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Well-Being of Retirees in Abu Dhabi—A Discriminant Analysis of the Happy and the Not-So-Happy Groups

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Abstract

We examined a wide range of well-being determinants of retirees in Abu Dhabi using data from the second cycle of Abu Dhabi Quality-of-Life Survey. The survey included scales of happiness, life satisfaction, social relations, subjective physical and mental health, housing, income, education, environment, and community social support and services. A total of 1036 retired persons responded to the survey. The retirees were classified into two groups: happy and not-so-happy, using the sample mean as the breaking point to reflect more representation. Discriminant analysis was used to examine 20 well-being predictors. Results produced highly acceptable measurements and statistics. The analysis identified a total of 12 significant predictors, including life satisfaction, social relations, services for vulnerable groups, income, trust in public services, self-rated mental health, satisfaction with environmental surroundings, feeling of safety and security, social investment, satisfaction with housing, satisfaction with education and health services, and satisfaction with public health support. The model produced a canonical correlation of 0.792 with a highly significant Wilks' Lambda (0.001) and could accurately predict 92.71% of the happy retiree group and 91.25% of the not-so-happy group. A final Canonical Discriminant Function was produced for easy calculations and group predictions. Limitation and practical implications were also discussed.

Keywords

Retirees, Happiness, Well-Being, Discriminant Analysis, Abu Dhabi

1. Introduction and Background

Most research on retirees' happiness has focused on their economic well-being

(Hershey et al., 2010; Kubicek et al., 2011; Kumar et al., 2019). While the happiness of retirees' research is essential, focusing on their economic well-being may ignore other factors that influence the overall happiness. Recently, positive well-being characteristics that people experienced in their life have attracted researchers' attention. Many authors argue that when people experience high levels of positivity or pleasant effects, they also develop higher levels of happiness in their life (Csikszentmihalyi & Hunter, 2003; Lyubomirsky et al., 2005; Seligman, 2002). The pleasant effects might include a variety of feelings such as life satisfaction, joy, pride, low degrees of sadness and depression, as well as many other positive feelings (Amorim et al., 2017). Subjective happiness, in particular, has been focal in much self-assessment related research. Lyubomirsky and Lepper (1999) related its importance in reflecting a person's self-assessment of being happy or unhappy. Meanwhile, Lyubomirsky (2001) reflected on the ability of some people to enjoy being happy under adverse conditions. Seligman (2002) highlighted many factors that could influence an individual feeling happy or not, such as age, marital status, income, health, and emotions.

Positive psychology scholars have addressed the concepts of happiness, aging, and retirement (Adams & Taylor, 2015). The retired persons experience significant changes in their life by experiencing drastic changes in life's routine. Such essential changes (i.e., leaving the working life) might entail retirees to focus on redefining and changing their lifestyles (Van Solinge, 2013; Van Solinge & Henkens, 2008). Retirees may also face the unfamiliar kinds of acknowledgments that they encounter from their social surroundings (França, 2012; Gallo, 2013).

In the Emirate of Abu Dhabi, United Arab Emirates (UAE), retirement-related topics have not been extensively studied. This brief research attempts to bridge this gap by examining the predictors of the overall happiness and well-being's of retirees in Abu Dhabi. The study draws on the second cycle of the Quality-of-Life Survey conducted in 2019-2020 by the Abu Dhabi Department of Community Development (DCD) in cooperation with the Abu Dhabi Statistics Department (SCAD). This research aims, in particular, to identify the well-being predictors of happy and not-so-happy retirees in Abu Dhabi. For this purpose, we utilize discriminant analysis (DA). The current paper adds empirical findings to the existing literature on retirement and subjective happiness. While contributing to the literature on retirement well-being, it could add to the theoretical framework given the unique circumstances in Abu Dhabi. In addition, this study also attempts to offer some insights for policymakers with ideas to enrich and enhance retirees' happiness, as the results will enhance our understanding of the problems faced by retirees who might experience increased loneliness, decreased social connections, and more serious health issues.

1.1. The Context of Abu Dhabi

In Abu Dhabi, Emirati nationals working in government and private sectors are eligible for pension and other retirement benefits after reaching the retirement age of 49 or after serving for a minimum of 20 years. Those who are ineligible

for pension receive end-of-service benefits known as gratuity, which amount to one and a half months salary for every year of the first five years, increased to two months' salary for every year of the following five years and three months' salary for any additional year after that (United Arab Emirates General Pension and Social Security Authority, 2007). To improve retirees' lives in Abu Dhabi, we investigated the perception of happiness and its predictors among retirees from all regions of Abu Dhabi.

1.2. Review of Literature

Diener et al. (2003) consider happiness as "positive inner experience originating from individuals' cognitive and emotional interpretation of their lives". The authors further elaborate that "happiness is also an all-encompassing concept underlain by two components, namely, emotion and cognition". In a classic contribution, Ross & van Willigen (1997) have noted that a sense of happiness could significantly be associated with mental disorders, hope, and other related psychological feelings. Empirically, operational definitions of happiness tend to be comprehensive. For example, Bhutan's Gross National Happiness Index includes nine domains, i.e., cultural diversity and resilience, psychological well-being, good governance, health, education, time use, community vitality, living standards, and ecological diversity and resilience (Ura et al., 2012). Retirement, on the other hand, is a significant life transitions action that needs more attention for social policies. When a person enters the retirement phase, he or she could depart from a significant period of activity that affects many of his\her life domains (Thuku, 2013). Therefore, retirement has been referred to as a significant transition in life. Research encourages planning for it as early as possible to avoid a traumatic experience (Hershey et al., 2010; Kubicek et al., 2011; Nimrod & Shrira, 2014; Van Solinge & Henkens, 2008). Most studies focus on the issues related to well-being and happiness during and after retirement (Amorim et al., 2017).

In this section, we explored literature related to the determinants and associates of happiness and retirement with more focus on well-being predictors such as life satisfaction, income, social relations, health and subjective mental health, housing and surrounding environment, social support and benefits, and feelings of safety. More specifically, we reviewed research that would be appropriate and applicable when it comes to the context of Abu Dhabi.

There is strong evidence of the association between retirement and life satisfaction. Research documents that retirement influences people's subjective well-being and life satisfaction (Hershey & Henkens, 2014; Van Solinge & Henkens, 2008). Gorry et al. (2015) established a causal effect from retirement to health and life satisfaction for US workers. Bonsang and Klein's (2012) study examined the effects of voluntary and involuntary retirement on well-being and found that, in general, voluntary retirement does not affect life satisfaction, while involuntary retirement harms life satisfaction. Furthermore, some researchers concluded that in certain countries, such as Korea, retirement could be enormously traumatic for both life satisfaction and happiness in given circumstances

such as retirement at young ages, lack of post-retirement preparation, loss of social/economic role, reduced income, and insufficient social welfare (Lee, 1997; Shen, 2007).

The social relationship is an essential aspect of aging and retirement concerning happiness. Consequently, social relations in the life of retirees have received seen much research attention (Hogstel et al., 2001). Interaction and social support levels can affect retirees' and elderlies' happiness and general health. Mongilner (2009) suggested that the importance of social relationships, social support, and economic status would result in a higher happiness level for retirees. Abramowska-Kmon and Łątkowski (2021) pointed to the results of loneliness after retirement, showing that loneliness increased among males after retirement and was negatively associated with their happiness. On the other hand, certain studies found no substantial difference between genders of the effects of social relationships on happiness of retirees (Comi et al., 2018).

Many retirees well-being measures have focused primarily on retirement income and wealth (Andrews, 1993). Research also often attempts to identify well-being as associated with changes in the level of income or wealth (OECD, 2001) and considers income and resources available in retirement life as an essential factor common in post-retirement happiness and well-being studies (e.g., Van Solinge & Henkens, 2008; Wang, 2007). For retired people, the significance of the association of happiness, satisfaction with life, and income have seen much rich empirical research (Easterlin, 2003; Diener & Seligman, 2004; North et al., 2008; Sener et al., 2007; Van Solinge & Henkens, 2008). For example, some studies have showed that income and financial resources are associated with the happiness and well-being of retirees to a great extent (Szinovacz, 2003; Wang, 2007). The more diverse the income sources, the greater feelings of happiness and other well-being features (Kubicek et al., 2011). In addition, research in different cultures has consistently found associations between income, life satisfaction, self-reported happiness, and subjective well-being (Diener & Biswas-Diener, 2002; Easterlin, 2001; Johnson & Krueger, 2006; Lyubomirsky, 2007; Myers, 2000).

Concerning the role of social support in retirees' well-being, Moeini et al. (2018) reported that high social support could increase happiness among elderly retirees. The study concluded that the quality and quantity of social support could act as significant determinants and predictors of happiness among older retirees. Kim and Jin (2019) explored the influence of welfare facilities on seniors' and retired subjective well-being in Korea. Their results indicated a positive association between elderly subjective well-being and income support. Many studies also confirm the significance of social resources such as healthcare and community support in the life of retirees (Flenger & Jensen, 1981; Kozma & Stones, 1983). Some report that municipalities that generally offer more excellent resources for older people could bring more happiness in their lives as they retire (Santos et al., 2013; Silva & Welgama, 2014).

The association between retirement and health has been vastly reported (Lei &

Liu, 2018; Seaward, 2017; Schünemann et al., 2017), with rather mixed empirical results. More early research noted that retirement is a stressful event for many retirees (Minkler, 1981). This notion reflects a common belief that a significant life change such as retirement could invoke mental feelings (Bossé et al., 1991; Holmes & Rahe, 1967). Some recent studies witnessed a positive effect, while others concluded with no effect or a negative effect. For example, using data from European countries, Belloni et al. (2016) found that retirement has a positive effect on men's mental health while women are unaffected. Kolodziej and García-Gómez (2017) investigated the heterogeneous effects of retirement on mental health, revealing that these are larger for those with poor mental health. van der Heide et al. (2013) concluded that the effects on general health and physical health are unclear, while there seem to be beneficial effects on mental health.

The impact of housing and the surrounding living environment on the subjective well-being of older people and retirees has also been highlighted (Hanif et al., 2018; Mulliner et al., 2020; Park & Seo, 2017). The surrounding environment includes the management of the facilities experienced by the retirees (Mulliner et al., 2020). Research shows that facilities management is a significant indicator of happiness among retirees (Yu & Lee, 2017). Studies also show that retirees usually look for more exciting and attractive living facilities to better enjoy their retirement life (Costa-Font, 2013). International research related to housing for older and retired people has pointed to the significance of aspects of the built environment and housing as they associate with the happiness, health, and well-being of older people (Flenger & Jensen, 1981; Garin et al., 2014; Kozma & Stones, 1983; Oswald & Wahl, 2004; Rojo-Pérez et al., 2007). Requena (2016) found that poor infrastructure to be associated with a lower self-evaluation of welfare. Retirees find a friendly environment rich with necessities, which allows interventions to enable solutions for the difficulties of vulnerable populations (Ruza et al., 2015). Some have confirmed the significance of resources such as healthcare, social and physical activities, and community support (Kozma & Stones, 1983). Santos et al. (2013) and Cohen and Bulanda (2015) stressed the importance of the social aspect of the residential environment. Other studies have focused on the neighborhood, housing demand, housing choice, residential satisfaction, and housing preferences (Bohle et al., 2014; Jia & Heath, 2016; Yen et al., 2009).

As for the aspect of feeling of safety, research also confirms that it is an essential ingredient for retirees' mental well-being and happiness (Amorim et al., 2017). This can include feeling safe at home and in the neighborhood, feeling financially secure, and feeling supported within close relationships and community. In their study about retired persons and their happiness, Santos et al. (2013) identified positive characteristics such as safety as significant components of retirees' happiness. They pointed out the feeling of safety as a facilitator for retirees to perform activities that bring them closer to nature. Similarly, both

França (2004) and Requena (2016) stress the importance of multiple factors that include feelings of safety for happiness in the retirees' stage of life.

To summarize, our extensive literature review identified various significant predictors of happiness amongst retirees. These predictors reflected most well-being variables that covered the living environment, social connection, social support, income situations, residential settings, subjective physical and mental health, and many other factors related to well-being.

2. Methods and Analysis

This present study utilized the data from the second cycle of the Abu Dhabi Quality-of-Life (QoL) Survey conducted in 2019-2020. The survey recorded responses from 1036 retirees. About 62.4% of them were males and 37.6% were females. The largest percentage of the retirees were married (85.6%). The rest were 7.3% single, 4.8% divorced, 0.5% separated, and 1.8% widowed. The largest portion held bachelor's degree and the majority lived in Abu Dhabi region (69.4%), with Al Ain residents accounting for 28.3% and Al Dhafra residents 2.4%.

Pre-analysis was performed to identify valid and representative combinations or composites from the QoL survey. The preliminary analyses included a combination of methods, including correlation analysis, analysis of variance, factor analysis, and reliability analysis. Such investigations summarized many of the well-being variables into composites.

Table 1 summarizes the initial number of predictors used in this study. The predictor variables reflect the well-being variables in the survey. The table also presents initial results of factor analysis (FA) conducted regarding each of the hypothesized composites. Table 1 also provides the Cronbach Alpha (CA) associated with each of the composites. Meanwhile, further explanations are provided in the table as of the action taken regarding some of the composites and justifications.

Discriminant analysis (DA) is employed as the main analysis tool, using SPSS (McGarigal et al., 2000; Tabachnick & Fidell, 1996). DA has been utilized in many well-being research internationally. For example, Anjum and Amjad (2016) used DA for character strengths and well-being. Odunlami (2017) used DA to predict the adolescents' quality of life using some socio-demographic variables such as age, and position in the family. Strohonova et al. (2019) utilized DA for defining quality of life in patients with comorbid pathology of osteoarthrosis. Sufian (1993) used DA in analyzing ten quality of life determinants in metropolitan areas. DA has also been used to analyze the quality of work-life of employees in the private sector (Sureshkumar & Marimuth, 2014) and of academic professionals (Taher, 2013).

Before running DA, we reviewed its assumption of normality and multicollinearity (Krzanowski, 1990). For the normality of predictors test, we used the explore option in SPSS. We looked at the values of skewness and kurtosis for each

Table 1. Overall list of composite variables considered and explanations.

Composites	Explanations
HOUSING	It included 2 variables—housing condition and overall residence satisfaction. The composite variable produced CA of 0.702.
INCOME 1 INCOME 2	Four income related variables were investigated—able to pay necessary expenses; satisfaction with your household income; how often your family had any money unspent; and household income change compared to last year, with CA of 0.741. Explanatory factor analysis (EFA) produced 2 factors. The first factor contained the first three factors with CA of 0.739; the second factor included one variable (household income change compared to last year).
HEALTH MENTAL	The health composite consisted of 9 variables—self-rated health; have longstanding illness; how obese are you; how often eat a healthy diet; how often do physical exercise (minimum of 30 minutes); how often felt calm and peaceful; how often felt have a lot of energy; how often felt downhearted and depressed; and how often felt rushed or pressed for time. EFA was performed with relevant measurements of CA. It resulted in 2 composites: self-rated health, and the 4 mental health variables with CA of 0.729.
EDUCATION	One variable—the highest education attainment.
SAFETY	A composite of 4 variables—I feel protected and safe; I feel safe when walking alone at night; I feel safe using the Internet; and I have ability to obtain rights through legal channels, with CA of 0.788.
RELATION	Variables considered—how often met socially with friends; most people can be trusted; how often felt isolated from people around you; amount of quality time you spend with family; satisfaction with family life; and satisfaction with relationships with other people. After FA, only 2 variables remained and combined into one composite—satisfaction with family life and satisfaction with relations with others.
TRUST1	Included trust in health system, police, education, courts, and media. FA produced 1 factor, with CA of 0.852.
SATENV1 SATENV2	Environment included satisfaction with quality drinking water in faucet at home; quality of air in your area of residence; level of noise pollution in area of residence; amount of parks, public gardens or greenery in your area; availability of sports/exercise facilities; and satisfaction with current surrounding living environment. FA produced 2 factors—amount of parks, public gardens or greenery in your area and satisfaction with current surrounding living environment, with CA of 0.764; satisfaction with quality drinking water in faucet at home; quality of air in your area of residence; level of noise pollution in area of residence, with CA of 0.709.
SVGENERAL SVSELF	A list of 17 values were included to rate the importance. FA predicted 2 factors—importance of general social values, with CA of 0.932; and importance of self-related social values, with CA of 0.856.
SATSSOC1 SATSSOC3 SATINFRAST	Satisfaction with social services consisted of 17 variables. FA produced 3 factors—SATSSOC1 (satisfaction with health services and education services, with CA of 0.882); SATSSOC3 (satisfaction with services for vulnerable groups), seniors, people with disabilities, and for women, with CA of 0.835; and SATINFRAST (satisfaction with public infrastructure, with CA of 0.863.
SATGOVH SATGOVP	Satisfaction with government health care had a total of 4 variables—satisfaction with hospitals, clinics, quality of services, and cost. FA produced 1 factor with CA of 0.868; Satisfaction with private health care—satisfaction with hospitals, clinics, quality of services, and cost. FA produced 1 factor with CA of 0.882.
LIFESAT	Life satisfaction. One variable that represented the subjective life satisfaction.

predictor and the Kolmogorov and the Shapiro-Wilk tests. These tests indicate whether the distributions are close to normal (Elliott & Woodward, 2007). Both tests should not be significant to assume a normal distribution. For all predictor variables, the Shapiro-Wilk significant values ranged from 0.066 to 0.847. The non-significance indicators are preconditions for normality. Regarding skewness and kurtosis, computations lead to Kurtosis values somewhat between −2.0 and

2.0, while skewness ranged between −0.5 and 0.5. Such values also lead us to suggest that the predictors are normally distributed (Altman & Bland, 1996; Krzanowski, 1990). For multicollinearity, we looked at the correlations between the predictor variables. Table 2 presents results from the pooled within-group matrices, showing that the correlations range from 0.04 to 0.432. Since all correlations are relatively small, the absence of multicollinearity is suggested (Tillmanns & Krafft, 2017). This is ideal for discriminant analysis since we do not want the predictors to be highly correlated. There are different definitions of multicollinearity. Most hold that values below 0.9 or 0.8 indicate the absence of multicollinearity.

The happiness scale asked respondents to use a rating of 0 - 10 to indicate their level of happiness, which is consistent with what various studies and projects have used or recommended (Kalmijn et al., 2011; Merz, 2018; Moldovan, 2017). Figure 1 shows the percentage distributions of the retired respondents regarding their happiness. The largest single category (31.3%) of them described themselves

Table 2. Pooled within-groups matrices (Correlations).

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
P1	1.00	0.210	0.335	−0.04	0.032	0.124	0.265	0.243	0.220	0.269	−0.14	0.188
P2	0.210	1.00	0.381	−0.17	0.155	0.018	0.139	0.133	0.141	0.014	0.040	0.335
P3	0.335	0.381	1.00	−0.18	0.175	−0.09	0.314	0.157	0.081	0.094	−0.16	0.374
P4	−0.04	−0.17	−0.18	1.00	0.244	0.370	0.085	0.147	0.123	0.040	−0.06	0.080
P5	0.032	0.155	0.175	0.244	1.00	0.203	0.277	0.357	0.140	0.072	0.038	0.317
P6	0.124	0.018	−0.09	0.370	0.203	1.00	0.068	0.650	0.388	0.369	0.358	0.152
P7	0.265	0.139	0.314	0.085	0.277	0.068	1.00	0.184	0.287	0.118	−0.18	0.242
P8	0.243	0.133	0.157	0.147	0.357	0.650	0.184	1.00	0.341	0.432	0.259	0.217
P9	0.220	0.141	0.081	0.123	0.140	0.388	0.287	0.441	1.00	0.407	0.316	0.230
P10	0.269	0.014	0.094	0.040	0.072	0.369	0.118	0.632	0.407	1.00	0.182	0.105
P11	−0.14	0.040	−0.16	−0.06	0.038	0.358	−0.18	0.259	0.316	0.182	1.00	−0.04
P12	0.188	0.335	0.374	0.080	0.317	0.152	0.242	0.217	0.230	0.105	−0.04	1.00

Note: The variables in the table correspond to the final list of significant variables in DA.
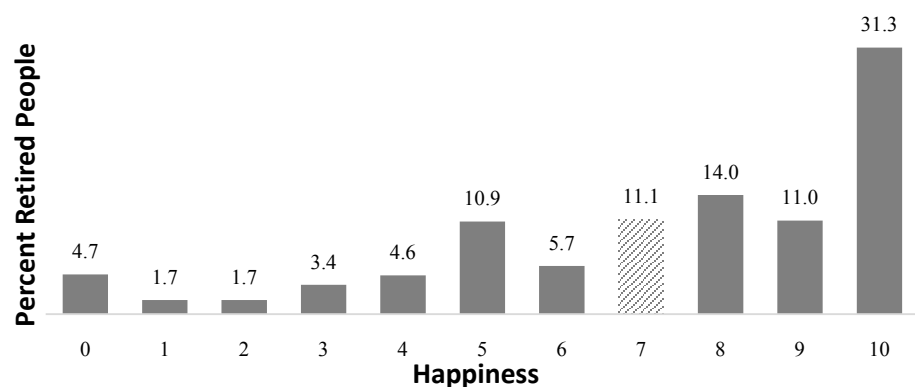

Figure 1. The percentage distribution of retired respondents regarding their happiness.

as extremely happy. The distribution in the figure makes it difficult to divide the respondents into the "happy" and "unhappy" categories. The figure shows that the cumulative percentage of retirees that described themselves as below the 7 point mark is around 43.7%. Therefore, we decided to use the midpoint of 7 to be the threshold for labeling respondents as the "happy" or "not-so-happy" group. Here, the outcome variables are two groups or two levels (the happy and the not-so-happy). We have unequal numbers in the happy and the not-so-happy groups (43.7% of respondents as not-so-happy and 56.3% as happy).

The general assumption is that being happy or not-so-happy depends on the values of the predictor variables. Through DA, the main objective is to determine the probability of group membership (happy and not-so-happy) based on well-being predictor variables. More specific objectives are to:

● identify the significant well-being predictors for the happy and the not-so-happy groups;
● identify the mean of the predictor variables for the two groups;
● identify the importance of each predictor variable in identifying the two groups;
● identify the canonical discriminant function coefficients (CDFC) and classification function coefficients for each of the two groups;
● identify the hit rate (or prediction power of group membership) based on the equation or predictors, i.e., how model output compares with actual group memberships;
● identify the significance of retirees' gender, age, marital status, and education attainment on their happiness category (happy or not-so-happy).

Since DA does not consider categorical data (i.e., gender, marital status, education attainment), for further analysis we used analysis of variance (ANOVA) to test differences between the two groups of the happy and the not-so-happy.

3. Results

Table 3 shows the group statistics for the predictor used for the two groups. The table only shows the significant composites. It is worth noticing that when applying DA, some predictors did not record a significant effect. These predictors included the highest level of education of the retiree, degree of income changes from last year, self-rated health, satisfaction with environmental issues (drinking water, area of residence, noise and pollution), importance of general social values; importance of self-related social values; satisfaction with infrastructure, and satisfaction with private health care.

The means for all variables in the happy group are higher than those for the not-so-happy retires. There are also inconsistent differences regarding the standard deviations for the two groups. The not-so-happy group reported higher standard deviations with most predictors (Table 3). The happy group registered higher standard deviations for four predictors only—housing satisfaction, feeling of safety, satisfaction with relations with others, and satisfaction with government

Table 3. Means for the two groups.

Predictors	Wilks' Lambda	F	Sig.	Happy		Not-so-happy	
				Mean	Standard deviation	Mean	Standard deviation
Housing satisfaction	0.950	34.843	0.001	3.5053	1.05669	3.0068	1.12142
Income satisfaction	0.915	61.919	0.001	2.2959	0.96765	1.7601	0.74199
Subjective mental health	0.891	81.338	0.001	3.3295	0.74418	2.8201	0.70256
Feelings of Safety	0.902	72.942	0.001	4.6197	0.52697	4.2111	0.71052
Satisfaction with relationships with family/friends	0.861	108.147	0.001	4.2914	0.66153	3.6791	0.86261
Trust (health system, education system, media, police, and courts)	0.885	86.878	0.001	4.0733	0.72908	3.5142	0.82096
Satisfaction with current surrounding environment (water, area, noise)	0.971	19.601	0.001	3.0873	1.06258	2.7309	0.99906
Satisfaction with MUST services (health and education)	0.929	51.328	0.001	3.9826	0.92353	3.4578	0.96414
Satisfaction with services for vulnerable groups (seniors, people with disabilities, and for women)	0.941	41.616	0.001	4.1854	0.93906	3.6892	1.04812
Satisfaction with public infrastructure	0.914	62.560	0.001	4.0339	0.72410	3.5800	0.75450
Satisfaction with private health (hospitals, clinics, quality, cost)	0.946	38.500	0.001	3.7052	0.96669	3.2264	1.02318
Subjective life satisfaction	0.685	306.982	0.001	8.0695	2.24516	4.8514	2.49980

health care. Wilks' Lambda is statistically significant for the following predictors (according to significance): P12—Subjective life satisfaction; P5—Satisfaction with relationships with family and friends; P2—Income satisfaction; P9—Satisfaction with services for vulnerable groups; P6—Trust in public institutions (health system, education system, media, police, and courts); P3—Subjective mental health; P7—Satisfaction with the current surrounding environment; P4—Feelings of safety; P1—Housing satisfaction; P11—Satisfaction with social investments in Abu Dhabi; P10—Satisfaction with government health care; P8—Satisfaction with health and education services.

In DA, the log determinants for each group and the pooled-within-groups should not be too different. The log determinants for the three groups are −8.944, −7.321, and −6.788 respectively. The values are rather similar. Box's M tests the null hypothesis of equal population covariance matrices. Its historical value is 281.186 and significance at only 0.584. This outcome leads us to conclude that we fail to reject the null hypothesis of equal population covariance matrices. To reject the null hypothesis, the significance has to be below 0.001.

If we look at the summary of canonical discriminant functions, the larger the eigenvalue, the more variance the functions explain. The recorded canonical

correlation is 0.892, which is relatively high. We square the canonical correlation value to calculate the effect size, which leads to an acceptable value of 0.796. Wilks' Lambda is 0.566) with a Chi-square of 46.974 with 12 degrees of freedom. It reflects how well the prediction model fits. In our case, with these values, the prediction model is statistically significant (0.001).

The structure matrix (Table 4) reflects the importance of each variable as a predictor. They also portray the worst predictors in the model. It reflects the pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions where variables are ordered by the absolute size of correlation within function variables. Results show some consistency between predictors' strength in the structure matrix and the standardized canonical discriminant coefficients. We should also know that no value in the structure matrix should be below 0.3.

The DA also produces the Canonical Discriminant Function Coefficients (Table 5), reflecting the unstandardized coefficients. These values would go into the discriminant function equations. Then we have the Functions at Group Centroids, the mean unstandardized canonical discriminant functions evaluated at group means. The Fisher's linear discriminant function score for the happy group is 0.780 and −0.960 for the not-so-happy group.

Based on the equation or predictors, the hit rate or prediction of group membership is how model output compares with actual group memberships. In DA, it shows the sensitivity and specificity. Here we look for the predicted group membership to be accurate. Even though there are no proper acceptance levels for accurate prediction, we aim to achieve a high accuracy rate of correct predictions. We note that in the original group, around 91.89% were classified successfully. In other words, 91.89% is the sensitivity. High sensitivity means that

Table 4. The structure matrix coefficients and the SCDF coefficients.

Predictors	Structural matrix	Standardized canonical discriminant function
Subjective life satisfaction (LIFESAT)	0.897	0.728
Satisfaction with relationships with family/friends (RELATION)	0.532	0.308
Satisfaction with services for vulnerable groups (SATSSOC3)	0.477	0.275
Income satisfaction (INCOME1)	0.462	0.125
Trust (health system, education system, media, police, and courts (TRUST1)	0.437	0.111
Subjective mental health (MENTAL)	0.405	0.105
Satisfaction with current surrounding environment (SAT2)	0.403	0.105
Satisfaction with MUST services (health and education) (SATSSOC1)	0.367	−0.044
Feelings of (Safety) in Abu Dhabi (SAFETY)	0.330	−0.044
Satisfaction with private health (hospitals, clinics, quality, cost)	0.318	−0.003
Housing satisfaction (HOUSING)	0.302	−0.075
Satisfaction with social investments (SOSINVST)	0.301	−0.039

Table 5. The classification function coefficients (for each group).

Predictors	Happy	Not-so-happy
Subjective life satisfaction	−0.168	−0.637
Satisfaction with relationships with family/friends	3.386	3.128
Satisfaction with services for vulnerable groups	0.848	0.809
Income satisfaction	0.701	0.519
Trust (health system, education system, media, police, and courts)	1.640	1.099
Subjective mental health	3.512	3.292
Satisfaction with current surrounding environment	−0.013	0.044
Satisfaction with MUST services (health and education)	−0.332	−0.262
Feelings of (Safety) in Abu Dhabi	8.517	8.209
Satisfaction with private health (hospitals, clinics, quality, cost)	0.336	0.340
Housing satisfaction	0.664	0.768
Satisfaction with social investment	2.281	2.064
(Constant)	−44.312	−35.839

there are few false negatives. In general, for the happy group, 92.71% were correctly classified. For the not-so-happy group, 91.25% were correctly classified.

Since DA did not include any categorical data as predictors, further analysis also included performing ANOVA of the different categories of retirees. Table 6 shows the results. No significant differences are observed regarding nationality (being a UAE citizen or not), gender, educational attainment, place of residence, income class, and having disability or not. However, marital status and whether family living with you in Abu Dhabi or not report significant differences. The married reported the highest happiness score, while the separated reported the lowest score. For those retired but still living with their families, their happiness score is 7.29, while those living away from their families score only 5.79.

4. Discussions

The primary goal of this study is to identify fundamental discriminating differences between the happy and the not-so-happy retirees in Abu Dhabi when it comes to well-being predictors. The DA model enjoyed a relatively high prediction percentage discriminating between the happy and not-so-happy retirees in Abu Dhabi. Twelve composites of well-being were shown as determinants of being happy or not-so happy. These well-being composites included subjective life satisfaction, satisfaction with relationships with family/friends, satisfaction with services for vulnerable groups, income satisfaction, trust in public institutions, subjective mental health, satisfaction with the current surrounding environment, satisfaction with essential services such as health and education, feeling of safety, satisfaction with the public health facilities, housing satisfaction, and satisfaction with social investment. On the other hand, we did not establish

Table 6. ANOVA results and significance (happy and not-so-happy).

Variable	F	Significance	Categories
Nationality	2.091	0.148	Not significant
Gender	0.343	0.555	Not significant
Education	0.034	0.855	Not significant
Place of residence	1.052	0.305	Not significant
Income class	0.684	0.409	Not significant
Having disability or not	0.054	0.817	Not significant
Marital status	4.520	0.034	Married (7.31), single (6.15), divorced (6.67), separated (5.6), widow (7.25)
Family lives with you or not	5.011	0.025	Yes (7.29), No (5.79)

any significant contributions with some other well-being composites. Further studies are necessary to confirm retirees' well-being priorities for improved social policies with a view to raising the happiness of retirees in Abu Dhabi.

It is fair to reflect that life satisfaction is of particular importance for the happiness of retirees. As shown in this study, life satisfaction enjoyed the highest weight among the predictors of group membership. Results support the literature on how retirement is one significant life event associated with people's life satisfaction (Hershey & Henkens, 2014; Van Solinge & Henkens, 2008). Some analysts went further and established some causal effects of certain well-being features of retirement on life satisfaction (Bonsang & Klein, 2012; Gorry et al., 2015).

Social relations and connections constituted the second highest contributor to the group identification of being happy or not-so-happy. This result is consistent with Mongilner's (2009) findings which suggested the significance of social relationships and social support, as they associate with higher happiness levels for retirees. This result is also consistent with others that argue that social policy-makers should give social relations specific attention in the life of retirees to enhance their happiness (Hogstel et al., 2001).

Most international research focuses on income as a significant contributor to retiree happiness. In this present study, has its vital share in recognizing the retiree happiness groups. This specific result is in line with many international findings that explain its association with happiness (Diener & Biswas-Diener, 2002; Diener & Seligman, 2004; Johnson & Krueger, 2006; Lyubomirsky, 2007; North et al., 2008; Sener et al., 2007; Van Solinge & Henkens, 2008).

Housing satisfaction and satisfaction with the living environment presented themselves as a significant predictor for the two groups of retirees. Other research also outlined the important role of housing and the living environment for the happiness of older people and retirees (Bohle et al., 2014; Hanif et al., 2018; Jia & Heath, 2016; Mulliner et al., 2020; Yen et al., 2009). Therefore, this

study produced evidence to support arguments that the management of facilities in the surrounding living environment plays a role in the life experience of retirees and that offering more attractive living facilities and built environments helps retirees to enjoy their retirement life (Chiu et al., 2003; Costa-Font, 2013; Munnell & Sass, 2008; Oswald & Wahl, 2004; Panis, 2004; Rojo-Pérez et al., 2007).

Another significant result of this study is to find that subjective mental health is a significant predictor of retirees' happiness. This result is in line with other studies that gave extreme importance to mental health and its association with happiness (Heybroek et al., 2015; Lei & Liu, 2018; Schünemann et al., 2017; Seaward, 2017; Van Solinge, 2013). Interestingly, subjective physical health did not show any significance as a predictor of being happy or not-so-happy. Bearing in mind the often mixed empirical results on the association between retirement and health or mental health (Minkler, 1981; van der Heide et al., 2013), the current Abu Dhabi study suggests that believe that retirement as a significant life change could invoke powerful mental feelings that affect overall happiness (Bossé et al., 1991; Holmes & Rahe, 1967).

Feeling safe also presented as a significant predictor of belonging to the happy group or the not-so-happy group. This result is again consistent with the findings of some studies (França, 2004; Requena, 2016; Santos et al., 2013). In addition, several other composite variables reflected almost similar impacts on the general happiness of retirees. They reflected significance as predictors of some essential social services.

5. Conclusion

As the analysis of this study identified significant and non-significant relationships between the happy and the not-so-happy retiree groups, it confirmed the importance of social connection, social support, economic situations, mental health assessment in analyzing the happiness of retirees in Abu Dhabi. The results of this study, thus, give policy-makers an informed opinion of retirees in Abu Dhabi and point to the importance of reevaluating public social policies in Abu Dhabi to enhance the percentage of happy retirees. While public policies should touch all aspects of retirees' quality of life conditions, it is recommended that policies and actions that deal with the main predictors of happiness be prioritized.

Understanding the profile and needs of happy retirees would mean transforming the theme for Abu Dhabi and require policy-makers to seek opportunities that enhance these related well-being factors. Designing and planning specific enriching services may promote the living conditions of retirees. The research enforces the notion that policymakers in specific public and social sector play a strategic role in retirees' happiness in Abu Dhabi. The current research identified some specific services that public policies need to focus on, i.e., high-quality housing, social support services, income support, safety and securi-

ty, healthcare, education, and built environmental facilities and services. Policy-makers in Abu Dhabi have the strategic responsibility of preparing the emirates for active aging. Such responsibilities include turning the city into an age-friendly community. The efforts and plans should also focus on preventing problems faced by vulnerable groups of citizens such as the elderlies and retirees. Some of these actions must include creation and adaptation involving multiple sectors or domains, such as health, education, safety, work, justice, housing, transportation, technologies, culture and values.

This study has some limitations that we need to address. One limitation is the absence of a variable that reflects the latency period between retirement and work. It is crucial to investigate the difference between retirees who stay retired and who return to the labor market after a period of retirement. Another limitation has to do with considering other factors of retirees' happiness that were not included in the QoL survey. Such variables might cover personal characteristics and traits such as optimism and resiliency, as suggested by some researchers (i.e., Kubicek et al., 2011; Lyubomirsky, 2001). We could also look closer at the structural constructs of relationships for retirees. The structural view might enrich our understanding of the direct and indirect associations between retirees' various well-being determinants. More longitudinal studies might explain how the changes in well-being factors, retirement resources, and personal characteristics could influence retirees' happiness.

Future research should consider expanding the geographic scope of retirees to include the whole UAE. Such focus could provide more generality of results. Future research could further investigate the effect of living regions on retirees' well-being. Additionally, specific research could focus on factors that promote the belongingness of non-Emiratis. Growing older is inevitable and retirement is a way of life. Understanding the factors that help retirees maintain life engagement can reflect a positive and lasting impact on themselves and society. More specifically for Abu Dhabi, this study calls researchers to continue exploring ways to help retirees age well while enjoying their well-being.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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