone in other to concentrate, think, and do things without being distracted. In fact, most of the discoveries in science today are done when people work in solitude. Thomas (2022) writing about solitude in psychology today disclosed that spending time alone gives us a chance to be attentive, self-caring, and to self-discover. The author also suggested many adults seek solitude time to map specific strategies to bring them satisfaction. However, it is important to note that solitude and loneliness are not the same and that solitude sometimes morph into loneliness. The lack of understanding of loneliness is still an area for more exploration. We see the meaning evolve over the years in literature from loneful to lonesome, then to solitude, which are all default terms for disappointment over companionships (Mettes, 2021). Mettes settled to define loneliness as "the distress someone feels when their social connections don't meet their need for emotional intimacy" (p. 23). Examining the definition carefully, we see elements of disappointment over companionship, relational isolation, being misunderstood, dismissed, or invalidated. Regardless of the definitions, the common theme is the craving for companionship or connectedness, a void that needs to be filled. Like Mettes, Leutenburg and Liptak (2014) considered loneliness to be a noticeable difference between one's desired level of social interaction and the actual level of social interaction. It is a sense of being connected to others that satisfies one' needs. When people feel there is no one to talk to or relate with even though there are people all around, the feeling of loneliness creeps in. Well, someone could argue, in this technology infested world, where people are on social media, and face-to-face interactions are less common, people are still connected. This assertion is not true because technology provides a false sense of connection (Leutenburg & Liptak, 2014). It is important to note that virtual connections are deceiving as many factors come into play that may take away even the false sense of connection. Mayfield (2021) also warned that "loneliness is not the absence of relationships – it is isolation." (p. 22).

Leutenburg and Liptak (2014) suggested that people who experience loneliness do so because of certain personal characteristics and the level of the sense of loneliness varies from inidivudal to individual based on those natural characteristics. Specifically, the authors noted introverted, social awkwardness, and low self-esteem.

The premise of this study is to investigate the Leutenburg and Liptak suggestion above. If the authors are right, then there should be a positive relationship between an individual's total loneliness and personal characteristics scores especially in relation to introverted, social awkwardness, and low self-esteem. In other words, an individual scoring high on the Self-Esteem, Social Avoidance, and Introverted subsections of the Loneliness Scale is at risk a high risk of feeling lonely and vis versa. This direct relationship would also infer that Self-esteem, Social Avoidance, and Introverted scores would likely predict Loneliness in people.

The purpose of the study is to investigate the relationship between personal characteristics score of Self-Esteem, Social Avoidance, and Introverted and an individual's feeling of Loneliness using the Social Psychology Theory as Conceptual Framework.

Research Questions

The research question included:

RQ: What is the relationship between Self- Esteem, Social Avoidance, Introversion; and Total Loneliness Scores.

H_{01}: There is no statistically significant relationship between Self- esteem, Social Avoidance, Introverted, and

Total Loneliness Scores.

H_{a1}: There is statistically significant relationship between Self- esteem, Social Avoidance, Introverted, and Total Loneliness Scores.

H_{02}: The mean scores for Self- esteem, Social Avoidance, and Introverted are not the same.

H_{a2}: The mean scores for Self- esteem, Social Avoidance, and Introverted are the same.

H_{03}: Low Self- esteem, Social Avoidance, and Introverted, do not significantly predict Loneliness.

H_{a3}: Self- esteem, Social Avoidance, and Introverted, do significantly predict Loneliness

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II. LITERATURE REVIEW

I reviewed several articles, journals, books, and other reliable materials relating to the topic. The review was later narrowed down based on vital keywords like Loneliness, Self-esteem, Social Avoidance, Introverted, Extroverted, to list few. Important points, arguments, news articles, and results of related studies were noted for discussion.

Conceptual Framework

Over the last several decades, researchers have advanced models to explain the concept of loneliness. Perlman and

Peplau (1982) outlined eight theoretical approaches to Loneliness, namely, psychodynamic model, Rogers phenomenological perspective, the existential approach, the sociological explanations, the interactionist view, the cognitive approach, the privacy approach, and the general systems approach. I would like to use the Social Psychology Theory of Loneliness to guide this study.

The Social Psychology Theory of Loneliness (SPTL): The SPTL posits that loneliness occurs when one's actual

social relationships are perceived as being insufficient, either quantitatively or qualitatively than what is desired. The response largely depends on an individual's subjective experience (Perlman & Peplau, 1982). The subjective nature of loneliness makes it a complex phenomenon to study. It is a matter of how a person feels and feelings are subjective. What causes loneliness in one individual may not be true for another individual. For many people, loneliness is a social deficiency where they perceived their social relationships are smaller and short of their desired needs. Unfortunately, it is difficult to determine what the actual social needs of a person are because of the variability among people. Issues that makes one person sad or disappointed may be of no significance to another.

Social psychologists have determined four types of loneliness – emotional, social, situational, and chronic. Overall, these various types of loneliness must be explored to give a better understanding of the feeling of loneliness in people. Leutenburg and Liptak (2014) suggested that situational loneliness is a temporary form that people feel out of experience and may disappear with time. Chronic loneliness persists over time with no heed to situations. Individuals facing chronic or situational loneliness may adopt develop behaviours to deal with the condition which may also vary. Some people may seek connections and relationships, while others go in solitude as coping mechanisms.

Weiss (1973) noted that social loneliness becomes evident when there is an absence of a broader group of contacts or an engaging social network. Emotional loneliness, likewise, originates from the absence of an intimate figure or a close emotional attachment. For example, loneliness occurs when children with insecure attachment patterns behave in ways that result in their being rejected by their peers. Those rejections hinder their development of social skills and increase their distrust of other people, thereby fostering ongoing loneliness (Simpson & Beckes, 2017). Overall, one may be tempted to conclude that loneliness results from the lack of social connections. Although this may be true in part, it cannot be generalized because the presence of connections may not guarantee the absence of loneliness.

Loneliness and the Individual Health

Often, loneliness is associated with one being sad, lonely, or been in solitude. Sometimes, when we face disappointment, we want to be left alone, while others seek social support and connections. However, people react differently to disappointments. Even those who seek connections or social support may have all the support they need yet feel lonely. Mettes (2021) noted that some of the loneliest times occur to people who are surrounded by other people.

Loneliness is associated with a variety of measures of physical health. People in poor health conditions tend to report higher levels of loneliness. Perlman and Peplau (1982) advanced three subdivisions for loneliness including affection, cognitive, and behavioural. Some experts consider loneliness as an emotionally unpleasant experience, and have linked it with feelings of general dissatisfaction, unhappiness, depression, anxiety, emptiness, boredom, restlessness and marginality. Two contradictory viewpoints have been expressed concerning loneliness as an arousal in an individual and the other as decreasing motivation. In other words, loneliness may motivate people to seek relationships, while others rather stay with the status quo feeling comfortable and satisfying. As such, the sense of in an individual is as a result of arousal or decreasing motivation induced by real or implied experience, which everyone faces at some point in life.

Loneliness is a serious problem in our societies today leading to mental health issues in many people, including those silent majorities who refuse to seek help. In the Washington Post, Nerrapil quotes the U.S. Surgeon General, Murthy, "half of U.S. adults experience loneliness, which has consequences for mental and physical health, including a greater risk of depression, anxiety - and, perhaps more surprisingly, heart disease, stroke and dementia" (Nerrapil, 2023).

Personal Characteristics

Studies show loneliness is a serious problem in the U.S. (Mettes, 2021; Leutenburg & Liptak, 2014; Triesman, 2023; Lim, Michelle, Rodebaugh, Thomas, Zyphur, Michael, & Gleeson, 2016). Experts suggest personal characteristics play a greater role in an individual's feeling of loneliness. Loneliness presents several negative feelings that may cause health issues including stress, high blood pressure, heart diseases, and stroke. For some people, loneliness has cause mental health issues. People with mental illness may feel alienated and very lonely needing medical attention, even with a great support system. Leutenburg and Liptak (2014) reported that for people, the impact it could be situational, while others are able to adjust based on their support, skills, and intensity of the event. The authors noted that personal characteristics such as introverted, social awareness, and low self-esteem play a critical role.

Factors such as age, education, income, marital status, to list a few, may have mediating effects but were not considered in this study. However, it should be noted that individual characteristics that make it difficult for a person to establish or maintain satisfactory relationships may increase the likelihood of loneliness. Furthermore, these characteristics affect loneliness in several related ways including, reducing a person's social desirability that may limits the person's opportunities for social relations. Personal characteristics may influence a person's behaviour in social situations and determine how a person reacts to changes in his or her achieved social relations. They also influence how effective the person is in avoiding, minimizing or alleviating loneliness.

Low Self-Esteem. Individuals with low self-esteem are normally shy and avoid social gatherings in most cases (Bober, Gajewska, Czaprowska, Świątek, & Szcześniak, 2021). Extensive research shows that a reduced self-esteem is one of the crucial factors associated with shyness. There are significant correlations noted between self-reports of shyness and loneliness (Smith & Segal, n.d.). Normally, self-reported shy individuals have indicated loneliness and are lower in a measure of social risk-taking. A cluster of related factors, shyness, low social risk-taking, lack of assertiveness, self-consciousness in social situations, may all contribute to loneliness (Perlman & Peplau, 1982). However, considering the role of social media and technology and the personal preference of the individual, these related factors listed above may not hold true. The mediating role of technology in our social lives is creating a paradigm shift to defy concepts that were once true. Therefore, in dealing with situations like loneliness, caution must be taken in making absolute statements. Saunders and Chester (2008) wrote about the role of social media in the functioning of shy people. Social media is an attractive venue for shy people for projecting self-image and control information concerning them. At the same time, social media could be a disinhibiting medium and help to train them for social skills.

There is literature with evidence of low self-esteem correlating with Loneliness; and significant correlations between scores on a loneliness scale and on Jackson's and other self-esteem scales as well (Perlman & Peplau, 1982; Bednar '00, 2000). Lonely individuals scored lower on the self-regard, self-actualization and innerdirectedness subscales of the known Loneliness Scales. To change this, Sharma (2020) wrote that one must develop skills and strategies such as dating someone who is positive towards you is great for your self-esteem. In this way, one feels valid, wanted, and accepted for who you are. Sharma further noted that a study on positive relationships to boost self-esteem, and vice versa confirmed this belief. The author also found that positive social relationships, social support, and social acceptance help shape the development of self-esteem in people over time across ages 4 to 76. Since romantic relationships are highly consuming and intense, they can heavily mould our self-esteem. But that isn't always the case.

Salik (2020) found people with low self-esteem have a higher level of loneliness. Such people may avoid social gatherings for fear of being intimidated. However, Vanhalst, Luyckx, Scholte, Engels, and Goossens (2013) noted that low self-esteem has been shown to relate to concurrent and later feelings of loneliness in adolescence but stated that it remains unclear why low self-esteem puts adolescents at risk for experiencing loneliness. However, Vanhalst, et al. reported that longitudinal research on the direction of effects between loneliness and self-esteem is virtually non-existent. On the other hand, Cuncic (2020) writes that low self-esteem can create anxiety and loneliness in people resulting in a feeling of negative self-image. Cuncic's position was also supported by Webber (2021) who indicated that the biggest loneliness comes from low self-esteem. Therefore, in order to deal with loneliness, we must try hard to boost our self-esteem where applicable. In other to do this, while accepting who you are, we must have an open mind to learn and be connected one way or the other in the world of interdependency.

Social Avoidance (SA). SA has been associated with serious conditions like Social Anxiety Disorder where people tend to stay away from social encounters. Loneliness therapist deploy measures to overcome this behavior and get their clients

engaged in doing things to reduce anxiety. Social anxiety behaviors are problematic because in the long run they only serve to increase fear. Telch and Lancaster (2012) advance some therapeutic measures involving exposure mechanisms to help persons with social anxiety disorders overcome fear. Social avoidance is more prominent in older adults especially 65 years and above (National Institute of Aging, n.d.). Social isolation depends on the social structure around us, and conditions associated with aging such as, hearing, vision, and memory loss, disability, and the loss of family members. The recent pandemic – COVID, exacerbated the sense of loneliness among the older adults, especially those who were institutionalized in retirement and assisted living homes. Some of the general precautions laid out during COVID including social distancing and isolation, avoidance, and restrictions of movement were precursors for loneliness (National Institute of Aging, n.d.).

Simonsen and Bo (2021) wrote that people who experience loneliness or social avoidance have often have problems with difficulties normal life activities and as such suffer profoundly without help or connection. Yuan, Zhu, Yang, Wang, Fu, Ge, Chang, Zhao, and Xiang (2023) found a significant positive correlation between social avoidance and loneliness and concluded that loneliness has a significant positive predictive effect on social avoidance.

Introverted. Another personal character under discussion is introversion. To understand the connection between introversion and loneliness, it is important to describe introversion. Introversion is a personality trait characterized by a preference for quiet environments, reflection, and solitude (Introverted World, 2023). Many introverts find pleasure in being alone and may find large social gatherings tortious. Introversion and loneliness are related in that introverts may be more prone to feelings of loneliness. Hawkley and Cacioppo (2010) reported that perceptions of social isolation or loneliness increase vigilance for reconnection and inclusion. The opposite induces social threats, alters psychological processes that influence physiological functioning, diminish sleep quality, and increase morbidity and mortality.

It is however true that individual reactions to loneliness vary based on personal characteristics and in this case, we consider Self-Esteem, Social Avoidance, and Introverted. People with low self-esteem scoring high on the loneliness scale tend not to feel good about themselves and are more concern about others criticising them. In the same way, those scoring high on the Loneliness Scale tend to be uncomfortable in social situations and have difficulty making friends. Introverted people follow similar trend. The cumulative scores for these three variables correspond to varying feelings of loneliness among individuals. Finally, an individual scoring high on the total of all three scales (50 – 63) indicates that their loneliness is directly related to low Self-Esteem, Social Avoidance, and Introverted (Leutenburg & Liptak, 2014). If Leutenburg and Liptak (2014) assertions are correct, then these three variables should have a direct positive relationship with the sense of loneliness of the individual. This is the premise of this investigation.

III. METHODOLOGY

A. Procedure

The sampling process targeted *(N=220)* randomly selected individuals, male and female between the ages of 18 - 69 within the South Eastern region of the United States. Out of *(N= 220)* individuals *(N=150)* were accepted for analysis with a questionnaire return rate of 68.2%. The sample size selected was done by G*Power analysis. Participation was voluntary and all responses were treated with anonymity.

Two types of instruments were used in the study: A demographic scale which solicited information about gender, age, educational level, and ethnicity; and the Leutenburg and Liptak (2014) Personal Characteristics Scale published by the Whole Person Associates. The Personal Characteristics Scale measures an individual's sense of loneliness based on Self-Esteem, Social Avoidance, and Introverted. The Loneliness Scale comprises of three sections with seven questions in each section – a total of 21 questions. The three sections measure Self-Esteem, Social Avoidance, and Introverted with responses of "A Lot Like Me – 3 points"; "Somewhat Like Me – 2 points"; and "Not Like Me – 1 point" to give a total score for each section, respectively. The cumulative score shows that the individual's Loneliness is directly related to low Self-Esteem, Social Avoidance, and Introverted.

The survey was administered in a paper and pencil format to willing participants over a period of three months. Participants were solicited from parks, shopping malls, and other public places. Surveys were immediately returned after completion and the average time was eight minutes.

In order to perform inferential testing, I considered three items: Type I errors, Type II errors, and estimated effect size. Type I errors occur when the researcher rejects the null hypothesis when it is true (Neuman, & Robson, 2015). In this study, I

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set Type I error at $\alpha = .05$ and Type II error at $\beta = .80$. Regarding effect size, I reviewed other academic studies to determine the estimated effect size. Based on a meta-analysis of these studies, the researcher set the estimated effect size of $r = .18$. Using G*Power (Faul, Erdfelder, Lang, & Buchner, 2009), an $\alpha = .05$, a $\beta = .80$, and estimated $r = .18$, a sample size of 150 was determined.

IV. DATA ANALYSIS

I transferred the data into SPSS 28 for the following analysis.

1. *Descriptive Data Analysis*. To provide insight and create a profile into the demographics of the sample population.

2. *Reliability Analysis.* Validity and reliability analysis ensure the quality of data. Reliability is the extent to which a test is relied upon for consistency (Right Paradigm Consulting, n.d.). Two types of reliability are important for evaluating survey instruments: (a) internal consistency reliability estimates, which measure how well items on a scale relate to one another, and (b) test-retest reliability, which reflects the stability of a scale over time. According to Gliem and Gliem (2003), an $\alpha > .70$ is considered an acceptable level. Statistical analysis reveals a Cronbach $\alpha = .79$ for the Loneliness Scale.

3. *Exploratory Data Analysis (EDA)* was performed to investigate the data and summarize their main characteristics (IBM Cloud Education, 2020). EDA helps to reveal vital information beyond hypothesis testing and provides a better understanding of data variables. EDA also helps to determine the appropriate statistical techniques for data analysis. To achieve that, I performed two tests:

i) Test of Outliers. Outliers are data values outside the overall trend (Stat Analytica, 2020). I evaluated the data for outliers to prevent undue influence on the results in hypothesis testing (Babbie, 2015). Outliers were evaluated and were retained.

ii) Test of Normality is done to show whether the data is normal or not to determine the type of test to deploy. I used the Kolmogorov-Smirnov (K-S) test to evaluate the distribution of each variable. The variables used in hypothesis testing were normally distributed with (*Statistic=.063; p=0.2*), therefore parametric tests were performed.

Two types of analysis were done: Descriptive analysis and hypothesis testing.

i) Descriptive Statistics: A descriptive analysis was performed to provide more insight into the study, and it yielded the following results. TABLE 1 shows the distribution of demographic characteristics of participants starting with age distribution. The age group (18 – 30) had 38 participants 38/150 (25.3%), (31 – 43) had more participants 47/150 (31.3%), (44 – 56) years 33/150 (22%), and (57 – 69) had 32/150 participants (21.3%).

The next demographic variable was gender. There were more female respondents 88/150 (58.7%) than males 62/150 (41.3%). The educational level among participants showed, 44/150 (41.7%) of the participants had high school diplomas; 67/150 (37.5%) had earned an Associate Degree; 42/150 (17.1%) had a bachelor's degree; 6/150(3.3%) had a master's degree; and 1/150(0.4%) had a doctorate degree. For ethnicity, there were Whites 34/150 (22.6%), Blacks 37/150 (24.7%), Hispanics 46/150 (30.7), and Asians 33/150 (22%). These results are available on TABLE 1 below.

TABLE 1. Distribution of Demographic Characteristics of Participants

Demographics characteristics	*n*	*%*
Age		
18 – 30	38	25.3
31 – 43	47	31.3
44 – 56	33	22.0
57 – 69	32	21.3
Gender		
Male	62	41.3
Female	88	58.7
Educational level		
High school	44	41.7
Associates	67	37.5
Bachelors	42	17.1
Masters	6	3.3

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Doctorate	1	0.4
Ethnicity		
Black	37	24.6
White	34	22.7
Asian	30	22.0
Hispanics	46	30.7

Table II represents the level of loneliness among participants assessed by age and gender. The data shows varying levels of Loneliness among participants based on age and gender.

Table II. Distribution of Feeling of Loneliness among Participants by Age and Gender

Level of Loneliness by Age by Gender								
			Age					
			18-30	**31-43**	**44-56**	**57-69**	**Total**	
Gender			*N*	*N*	*N*	*N*	*N*	*%*
Male	L	High	2	0	0	1	3	4.8
		Moderate	13	19	11	8	51	82.3
		Low	1	0	3	4	8	12.9
	Total		***16***	***19***	***14***	***13***	***62***	***100***
Female		High	0	0	1	1	2	2.3
		Moderate	19	26	17	16	78	88.6
		Low	3	2	1	2	8	9.1
	Total		***22***	***28***	***19***	***19***	***88***	***100***
Total	L	High	2	0	1	2	5	3.3
		Moderate	32	45	28	24	129	86.0
		Low	4	2	4	6	16	10.7
	Total		**38**	**47**	**33**	**32**	**150**	**100**

Note: L = Total Loneliness Scores

Figure 1 presents relationship mapping between of Self- Esteem, Social Avoidance, Introverted, and Total Loneliness levels. The relationship map determines how the variables relate to each other by providing a visual representation of the connections and influences that each node and link has over each other (IBM Cloud Education, 2020). They visually represent connections and influences through nodes and links, where the nodes represent variables and variable categories. The links represent the strength of influence between nodes. Larger nodes and thicker link lines represent stronger connections and influence. Smaller nodes and thinner link lines represent weaker connections and influence (IBM Cloud Education, 2020).

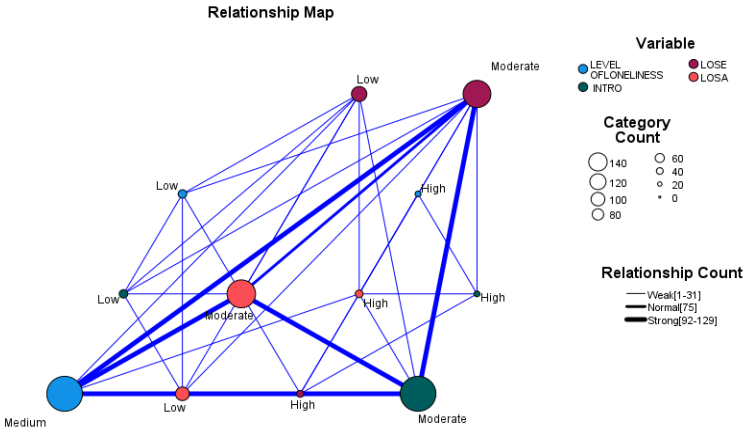

Figure 1. Relationship Mapping for Variables

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From the map above, the following relationships are obtained:

1. There is a strong connection between the four variables - Self- Esteem, Social Avoidance, Introverted, and Total Loneliness levels as evident by the larger nodes and thicker lines.

2. There is a moderate level connection between Social Awareness and Self-Esteem when compared to Introverted in relation to Loneliness.

3. The strength of influence between the four variables is very strong as indicated by the thick lines. However, there also exist weak influences based on relationship counts. The strong relationship counts varied from 92 – 129; normal 75, and weak from 1 – 31.

Table III (a). represents a descriptive statistic for Mean Scores and Standard Deviations in relation to Self-Esteem, Social Avoidance, and Introverted. The results revealed for Self Esteem [(m=13.01, sd=2.003, and *effect size eta squared* $(\eta^2)=0.55$0); Social Avoidance (m=13.07, sd=2.499, and *effect size eta squared* $(\eta^2)=0.538$); Introverted (m= 13.35, sd=2.374, and effect size *eta squared* $(\eta^2)=0.667$)]. See table III (a). below.

Table III (a). Distribution of Mean Scores and Standard Deviation for Self-Esteem, Social Avoidance, and Introverted

Descriptive Statistics					
Personal Characteristics	*Min*	*Max*	*Mean*	*Std. Deviation*	*Effect size eta squared* (η^2)
Self Esteem Scores	7	19	13.01	2.003	0.550
Social Avoidance	7	19	13.17	2.499	0.538
Introverted	8	20	13.35	2.374	0.667
Total Loneliness Score	26	53	39.65	4.940	

V. RESULTS

I used SPSS 28 for data analysis and hypothesis testing. Data was normal, therefore parametric testing was done.

ii) **Hypothesis Testing**

To address the RQ**:** What is the relationship between an individual's personal characteristics Scores of Self- Esteem,

Social Avoidance, and Introversion; and Loneliness Scores, and the hypothesis # 1: H_{01}: There is no statistically significant relationship between Self- esteem, Social Avoidance, Introverted, and Total Loneliness Scores; and H_{a1}: There is statistically significant relationship between Self- esteem, Social Avoidance, Introverted, and Total Loneliness Scores, Pearson product–moment correlation coefficient was computed to assess the relationship between Self-Esteem, Social Avoidance, Introverted; and Loneliness Scores *[(M = 13.01, SD = 2.00; M = 13.17, SD = 2.49; M = 13.35, SD = 2.37*)] respectively. For an alpha level of .05, there was enough evidence to show a statistically significant positive correlation between Self-Esteem and Introverted *[r = .431, p < .001];* Self Esteem and Total Loneliness *[r = .691, p < .001];* Social Avoidance and Introverted *[r = .199, p = .014];* Social and Total Loneliness *[r = .666, p < .001];* and Introverted and Total Loneliness *[r = .752, p < .001]*. I accepted the alternative hypothesis and rejected the null. However, there was a positive but not significant correlation between Self-Esteem and Social Avoidance *[r = .132, p = .107]*. (See table III (b).). I accepted the null hypothesis and rejected the alternative, although the relationship was positive.

TABLE III (b). Pearson Correlation Matrix for Self-Esteem, Social Avoidance, Introverted; and Total Loneliness Scores

Variables	1	2	3	4
1. Self-Esteem	-	.132	.431**	.691**
2. Social Avoidance	.107	-	.837**	.956**
3. Introverted	.431**	.199*	-	.752**
4. Total Loneliness	.691**	.666**	.752**	-

*Note. *Correlation significant at .05 level (2-tailed). **Correlation significant at .01 level (2-tailed).*

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To address the hypothesis # 2, H_{02}: The mean scores for Self- esteem, Social Avoidance, and Introverted are not the same and H_{a2}: The mean scores for Self- esteem, Social Avoidance, and Introverted are the same, a one-way ANOVA was conducted to test for significant mean differences among the three variables. The results of the one-way ANOVA revealed significant differences in mean scores among the three variables in their relation to Loneliness: Self- Esteem [*F(25, 124) = 6.07, p < 0.001*]. The effect size, eta squared (η^2), was 0.55, indicating a large effect; Social Avoidance [*F(25, 124) = 5.77, p < 0.001*]. The effect size, eta squared (η^2), was 0.54, indicating a large effect; Introverted [*F(25, 124) = 9.93, p < 0.001*]. The effect size, eta squared (η^2), was 0.67, indicating a large effect. (See table IV below).

Tukey's HSD post hoc test was not performed as the number of cases need to perform the test were not enough. The ANOVA results showed there were enough mean differences among the variables to produce statistically significant differences in the way each variable impacted Loneliness. The ANOVA results were also supported by the large effect sizes to justify the practical significance of these variables. I accepted the alternative hypothesis and rejected the null.

Table IV. Analysis of Variance of Mean Differences among the Three Variables

		Analysis Of Variance				
		Sum of Squares	***df***	***Mean Square***	***F***	***Sig.***
Self Esteem Scores	Between Groups	329.034	25	13.161	6.07	<.001
	Within Groups	268.940	124	2.169		
Social Avoidance	Between Groups	500.559	25	20.022	5.77	<.001
	Within Groups	430.275	124	3.470		
Introverted	Between Groups	560.229	25	22.409	9.93	<.001
	Within Groups	279.744	124	2.256		

To address hypothesis # 3, H_{03}: Low Self- esteem, Social Avoidance, and Introverted, do not significantly predict Loneliness and H_{a3}: Self- esteem, Social Avoidance, and Introverted, do significantly predict Loneliness; a multiple regression was run to test if one's feeling of Loneliness is predicted from personal characteristics of Low Self-Esteem, Social Avoidance, and Introverted. The results indicated that these variables statistically significantly predicted Loneliness, *F(3, 146) – 3853.48, p<.001*, R^2 = .988. The predictor variables: Low Self-Esteem, Social Avoidance, and Introverted added significantly to the prediction [($\beta = 1.038, p < .001$; $\beta = 1.022, p < .001$; $\beta = .974, p < .001$)] respectively. (See table V below).

Table V. Results of Multiple Regression Analysis for the Predictor and Dependent Variables

		Model Summary			
R	***R2***	***Adjusted R2***	***SEE***	***Durbin Watson***	
.994a	.988	.987	.557	1.598	
		ANOVA[a]			
R	***SS***	***df***	***MS***	***F***	***Sig.***
Residual	3590.626	3	1196.875	3853.479	<.001[b]
	45.347	146	.311		
	UB	***CSE***	***UCB***	***t***	***Sig.***
Self Esteem	1.038	.025	.421	41.035	<.001
Social Avoidance	1.022	.019	.517	54.764	<.001
Introverted	.974	.022	.468	45.117	<.001

a,b: Predictors: Introverted, Social Avoidance, Self Esteem Scores; p <.05

ANOVA [a]; Coefficient [a]: Dependent Variable: Total Loneliness Scores

Predictor Variables: Introverted, Social Avoidance, Self Esteem Scores

SEE= Standardized Estimate of Error

UB = Unstandardized Beta

CSE = Coefficient Standard Error

UCB = Unstandardized Coefficient Beta

SS = Sum of Squares

MS = Mean Square

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VI. DISCUSSION

I investigated the relationship between an individual's personal characteristics scores for Self-esteem, Social Avoidance, Introversion that resulted in the feeling of Loneliness using the Social Psychology Theory as Conceptual Framework. The research question was: RQ: What is the relationship between Self- Esteem, Social Avoidance, Introversion; and Loneliness Scores. Three hypotheses were developed to address the strength and extent of the relation, the differences in mean scores, and the predictive relationship between the variables.

For H_1, the results of the Pearson Correlation showed statistically significant positive correlation between Self-Esteem and Introverted [r = .431, p < .001]; Self Esteem and Total Loneliness [r = .691, p < .001]; Social Avoidance and Introverted [r = .199, p = .014]; Social and Total Loneliness [r = .666, p < .001]; Introvert and Total Loneliness [r = .752, p < .001]; and a positive but not significant correlation between Self-Esteem and Social Avoidance [r = .132, p = .107]. This direct relationship between the three variables in relation to Loneliness implied that increased scores by each variable resulted in the increased feeling of loneliness. People who scored high in Self- esteem, Social Avoidance, and Introverted do not often feel good about themselves, they feel uncomfortable or shy to be around other people. The reverse is also true as dictated by the study results. This finding was consisted with the reports of Leutenburg and Liptak (2014) and Yuan, Zhu, Yang, Wang, Fu, Ge, Chang, Zhao, and Xiang (2023). Low self-esteem, Social Avoidance, and Introverted behaviours are a perfect recipe for feeling Lonely. Such people may tend to avoid social gatherings for fear of intimidation or being criticized for mistakes. The role of mediating factors like COVID, age, education, and marital status were not specifically examined in the analysis.

Although COVID was not a mediating factor in this study, you would agree with me that mitigating precautions implemented during the pandemic, such as isolation, social distancing, travel bans, and visitation restrictions drove many patients, even able-bodied persons to have the feeling of loneliness. The result of sustained or chronic loneliness has health complications including mental health conditions and other comorbidities as corroborated by the findings of Simonsen and Bo (2021).

For H_2: The results of the one-way ANOVA revealed significant differences in mean scores among the three variables in their relation to Loneliness: Self- Esteem [$F(25, 124) = 6.07, p < 0.001$]. The effect size, eta squared (η^2), was 0.55, indicating a large effect; Social Avoidance [$F(25, 124) = 5.77, p < 0.001$]. The effect size, eta squared (η^2), was 0.54, indicating a large effect; Introverted [$F(25, 124) = 9.93, p < 0.001$]. The effect size, eta squared (η^2), was 0.67, indicating a large effect. The explanation here is that each of these variables largely impacted loneliness but differently. Persons exhibiting these personal characters may be prone to feeling lonely in real world. In other words, there is practical significance in these findings in the real world as indicated by the large effect sizes associated with each variable.

For H_3: The results of the multiple regression showed that one's feeling or sense of Loneliness could be predicted from personal characteristics of Low Self-Esteem, Social Avoidance, and Introverted. These three variables cumulatively statistically significantly predicted Loneliness, [$F(3, 146) – 3853.48, p<.001, R^2 = .988$]. In other words, there is a likelihood to believe that persons with these personal characteristics would at some point in the future exhibit a sense of loneliness, even if they do not feel lonely currently. The predictor variables: Low Self-Esteem, Social Avoidance, and Introverted added significantly to the prediction [($\beta = 1.038, p < .001$; $\beta = 1.022, p < .001$; $\beta = .974, p < .001$)] respectively.

The study accepts some limitations that an in-depth understanding of the phenomenon under study may not have been addressed because of its quantitative nature. Time constraint and diversity among the sample population might have been a limiting effect. Generational impact and extroversion were not directly considered or fully examined as mediating factors in this study. The study was limited to these three personal individual characteristics of Self-Esteem, Social Avoidance, and Introverted.

Someone with more interest in the study may look at these same characteristics and the role of mediating factors like Gen Z and X, Extroverted, COVID, Cultural Diversity, to list a few. Furthermore, one could also deploy a qualitative phenomenological perspective into the study.

VII. CONCLUSION

To conclude, it is widely known that loneliness has serious consequences on the individual's daily activities, including mental health conditions. A plethora of literature has supported this assertion and as such, we must be cognizant of the consequences of these behaviours and adopt mitigating strategies. It is also critical to draw a clear distinction between

loneliness and solitude to avoid confusion and misplacement of preferences. There are people with introverted behaviours but are not lonely, likewise other may practice social avoidance because of some life survival mechanisms or bad experience.

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