Personality Characteristics and Interpersonal Relationship Skills in Human Aging

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ABSTRACT – This longitudinal study aimed to assess personality characteristics and interpersonal relationship skills over time. The participants were 20 trade workers, non-patients, between 18 and 56 years old, who answered a sociodemographic questionnaire, the Social Skills Inventory (SSI2-Del Prette), and Zulliger in the Comprehensive System (ZSC). The first assessment (Test) took place between 2009 and 2019; the second (Retest) in 2021 (M=7.7 years; SD=3.8). No statistically significant differences (ANOVA) were evidenced in the assessed personality characteristics (ICC 0.40 to 0.81) and the interpersonal relationship skills remained good and excellent. The study contributes to a broader understanding of personality aspects and relational skills in human aging.

KEYWORDS: psychological assessment, Zulliger Z Test, projective personality measures, social skills, longitudinal studies

Características de Personalidade e Habilidades de Relacionamento Interpessoal no Envelhecimento Humano

RESUMO – Este estudo de delineamento longitudinal objetivou avaliar as características de personalidade e as habilidades de relacionamento interpessoal ao longo do tempo. Participaram 20 trabalhadores do comércio, não pacientes, de 18 a 56 anos de idade, que responderam a um questionário de dados sociodemográficos, Inventário de Habilidades Sociais (IHS2-Del Prette) e Zulliger no Sistema Compreensivo (ZSC). A primeira avaliação (Teste) ocorreu de 2009 a 2019; a segunda avaliação (Reteste) ocorreu em 2021 (M=7,7 anos; DP=3,8). Não se evidenciou diferenças estatísticas significativas (ANOVA) nas características de personalidade avaliadas (ICC 0,40 a 0,81) e as habilidades de relacionamento interpessoal se mantiveram boas e excelentes. O estudo contribui para ampliar a compreensão de aspectos de personalidade e das habilidades relacionais no envelhecimento humano.

PALAVRAS-CHAVE: avaliação psicológica, teste de Zulliger, medidas projetivas da personalidade, habilidades sociais, estudos longitudinais

In May 2020, the UN General Assembly declared 2021-2030 the Decade for Healthy Aging. In this global initiative, the elderly populations are at the center of the plan, which joins governments, civil society, international agencies, professionals, academics, media, and private sectors to improve the lives of these populations and their families, as well as carry out preventive actions in all age groups, highlighting the value of each in the construction of the others (WHO & PAHO, 2021).

These series of experiences cover the health and development of individuals and populations. Therefore, studies focused on aging have focused on maintaining health and maximizing the positive aspects, such as the development of interpersonal relationships, social skills, and psychological resources (Bartholomaeus et al., 2019; Chnaider & Nakano, 2021; Finkenzeller et al., 2019; Park & Hess, 2019; Perreault et al., 2020; Queluz et al., 2019). Hence, the development of interventions aimed at promoting healthy aging, based on the enhancement of psychological resources, opens a wide field of research for psychology (Chnaider & Nakano, 2021; Del Prette et al., 2021; Ingrand et al., 2018; Mathieu et al., 2019). In health conditions, summarized data from longitudinal empirical studies confirm that: a) personality trait differences are stable among adults; b) these differences

tend to stabilize during adolescence and young adulthood; c) personality tends to change in the direction of greater maturity as people age. Still, changes are more prominent when people experience different contexts (Bleidorn et al., 2022; Perreault et al., 2020; Wrzus et al., 2023).

Highlights the study of Perreault et al. (2020), which examined the longitudinal association between employment status and psychological distress, controlling for the effect of initial psychological distress, coping skills, social support, and stressful events. In 2009, residents from southwest Montréal responded to a randomized household survey for adults. Follow-up surveys were conducted in 2011 and 2013 (n = 1168). Participants between 18 to 64 years old completed a questionnaire and Psychological distress K-10 scale. Results suggest initial psychological distress as a risk factor for becoming unemployed. In another longitudinal multimethod study, Wrzus et al., (2023), examined whether age differences in Big Five trait changes are less pronounced when younger and older people experience similar context conditions. The sample of 241 adults consisted of older students ($M = 67.5$ years), older age and education-matched nonstudents ($M = 67.7$ years), and young students ($M = 21.1$ years). Obtained self-ratings, other-ratings, and implicit measures of Big Five traits at four-time points over 2 years. The results replicated increases in self-ratings of emotional stability, open-mindedness, extraversion, and conscientiousness in young first-year students at college.

Change would be less pronounced when younger and older people experienced a similar context. In contrast, the same age was assumed to change in their personality traits when they experienced different contexts. Psychological assessment, universally used for all age groups, has an ethical and social role to play by addressing issues from diverse contexts, situations, and populations, when based on instruments that ensure their psychometric properties with evidence-based validity and reliability (Bornstein, 2017; CFP, 2022; Schneider et al., 2020; Wechsler et al., 2019). Thus, the Zulliger test has demonstrated its utility in answering questions from diverse psychological assessment contexts, especially in investigating the structure, personality dynamics, interpersonal relationship characteristics, and internal resources individuals must face in their problems (Villemor-Amaral & Primi, 2009).

Articles published in scientific journals present research results using the Zulliger. The studies were conducted with individuals of all age groups, in different contexts (Cardoso et al., 2018), investigating temporal stability (Villemor et al., 2009), the improvement of the instrument for optimizing the number of responses (range from 9 to 15 responses) (Gonçalves & Villemor-Amaral, 2020; Seitl et al., 2018; Villemor-Amaral & Gomes, 2020), relationship and social skills (Grazziotin & Scortegagna, 2013, 2018) and aspects of human aging (Grazziotin & Scortegagna 2021a, 2021b).

Villemor-Amaral et al. (2009) conducted a test-retest study with a five-month interval. The participants were 25 male non-patient subjects among the 16 Zulliger indicators selected, 10 presented satisfactory accuracy indices, ranging between 0.60 and 0.99. The variables (R, S, D, Dd, C, H, and Hd) obtained correlation coefficients superior to 0.80 (high stability). Other variables [M, (H), Hd] scored correlation coefficients between 0.60 and 0.80 (moderate to high stability). The variables [H:(H)+(Hd)+Hd, W and CF] showed correlation coefficients between 0.40 and 0.60 and FC presented 0.38 (low stability).

Concerned with understanding cognitive changes in human aging, Grazziotin and Scortegagna (2021a) conducted a study with a cross-sectional design of validity of the Zulliger to evaluate the association between cognition and external variables (age, education level, and socioeconomic status). Participated 142 subjects, aged between 18 and 96 years old. The authors found no differences between the groups of adults aged 18 to 59 years. However, education and socioeconomic status demonstrated significant and positive correlations with cognitive processes (R, ZF, W, M, DQ+, and Intellectualization). Ideally, longitudinal studies were suggested and addressed other variables.

Using a qualitative longitudinal (test–retest) design, Grazziotin e Scortegagna (2022) checked the individuals' personality characteristics over 10 years (2009-2019 of four trade workers, between 18 and 52 years of age. The analyses considered the interpretative differences of 59 ZSC variables between the first (2009) and second (2019) applications, the interview data, and the IHS2-Del-Prette. The result demonstrated temporal stability for most (70%) of the variables of the ZSC after 10 years of testing and contemplated the main interpretative findings. In general, there was a slight increase in productivity (R), introspection (FD), and the repertoire of social skills (IHS2), regarding the individuals' personality characteristics and emotional state. However, there is a lack of longitudinal studies using valid instruments for personality assessment, permitting a deeper understanding of the relationships between cause and effect of the observed variables and how stable the evaluated personality characteristics are over time (Bleidorn et al., 2022; Cohen et al., 2014; Grazziotin & Scortegagna 2021a, 2022; Hulley et al., 2015; Wrzus et al., 2023). More specifically with the Zulliger test, studies are rare (Grazziotin & Scortegagna, 2022). Considering that mental resources and control in coping with stressful events and situations, interpersonal relationships and social skills usually play a preventive role in individuals' mental health and well-being in human aging (Chnaider & Nakano, 2021; Mathieu et al., 2019; Perreault et al., 2020; Queluz et al., 2019); this study sought to evaluate personality characteristics and interpersonal relationship skills over time.

METHOD

Participants

The study included 20 individuals between 18 and 56 years of age, 13 male and 07 female, with complete primary and secondary education, engaged in food retail activities in a city in the interior of the state of Rio Grande do Sul, Brazil. The participants remained affiliated with the same establishment since the start of data collection. From July 2009 to August 2019, the procedures of the first psychological assessment were carried out and, from March to July 2021, the second assessment. Of the 20 people, 70% (n=14) of the sample was evaluated in 2013, the other individuals were from previous years (2009, 2011, and 2012) and subsequent years (2017 and 2019). Inclusion criteria for the second assessment (2021) – Participants had answered: 1) the sociodemographic data characterization form; 2) the Zulliger Test (ZCS); 3) the social skills inventory SSI; 4) periodic medical and psychological examinations, being considered fit to work and engage in trade activities according to the Occupational Health Medical Control Program-PCMSO (*Ministério do Trabalho*, 2018); 5) continued working in the same company since the first application of the instruments; 6) the test-retest intervals were greater than or equal to 2 years; 7) considering the first and second evaluation, should be at least 18 years old and at most 59 years old. The exclusion criteria were individuals who at the time of data collection were on leave from occupational activities, as declared by a medical certificate, reports due to health or gestational problems were excluded from participation in this study. The sample of this longitudinal study comes from a database and extends to the development of a doctoral thesis. Originally, it totaled 115 Brazilian adults aged 18 and over who worked in different locations of the company. For convenience, 20 individuals participated (around 25% of the database), all professional attendants from a central food retail unit. The total of the current sample was the result of the complexity of the instrument used (Zulliger), the objectives of this study, the inclusion and exclusion criteria, and the protective measures against COVID-19.

Instruments

The following instruments and psychological tests were used:

a. The sociodemographic data questionnaire consists of 16 questions, aiming to verify the inclusion or exclusion criteria and to obtain information from the sample about age, gender, marital status, education, occupation, income in minimum wages (referring to the data collection period), and health conditions.

b. Social skills inventory (SSI 2; Del Prette & Del Prette, 2018): Version updated from SSI-Del Prette (Del Prette et al., 2021), which follows the same 38 items as the previous version. The SSI 2-Del Prette was updated with a sample of 4,250 respondents, with a broad age range from 18 to 59 years, divided into two age groups: from 18 to 38 years and from 39 to 59 years, and minimally with complete elementary school. This tool is easy to use and is intended to characterize social performance in different situations (work, school, family, and daily situations), permitting its use in clinical practice, education, staff selection, and professional training. Through the obtained data, deficits and resources can be identified in social skills that require: 1) starting a conversation, refusing abusive requests; 2) sexual-affective expression resources such as: declaring loving feelings; 3) dealing with demands of positive affection such as: expressing affection; 4) dealing with situations that require self-control, such as: expressing displeasure; 5) presenting skills that express "social savviness", such as: asking questions to acquaintances or greeting strangers.

In its application, the respondent is asked to mark how often he reacts to situations described in the items, according to a Likert scale ranging from 0 (never or rarely) to 4 (always or almost always). The tool has the following general score and factorial structure: a) Factor 1 (F1): Assertive conversation; b) Factor 2 (F2): Sexual affective approach; C) Factor 3 (F3): Expression of positive feeling; D) Factor 4 (F4): Self-control coping; E) Factor 5 (F5): Social resourcefulness. All factors have satisfactory and high-reliability indicators (Cronbach's alpha between 0.774 and 0.934). The correction is computerized, and the variables are quantitative and continuous.

c. Zulliger Test in the Comprehensive System (ZSC; Villemor-Amaral & Primi, 2009): The instrument consists of three cards containing the drawing of a symmetrical and different inkblot, for each of them. The inkblots have biased and incomplete characteristics that stimulate the person to shape the stimulus and make it possible to interpret the personality dynamics (number of responses, location, development quality, determinants, formal Quality, peer, contents, popularity, special codes, Z Note, reasons and proportions).

The Zulliger test can be administered to people able to express themselves verbally and with sufficient visual acuity, of any socioeconomic and cultural level. The application was standardized, in which the person was free to provide the number of answers to each card. The administration takes place in two stages: first, the participants respond as to what the inkblots seem to them. Then, they are asked where they saw their answer on the card, and what gave them the idea of what was seen.

In the interpretation of the structure and dynamic functioning of personality and cognitive processes, the 07 clusters of variables are considered, which are: Resources and control, affect, relationship, self-image, cognitive processing, mediation, and ideation. The following clusters of variables were selected for this study:

Resources and Control: R (number of responses), F% (pure form), EA (effective experience), EB (types of experience), es (stimulation felt), Adjes (adjusted es), D-score (degree of control and tolerance to stress), AdjD (adjusted D-score), FM (animal movement), m (inanimate movement), Sum Y (sum of diffuse shading), Sum C´ (Sum of achromatic color), Sum V (sum of vista shading responses), Sum T (sum of texture shading), eb (experience base) in which FM+m (sum of animal movement + inanimate movement) and SumC´+T+V+Y (Sum of achromatic color + Texture + vista + diffuse shading responses). Added: WSumC (weighted sum of color responses); M (human movement).

Relationship: COP (cooperative movement), AG (aggressive movement), GHR (good human representation), PHR (poor human representation), GPHR (proportion between GHR and PHR), FD (food or eating), SumY (sum of texture shading), SumH (sum of responses of human contents), H puro (pure human), PER (customized responses), isolate (isolation), a:p (proportion between active and passive movement).

Procedures

Data collection: After the University's Research Ethics Committee had approved the project, data collection began. The participants were then scheduled for the retest at their convenience, in a specially designated place, considering the confidentiality of the data and respecting all preventive health measures related to the COVID-19 pandemic (CFP, 2020).

After signing the Free and Informed Consent Term (ICF), rapport was performed and, next, for the second application of the tests/instruments (retest), participants answered the same instruments and administration forms used in the first application (Test), in the following order: sociodemographic data questionnaire (to verify the sample characteristics), the SSI 2 Del Prette and then, the ZSC, within an estimated time of 1 hour. The main author of this study performed the first and second application/test-retest

and discussed the encodings of the ZSC protocols with the second author.

Data analysis: The analyses were performed using SPSS 27.0 for Windows. Categorical variables were expressed as absolute and relative frequency and numerical variables as mean and standard deviation. All variables were tested using analysis of variance (ANOVA) models, in which the time effect (Test vs retest) was specified as the intra-subject effect and the time effect between the two measures as covariate. The normality of the variables was verified using the Kolmogorov-Smirnov test. The differences between the test and retest for wage were verified using the paired t-test. In SSI 2 – Del Prette, the differences between the scores were verified using Wilcoxon's nonparametric test.

The ZSC test and retest protocols were drawn (25%) and sent for recoding by an independent judge, resulting in the analysis of the intraclass coefficient (ICC – two-factor mixed model, absolute agreement type, 95% confidence interval). The interpretation of these results followed the recommendations by Cicchetti (1994), considering excellent results to be ICC ≥ 0.75, good results 0.60 ≤ ICC < 0.75, reasonable results 0.40 ≤ ICC ≤ 0.59, and poor results ICC < 0.40. The ICC analyses for the variables in this study ranged from 0.77 to 1.00, considered excellent. Being: M (1.00), FM (0.93), m (0.94), SumC (0.92), Sum C´ (0.95), SumT (0.77), SumV (0.77), Sum Y (0.77), F (0.95), COP (1.00), GHR (0.81), Food (0.88), AG (0.91), sum H (0.97), H puro (0.98), Na (1.00), Ls (0.83), Bt (0.96), PER (0.97), PHR (0.86).

Regarding the analysis of the ZSC between the test and retest, it was first verified whether the time effect significantly affected the progression of the variables. Then, the differences between all variables (n=32) were tested using variance analysis models (ANOVA). Subsequently, the agreement between the values obtained in the test and retest was evaluated using the intra-class reliability coefficient (ICC), consistency type, specifying the measurement and subject effects as random, and considering the coefficients corresponding to a single measure. Mean differences and intraclass correlation coefficients were displayed with 95% confidence intervals.

Ethical Considerations. Approval for the study was obtained from the Research Ethics Committee at University Passo Fundo, under opinion (4.586.111). Complies with National Health Council resolution 510/2016 and Federal Council of Psychology resolution 09/2018.

RESULTS

The application time did not significantly affect the progression of the variables (ANOVA) and the mean time between the assessments was 7.7 years (SD=3.8). Regarding sociodemographic variables, 07 (35%) of the 20 participants were female, and 13 (65.0%) were male. In the first evaluation, ages between 18 and 44 years, in the second

evaluation, ages between 20 and 56 years. The mean age at the first assessment was 30.5 years (*SD* = 8.6) and, at the second, 38.2 years (*SD*=10.7). Education at both the first and second assessments was 10.8 years (*SD*=2.4). The wage received in the test was 1.9 (*SD*= 1.1) minimum wage and, in the retest, 3.1 (*SD*= 0.57) minimum wage. Next, Table 1

presents the results of the test and retest and the analysis of the differences in the variables representing the social skills (Wilcoxon test) and wage (paired t-test).

Table 1 shows that the individuals presented a good general repertoire of social skills (SSI2) in the test, with a significant increase in the retest, indicating an elaborate repertoire. Notably, there was a significant difference in assertive conversation (F1), which went from a lower to a good repertoire. Another difference was observed in terms of wages, which went from 1.9 to 3.01 minimum wages (in force when the first and second evaluations were carried out). Next, Table 2 presents the results of the test and the

Table 1
Social Skills Inventory in the test and retest and wages (N=20).

	Test (n=20)	Retest (n=20)	p
SSI2 –Del Prette GS-General Score	65.3 (22.0 – 83.0)	71.5 (51.6 – 77.9)	0.040*
F1	28.0 (14.3 – 63.0)	47.8 (33.0 – 62.9)	0.020*
F2	77.8 (53.0 – 77.7)	68.0 (55.4 – 82.5)	0.133
F3	87.0 (40.3 – 98.0)	75.3 (54.1- 87.5)	0.069
F4	47.5 (32.5 – 75.0)	45.3 (32.6 – 66.3)	0.950
F5	67.5 (53.8 – 77.5)	67.5 (62.5 – 77.5)	0.484
Obs.: Scores express median (percentile25-percentile75).			
Minimum Wage	*1.9 (1.14)*	*3.01 (0.57)*	*t = 8.43 p= 0.001*

Note * Significant p ≤ 0.05.
SSI2-Del-Prette: Variables General score; F1: Assertive conversation; F2: Sexual-affective approach; F3: Expression of positive feeling; F4: Self-control coping; F5: Social resourcefulness.

Table 2
Differences and concordances of the variables in the cluster Resources and Control in Zulliger test and retest

Variables Resources and Control	Test (n=20)		Retest (n=20)		Difference (95% CI)	ANOVA p	ICC (95% difference)
	M	**SD**	**M**	**SD**			
R	9.25	1.50	10.05	2.35	-0.80 (-1.66- 0.06)	0.067	0.56 (0.17 – 0.80)
F%	45.04	17.04	45.57	10.20	0.53 (-7.70–6.70)	0.217	0.41 (-0.03–0.72)
EA	2.17	1.06	2.60	1.52	-0.16 (-0.65–0.35)	0.538	0.63 (0.27–0.84)
EB	-0.62	1.20	-0.48	1.33	-0.05 (-0.16–0.06)	0.339	0.62 (0.26–0.83)
FM+m	1.55	1.43	1.55	1.10	-0.43 (-0.97–0.12)	0.118	0.77 (0.51–0.90)
SumC´+T+V+Y	1.25	1.21	1.05	1.23	0.20 (-0.41–0.41)	1.000	0.66 (0.32–0.85)
Es	2.90	2.25	2.55	2.50	0.20 (-0.29–0.69)	0.396	0.70 (0.38–0.870
D-Score	-0.80	2.77	-0.17	2.50	0.35 (-0.38–1.08)	0.329	0.74 (0.44–0.89)
Adjes	1.75	1.99	1.93	1.62	-0.63 (-1.55–0.30)	0.175	0.59 (0.21–0.82)
AdjD	0.00	2.36	0.60	2.61	-0.18 (-0.97–0.62)	0.650	0.76 (0.49–0.90)
M	0.75	0.91	1.05	0.94	-0.35 (-1.17–0.47)	0.379	0.75 (0.47–0.89)
FM	1.05	1.10	1.20	1.24	-0.30 (-0.61-0.01)	0.057	0.84 (0.63–0.93)
M	0.55	0.76	0.40	0.68	0.15 (-0.47-0.17)	0.343	0.47 (0.04–0.75)
WSumC	1.30	0.80	1.28	0.79	-0.15 (-0.47–0.17)	0.335	0.81 (-0.57–0.92)
SumC´	0.40	0.50	0.55	0.60	0.20 (-0.10–0.50)	0.174	0.27 (-0.18–0.63)
SumT	0.35	0.59	0.25	0.72	0.03 (-0.22–0.27)	0.830	0.52 (0.11–0.78)
SumV	0.20	0.41	0.15	0.49	0.10 (-0.21–0.41)	0.505	0.10 (-0.35–0.51)
SumY	0.40	0.60	0.15	0.37	0.05(-0.25--0.34)	0.720	0.39 (-0.06–0.70)

Note; * Difference adjusted for the time between test and retest. Positive rates demonstrate that the Test result was higher and negative rates mean that the Retest result was higher. Significant p ≤ 0.05.
Zulliger Variables Resources and Control: R (number of responses), F% (pure form), EA (effective experience), EB (types of experience), es (stimulation felt), Adjes (adjusted es), D-score (degree of control and tolerance to stress), AdjD (adjusted D-score), FM (animal movement), m (inanimate movement), Sum Y (sum of diffuse shading), Sum C´(Sum of achromatic color), Sum V (sum of vista shading responses), Sum T (sum of texture shading), eb (experience base) = FM+m (sum of animal movement + inanimate movement): SumC´+T+V+Y (Sum of achromatic color + Texture + vista + diffuse shading responses). Added: WSum C (weighted sum of color responses); M (human movement).

analyses of the differences (ANOVA) and agreement (ICC) of the ZSC variables related to personality characteristics, resources and control, and tolerance to stress.

In Table 2, it can be observed that the test and retest results for personality characteristics, resource and control, and stress tolerance of the ZSC showed no significant differences. The average of responses was within an optimized range. With these first results at hand, the agreement between the values found in the test and retest was verified. As shown, the variables in this cluster demonstrated different agreement levels.

Most of the variables in the characteristics of resources and control, when confronted with stressful situations, ranged between excellent and reasonable agreement (ICC 0.40 to 0.81) over time. Agreement levels were as follows: excellent (ICC ≥ 0.75; FM+m, AdjD, M, FM, WSumC; n= 5); high (ICC ≥ 0.70; es, D-score; n= 2); good (0.60 ≤ ICC < 0.70; EA, EB, SumC′+T+V+Y; n=3); Reasonable (0.40 ≤ ICC ≤ 0.59; R, F%, Adjes, m; n=4). Some variables presented poor

agreement (ICC < 0.40; SumC, SumV, Sum y; n= 3). Next, Table 3 presents the results of the test and retest and the analyses of the differences (ANOVA) and agreement (ICC) of the ZSC variables related to personality characteristics in terms of interpersonal relationships.

Table 3 shows that the ZSC variables that represent personality characteristics regarding interpersonal relationships did not show significant differences between the test and retest results. Based on these results, agreement was verified between the values obtained in the test and retest. As shown, the variables in this cluster demonstrated different agreement levels. Most of the variables in this cluster showed reasonable agreement (ICC 0.42 to 0.52). Agreement levels were as follows: high (ICC ≥ 0.70; COP, p; n=2); good (0.60% ≤ ICC < 0.70; GHR, Food, a: p, a; n=4); reasonable (0.40% ≤ ICC < 0.59; *AG,* GPHR, SumT, Sum H, H puro, Isolate, PER; n= 7) and poor (ICC < 0.40; PHR; n=1).

Table 3

Differences and concordances of the variables of the relationship cluster in Zulliger test and retest

ZSC variables	Test		Retest		Difference*	ANOVA	ICC
relationship	M	SD	M	SD	(95% CI)	p	(95% difference)
COP	0.30	0.47	0.50	0.61	-0.25 (-0.54–0.04)	0.084	0.71 (0.41–0.88)
AG	0.35	0.59	0.60	0.68	-0.10 (-0.31–0.11)	0.326	0.50 (0.08–0.76)
GHR	0.90	0.73	1.20	0.89	-0.20 (-0.40–0.01)	0.326	0.65 (0.30–0.84)
PHR	0.75	0.83	0.65	0.75	-0.50 (-0.83–0.17)	0.117	0.33 (-0.12–0.67)
GPHR	0.15	1.23	0.45	1.15	-0.10 (-0.51–0.31)	0.610	0.44 (0.01–0.73)
Food	0.20	0.40	0.10	0.31	0.05 (-0.14–0.24)	0.582	0.64 (0.29–0.84)
SumT	0.35	0.59	0.25	0.72	0.03 (-0.22–0.27)	0.830	0.52 (0.11–0.78)
SumH	1.20	1.00	1.55	1.23	-0.10 (-0.34–0.14)	0.397	0.53 (0.13–0.78)
H Puro	0.65	0.67	0.90	0.79	0.15 (-0.25–0.55)	0.444	0.52 (0.11–0.78)
Isolate	2.45	1.43	2.35	1.73	0.05 (-0.22–0.32)	0.704	0.42 (-0.02–0.72)
PER	0.45	0.69	0.45	0.76	0.05 (-0.05–0.15)	0.311	0.50 (0.08–0.77)
a	1.15	1.04	1.35	1.04	0.18 (-0.59-0.19)	0.297	0.67 (0.34-0.85)
p	1.30	1.55	1.35	1.22	0.22 (-0.51-0.41)	0.827	0,74 (0.46-0.89)
a:p	-0.15	1.95	0.00	1.58	0.32 (-0.83-0.53)	0.651	0.66 (0.32-0.85)

Note: * Difference adjusted for the time between test and retest. Significant p ≤ 0.05.
Zulliger variables: COP (cooperative movement), AG (aggressive movement), GHR (good human representation), PHR (poor human representation), Fd (food or eating), SumT (texture shading), Sum H (sum of human contents), H puro (pure human), Hd (human detail), (H) (pure para-human), (Hd) (para-human detail), isolate (isolation), PER (customized response), a (active movement), p (passive movement), a:p (active-passive movement proportion).

DISCUSSION

The coping and control resources in stressful and social situations and the relationship skills seem to play a preventive role in individuals' mental health and well-being in human aging (Chnaider & Nakano, 2021; Mathieu et al., 2019; Perreault et al., 2020; Queluz et al., 2019). Thus, this study sought to evaluate personality characteristics and interpersonal relationship skills over time. In this research, the personality characteristics that denote resources and

control and stress tolerance (Table 2) demonstrate individuals' possibilities to use their available resources, to formulate their decisions and face any increased discomfort (Exner, 2003). The variables provide information about the mental functioning conditions of the research sample concerning resources (productivity, initiative, cognitive aspects, empathy, affective resources, motivation, and living styles) and controls (anxiety, unmet internal and external needs, self-criticism

and affective tensions), necessary to face adversity and decision-making (Villemor-Amaral & Primi, 2009). Thus, the results showed that the participants in this study did not demonstrate significant changes in personal characteristics that denote behavior related to resources and control and stress tolerance. In this perspective, the study participants maintained their control capacities and effective stress tolerance, abilities to withstand increased mental tension, which consists in the presence of resources available to organize and direct their conduct, in the way of thinking, feeling, and solving problems, despite an average 7.7 years (SD= 3.8) between the first and second evaluation using the ZSC. In addition, Bleidorn et al. (2022), summarized data from hundreds of longitudinal studies to confirm that personality trait differences are stable among adults, these differences tend to stabilize during adolescence and young adulthood.

According to the normative data of Villemor Amaral and Primi (2009), in the two evaluations (test-retest), the study participants presented an experience style characterized by extraversion (EB), good productivity, task motivation and affective characteristics (R; WSumC), capacity for empathy, abstract reasoning and affective and self-control conditions (M; F%; EA). This initial data may signal some mental health conditions, but also the importance of early evaluations of factors that may favor work stability, occupational performance, and preservation of well-being in healthy aging (Finkenzeller et al., 2019; Perreault et al., 2020; WHO & PAHO, 2021).

At the same time, they indicated behavior permeated by needs (FM+m), affective and situational concerns, and anxieties (SumC + T + V + Y) which can sometimes hinder decision-making (ES; Adjes; D score; AdjD). In this sense, the evaluation and intervention procedures in the occupational environment are important, in search of continuous development and well-being, and the promotion of mental health (Grazziotin & Scortegagna, 2021b; 2022; Ingrand et al., 2018; Mathieu et al., 2019).

In this line of reasoning, the cluster of relationship variables (Table 3) is the field of relationships with others and the interactions that occur (Villemor Amaral & Primi, 2009). Overall, they are indicators that signal the interpersonal relationship conditions concerning cooperative, aggressive, and conflicting aspects (Exner, 2003), which are necessary for social and family life, work with peers, clients, bosses, and subordinates (Grazziotin & Scortegagna, 2013, 2021b).

Similarly, to resources and control and stress tolerance, the results showed that the study participants did not demonstrate significant changes in the variables that allude to the behavior related to the relationship with others. Considering the normative data of Villemor Amaral and Primi (2009), in the two evaluations (test-retest), the study participants showed interest in contact with people, cooperative performance (SumH; pure H; COP) and the establishment of good interpersonal relationships (GHR;

GPHR) at the expense of conflicted relationships (PHR; PHR< GHR). This data seems to signal that these people are characterized by the establishment of promising and lasting interpersonal relationships (Grazziotin & Scortegagna, 2013, 2018). These conditions may favor, in addition to quality in interpersonal relationships and social contacts, that are necessary for personal and professional development, and the promotion and preservation of mental health (Park & Hess, 2019; Perreault et al., 2020). At the same time, they denoted some combative and defensive characteristics (AG ≥ COP; PER; Isolate). Such indicators highlight the relevance of preventive assessments to design interventions that can help relieve tension and favor emotional support in the work environment (Grazziotin & Scortegagna, 2013, 2021b; Mathieu et al., 2019). Carrying out preventive actions in all age groups and the environments, people are inserted in can maximize health conditions and favor comprehensive development and well-being (WHO & PAHO, 2021). The non-occurrence of significant differences between the results obtained at different assessment times and in the ZSC clusters was expected, as surveys with inkblot instruments demonstrate that individuals have clearly preferential response styles, and that evidence of such responses should appear consistently during repeated administrations. Thus, the characteristic personality traits tend to be repeated in different situations and assessment times (Exner, 2003; Villemor-Amaral et al., 2009). In addition, it should be considered that, in this study, the pairs pursued the same work activities, had the same level of education, and had no record of leave of absence due to physical and mental health problems (test and retest). Also, the average of responses within an optimized range (Gonçalves; Villemor-Amaral, 2020; Seitl *et al.*, 2018; Villemor-Amaral & Gomes, 2020) may have enabled agreement between the different moments. According to Bleidorn et al. (2022), analyses indicated that non-clinical populations, as well as adaptive trait measures, were more stable than maladaptive trait measures.

When it comes to individual psychological assessment within a multidisciplinary perspective of human aging (Chnaider & Nakano, 2021; Grazziotin & Scortegagna, 2021a, 2021b), however, considering a longitudinal approach and the use of complex instruments such as inkblots (Exner, 2003), specifically the Zulliger test (Vilemor-Amaral & Primi, 2009; Villemor-Amaral et al., 2009), the answers to the questions are not so simple. Based on this reasoning, we sought to ascertain how concordant the results of the applications were between the test and retest. This is the case because individuals may present some variations in mental dynamics and behavior during human aging due to internal and external factors (Grazziotin & Scortegagna, 2021a, 2022; Park & Hess, 2019; WHO & PAHO, 2021) and even due to situations experienced at times of a pandemic such as covid 19. Thus, the results of this study indicated that some psychological functioning characteristics were more or less stable. The higher the concordance, the greater the

possibility of the variable reflecting stable characteristics or personality traits over time. The lower the agreement, the greater the possibility of the variable reflecting emotional states or unstable personality characteristics (Exner, 2003; Villemor Amaral et al., 2009). Thus, regarding resources and control, it can be observed that some characteristics were immutable or stable over time, while others were more unstable and reflected emotional states.

Consecutively, the characteristics of affectivity, internal needs, empathy, and abstract reasoning, the resources to deal and cope with situations (WSumC, FM, FM+m, M, AdjD, D-score, es; ICC 0.81 to 0.75) were more stable, alluding to the characteristic individual personality traits, that is, conditions that did not change or changed minimally. Anxieties in general, emotional resources, and style of experience (SumC+T+V+Y, EA, EB; ICC 0.66 to 0.62) showed good stability.

The conditions of productivity, engagement, and thoughts permeated by concerns (R, F%, Adj es, m; ICC 0.59 to 0.41) showed to be reasonably stable over time. Finally, situational anxiety and occasional feelings of sadness (SumC, SumV, Sum Y; ICC 0.39 to 0.10) were more unstable. These results seem to suggest situational anxieties that can be triggered at times or in situations arising from negative feelings, apprehensions, and concerns or from the test situation itself (Exner, 2003; Villemor Amaral & Primi, 2009). Thus, although the adults surveyed did not exhibit significant differences in the characteristic traits of anxiety, sometimes, they manifested states of restlessness, especially related to ideas and concerns. Regarding the relationship cluster, the characteristics of cooperation (COP; ICC 0.71) were immutable, that is, they outlined more stable mental conditions over time. Other variables that allude to good relationships or signs of dependence (GHR; Food; ICC 065 to 0.64) were presented as usual characteristics and good constancy. The interest in human contact, and aggressive and defensive characteristics (Sum H, H puro, Supt, *AG,* PER, GPHR, Isolate; ICC 0.53 to 0.42) were reasonably stable over time. Conflicting relationships (PHR; ICC 0.33) were more unstable and reflected individuals' emotional states. These findings provide important information but need to be expanded and deepened as there is a lack of longitudinal studies (Cohen et al., 2014; Hulley et al., 2015), especially on the assessment of personality characteristics (Bleidorn et al., 2022; Wrzus et al., 2023) using valid instruments such as Zulliger (Grazziotin & Scortegagna, 2022; Villemor et al., 2009), which may permit a deeper understanding of the behaviors observed and how constant the analyzed personality characteristics are over time.

No study to date has indicated perfect stability and emotional stability tends to be increased consistently and more substantially across life, the personality change occurs in the direction of greater maturity as people age (Bleidorn et al., 2022). However, change would be less pronounced when younger and older people experienced a similar context such as college (Wrzus et al., 2023).

The range of analyses and the complementary instrument results can point to a more complete picture of the individual with the potential to reveal specificities of the internal world and enhance the findings (Bornstein 2017; Wrzus et al., 2023). Thus, the person's mental health conditions, personality characteristics, emotional state (Grazziotin & Scortegagna, 2018; Perreault et al., 2020), and resources to cope with obstacles (Mathieu et al., 2019; Perreault et al., 2020) can be better evaluated consecutively, longitudinally and focused on personal and professional development and mental health promotion.

Hence, the individuals presented a good repertoire of social skills (SSI) in the test and an elaborate repertoire in the retest, denoting a significant increase. Such repertoires involve communication resources, affective conditions, and conditions for coping with situations that involve determination and self-control. This data reflects the enhancement of the conditions for coping with situations that require dealing with criticism, initiating and ending conversations, expressing displeasure, and dealing with conflicts (Del Prette et al., 2021; Del Prette & Del Prette, 2018). Studies demonstrate social skills resources as protective factors and deficits in these repertoires as risk factors, given coping and control in stressful situations (Queluz et al., 2019).

Notably, there were statistically significant differences in assertive conversation (F1), which went from a lower to a good repertoire. This data reflects an increase in the conditions for coping with situations that require conflict resolution (Del Prette & Del Prette, 2018; Del Prette et al., 2021). This result may be due to the experience gained in work positions over time, and consequently personal and professional development, as well as the significant improvement in the economic situation (Grazziotin & Scortegagna, 2021a; 2022). That is the case because social skills can usually be learned in an unsystematic manner, at work, and in interpersonal relationships with friends and family. But when it does not occur naturally, these skills can be taught systematically in social programs, in schools, and in companies ((Del Prette & Del Prette, 2018). This evidence justifies the promotion of social skills with favorable conditions for human development and well-being (Queluz et al., 2019).

In all age groups, the conjunction of occupational activities, life experiences, the development of affective, empathic, cognitive characteristics, and social skills can cause individuals to operate resources to cope with adversities (Bartholomaeus, 2019; Grazziotin & Scortegagna, 2021a). In addition, the development of interpersonal relationships and social skills can provide greater well-being. This is particularly important in companies and organizations that consider the biopsychosocial dynamics of the individual and the skills needed to execute functions (Del Prette et al., 2021). Besides, it influences by guiding organizations in decision-making and meeting the growing concern with the professional ethical development and well-being of their members, stimulating companies to invest in the well-being of

their employees (Grazziotin & Scortegagna, 2021b; Perreault et al., 2020). Therefore, it is important to carry out high-quality psychological assessment procedures, which consider all ethical and social issues to be able to assist populations of different ages and contexts. Technical excellence and ethical care should guide its applications, because psychological assessment is a set of procedures that aims to bring benefits to society, guiding treatments and assisting decision-making (CFP, 2022; Schneider et al., 2020). The presented data represent interesting findings and may increase the quality of assessment practices using the test. Thus, given the contributions that can be generated based on longitudinal psychological evaluation research, with a preventive focus, focused on health promotion in human aging, the investment

in the theme of this study is essential. This study presents a small and restricted sample and the results found cannot be generalized to the general population. However, this research could serve as a model for the advancement of new studies with complex valid instruments such as the Zulliger, which verify in depth the personality characteristics in human aging. Future research with larger samples, older ages, and other clusters of personality characteristics (cognitive, affective, self-image) may expand and deepen the results presented. Finally, this study provides some support to understand the cause and effect of the variables studied and contributes to the improvement of scientific advancement in psychological assessment and, consequently, to the improvement of psychosocial services for human aging and the entire society.

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Data availability statement
Research data is available on request from the corresponding author.

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