



# Can Character Strengths Predict College Adjustment? A Study Carried Out in Nursing Students in the Argentine Republic

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## Abstract

The objective of the study was to analyse and develop an explanatory model of the relationship between strengths of character and adaptation to the university in nursing students from different educational institutes of the Provinces of Buenos Aires and Formosa, in its three dimensions—academic, social, and institutional. The prediction model was based on the 24 character strengths of 210 nursing students from different educational institutes of the Provinces of Buenos Aires and Formosa, aged between 20 and 55 years ( $M = 28.49$ ;  $SD = 7.51$ ; 76% women). The Inventory of Virtues and Strengths and the Scale of Adaptation to the University were used. Three multiple linear regression analyses were carried out, one for each dimension of university adaptation. The strengths of citizenship, hope, prudence, and social intelligence predicted the social dimension. The strengths of vitality, citizenship, and fairness predicted the institutional dimension. The strengths of prudence, spirituality, and vitality predicted the academic dimension. The results allow us to state that character strengths constitute a valuable resource for the nursing student given their role as predictors of the ability to adapt to university life.

**Keywords** Adaptation · University · Strengths · Students · Nursing

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Admission to a university programme constitutes a relevant step for a student insofar as it entails the beginning of the professional training process. However, despite being motivated to pursue a degree, a student may find it difficult to adapt to this new environment due to demands related to the requirements of the course of studies, the institution, interpersonal relationships, and emotional aspects such as stress and anxiety (Moreno & Soares, 2014; Persaud & Persaud, 2016). The academic path involves many obstacles and stress-generating situations that can negatively impact academic success and the student's adaptation to university life (Mthimunye & Daniels, 2019).

Adaptation to university is a process determined by multiple social, institutional, academic, and emotional factors (Baker & Siryk, 1984; López-Angulo et al., 2021; Gravini Donado et al., 2021; Sahão & Kienen, 2021). There is consensus in the literature that, in adapting to the university, different dimensions can be distinguished: (1) The academic dimension refers to the degree of adaptation of students to academic demands such as participation and concentration in class, participation in classroom discussions, completion of tasks on time, development of a positive feeling towards the educational institution, compliance with instructions, and satisfaction with specializations. (2) The institutional dimension refers to the sense of belonging and the identification with the institution. (3) The social dimension implies the adaptation of the student to social activities such as making new friends, participating in group activities, and adjusting to the problems that arise after leaving of their families or place of origin. Not achieving an adequate adaptation may not only lead to university dropouts but also generate consequences that go beyond the educational field and directly affect the student's health (Alavi & Mansor, 2011). If the process of adjusting to the university is already complex, this is further intensified in courses that involve a high exposure to stressful situations. Such is the case of the nursing programme (Labrague, 2013), in which students, in addition to experiencing typical situations such as exams, financial difficulties, the need to work, and pressure from the family, have added stress due to the demands that characterize the healthcare environment and clinical practices (Pulido-Martos et al., 2012).

According to the National Nursing Commission, in recent years, the number of students enrolled in university training programmes has increased. However, there is a high dropout rate, which occurs especially before students complete the first academic year. The World Health Organization (2020) has warned about the situation of nursing worldwide and highlighted the international inequalities in the sector when facing COVID-19. While Europe and the Americas average around 81 nurses every 10,000 people, in Africa, there are only 8.7 nurses every 10,000 people. Argentina ranks in a low-medium position in Latin America, along with Paraguay, Peru, and Ecuador. The high demand for these professionals worldwide and, particularly in Argentina, highlights the key role that quality education implies for future nurses and the need to reinforce the resources that encourage students to adapt appropriately to college life.

Most investigations focus on the factors that negatively affect the adaptation to the university (Acharya et al., 2018; He et al., 2018; Mofatteh, 2021; Van der Zanden et al., 2018) but, with the emergence of positive psychology, researchers have focused on the importance of character strengths as facilitators of a better adaptation to university life (Gander et al., 2012; Grady & Cantor, 2012).

Character strengths are personality characteristics that are valued in a positive way (e.g., being kind, honest or persistent). According to Peterson & Seligman (2004), character strengths promote and facilitate desirable outcomes (Ruch et al., 2021). They are considered the internal determinant of a satisfying, happy, and successful life (Georgoulas-Sherry, 2021; Peterson & Seligman, 2006; Ruch et al., 2021). They proposed the study of positive traits based on a rigorous scientific methodology. They made a classification of positive traits, intended to be used as the counterpart of the Diagnostic and Statistical Manual of Mental Disorders. Peterson and Seligman considered the most important philosophical and religious traditions of the East and the West and found that most of the texts valued six virtues (Dahlsgaard et al., 2005; Kretzschmar et al., 2022): wisdom and knowledge, courage, love, justice, temperance, and spirituality. The current “gold standard” for subjective assessment of the 24 character strengths in adults is the Values in Action Strengths Inventory (VIA-IS; Kretzschmar et al., 2022; Peterson & Seligman, 2006).

Scientific studies have shown that character strengths are associated with positive trauma and stress management (Peterson & Seligman, 2003; Peterson et al., 2008) and with recovery from illness (Peterson & Seligman, 2003). Character strengths are related to effectively coping with adverse and traumatic situations (e.g., life-threatening accident, sexual assault, and physical assault; Peterson et al., 2008). Likewise, they contribute to individual fulfilment (Peterson & Seligman, 2003, 2004) and are positively related to effectively coping with stress.

Based on these antecedents, scientific interest in the study of character strengths in students who pursue college programmes involving high levels of stress and high dropout rates (such as nursing courses) has increased (Burke et al., 2009; Grady & Cantor, 2012; Harzer & Ruch, 2015; Littman-Ovadia & Steger, 2010; Macfarlane, 2019; Xie et al., 2020). In this sense, strengths such as self-regulation and prudence have been shown to favour adaptation to university (Shin et al., 2015), and enthusiasm, hope, curiosity, love, and gratitude are most strongly related to overall job satisfaction (Heintz & Ruch, 2020; Macfarlane, 2019). In a 6-year longitudinal study, it was found that the students with higher levels of hope showed better overall grade averages even after controlling for entrance exam scores (Snyder et al., 2002). The university is the ideal place to cultivate the strengths that will result in better professional performance, while increasing the vocation for the profession (Harzer & Ruch, 2015; Macfarlane, 2019).

Ultimately, evidence shows that character strengths allow the level of stress to be managed effectively and the quality of life of the Nursing student to be optimized, which would have a positive effect on the process of adaptation to university. Maintaining adequate academic performance and student retention are challenges for higher education institutions. Such challenges are especially critical in the university training of professional nurses, due to the shortage of nursing personnel, deficits in qualification levels, and the relative disadvantage and devaluation of nursing within health teams (Aspiazu, 2017; Pereyra, 2017; Pereyra & Micha, 2015). The global demand for these professionals and their key role in access to health and quality of care implies challenges in the education and training of qualified nursing professionals.

The objective of this work was to analyse and develop an explanatory model of the relationship between strengths of character and adaptation to the university in nursing students from different educational institutes of the Provinces of Buenos Aires and Formosa, in its three dimensions—academic, social, and institutional.

## Method

### Study Type and Design

This is a descriptive, correlational and explanatory cross-sectional study.

### Participants

The non-probabilistic, intentional sample was composed of 210 nursing students (73% women and 27% men). The nursing students in the sample came from different educational institutes of the Provinces of Buenos Aires and Formosa. The average age was 27 years ( $SD = 7.75$ ). Of the total number of participants, 58% were single, 15% had a boyfriend/girlfriend, 19% in a home relationship with, and 8% were married. In addition, 74% of the students reported having no children, while 11% reported having only one child and the rest of the participants reported having between two and three children.

### Instruments

#### Inventory of Virtues and Strengths (Cosentino & Castro Solano, 2015)

For the present study, this instrument developed in Argentina by Cosentino (2014) was used. In the present study, this instrument briefly assesses the original Values in Action Inventory of Strengths (VIA-IS) constructed by Peterson & Seligman (2004). It is made up of 24 bipolar items in which each item describes a strength and the respondent indicates the degree to which he or she is most similar to one of two proposed descriptions, one referring to a strength of character and the other the absence. It is answered on a Likert-type scale of five options, from 1 (I am very similar to the first person) to 5 (I am very similar to the second person). The higher the score, the greater the presence of the strength. Inventory of Virtues and Strengths reports a test–retest stability that ranges from  $r = 0.72$  to 0.92 in its different strengths and the internal consistency of the instrument reported a Cronbach's alpha of 0.85. For its part, the IVyF has evidence of convergent validity and a factorial validity similar to that found in the VIA-IS (Cosentino, 2014; Castro Solano & Cosentino, 2018; Peterson & Seligman, 2004).

## Scale of Adaptation to the University, CAVU (Rodriguez-Ayan & Sotelo, 2014)

Para el presente estudio, se utilizó este instrumento desarrollado en Argentina. This scale is composed of 15 items divided into the three dimensions that make up adaptation to university life: the academic, institutional, and social dimensions. It has evidence of factorial validity, current validity, and predictive validity with the academic performance of the students. The internal consistency evaluated from Cronbach's alpha for this sample was 0.85 for the academic dimension, 0.75 for the institutional dimension, and 0.79 for the social dimension.

### Procedure

At first, contact was established with the Directors of different Nursing Programmes. A data collection pack containing the consent form, a questionnaire of sociodemographic variables developed ad hoc and both, the Inventory of Virtues and Strengths and the Scale of Adaptation to the University were sent via email to the participants. We used Google Forms® to collect the data electronically. The data obtained was confidential and used for statistical purposes only. All the subjects will give their informed consent to carry out the different studies, after receiving the corresponding information. The Declaration of Helsinki of the World Medical Association in its latest version (World Medical Association 2013) and the National Law of Protection of Personal Data No. 25,326 will be respected. The different protocols will be approved by the Ethics Committee of the Hospital de Clínicas “José de San Martín.”

### Analysis of data

A multiple linear regression procedure was applied in order to test an explicative and predictive model of the three dimensions of adaptation to the university—social, academic and institutional—from the 24 strengths of the character of the Peterson and Seligman theory (2004). The existence of outliers in the database (people with abnormally extreme scores) was previously analysed as they could bias the regression coefficients. An observation was found (case 106) whose Cook distance exceeded the 0.75 percentile of the Fisher distribution, so it was eliminated as it was considered very influential.

To choose the best predictors and introduce them into the model, the stepwise regression procedure was used using the *ols\_step\_both\_p* function from the *olsrr* package (Team R. C, 2020), which creates a regression model from a set of candidate predictor variables by entering and eliminating predictors based on the significance values in a staggered manner until there are no variables left to enter or eliminate. As initial selection criteria, the correlations of the predictor variables with the predicted ones were considered. Character strengths that obtained a correlation equal to greater than 0.20 were selected.

**Table 1** Correlations between character strengths and the three dimensions of college adjustment

	Social dimension	Institutional dimension	Academic dimension
Appreciation	.001	.118	.033
Impartiality	.072	-.21*	.084
Persistence	.097	.084	.170
Creativity	.093	.062	.053
Love	.207*	.148	.161
Self-regulation	.129	.109	.130
Gratitude	.230*	.058	.218*
Leadership	.164	.069	.076
Open-mindedness	.161	.145	.230
Social intelligence	.219*	.137	.162
Mercy	.212*	.165	.140
Spirituality	.175	.161	.280**
Citizenship	.326**	.246**	.118
Bravery	.122	.062	.167
Curiosity	.255**	.121	.168
Kindness	.149	.039	.090
Hope	.296**	.189	.227*
Integrity	.082	.054	.146
Perspective	.092	.075	-.023
Prudence	.218*	.154	.271**
Humour	.096	.039	.146
Modesty	.054	.098	.097
Love of knowledge	.086	.140	.071
Vitality	.211*	.240**	.340**

\*  $p < .05$ ;  $p < .01$  \*\* Correlation between impartiality and the institutional dimension .003. Correlation between love and the social dimension .007. Correlation between gratitude and the social dimension .001. Correlation between gratitude and the academic dimension .002. Correlation between social intelligence and the social dimension .001. Correlation between mercy and the social dimension .002. Correlation between spirituality and the academic dimension .000. Correlation between citizenship and the social dimension .000. Correlation between citizenship and the institutional dimension .000. Correlation between curiosity and the social dimension .000. Correlation between hope and the social dimension .000. Correlation between hope and the academic dimension .001. Correlation between prudence and the social dimension .002. Correlation between prudence and the academic dimension .000. Correlation between vitality and the social dimension .000. Correlation between vitality and the institutional dimension .000. Correlation between vitality and the academic dimension .002

## Results

### Social Dimension

Regarding the social dimension of adaptation to university, Table 1 shows in bold the significant correlations from which the strengths were selected in order to be subsequently introduced into the stepwise method.

Subsequently, a multiple linear regression analysis was carried out. The resulting model consisted of the strengths of citizenship, hope, prudence, and social intelligence as predictor variables (see Table 2). The determination coefficient indicates that the regression model explains 19% of the variance of the social dimension. A *Mallows Cp* value equal to the number of predictors plus the constant indicates that the model is relatively accurate (it has a small variance) and that it does not present bias to estimate the true regression coefficients and predict future responses. The validation of the predictive model was performed with the ANOVA test of variance, which indicates whether the variance explained by the regression is significantly different and greater than the unexplained variance. The global model was statistically significant ( $F=13.55$ ;  $p=0.000$ ); that is, the model significantly improves the prediction of the social dimension of adaptation to university and allows us to assume the existence of a real effect of the predictor variables on the dependent variable. For the coefficients of the regression model, the *t* scores indicate that the variables taken into account contribute significantly to the prediction model. In this study, the independent variables social intelligence, citizenship, hope, and prudence contribute significantly to the predictive model of the social dimension (Table 2). The resulting regression equation was  $y=11.29+0.0.39 x^1+0.79 x^2+0.76 x^3+0.48x^4$  where *y* is the social dimension,  $x^1$  is social intelligence,  $x^2$  is citizenship,  $x^3$  is hope, and  $x^4$  is prudence.

### Institutional Dimension

Regarding the institutional dimension, Table 1 shows in bold the significant correlations from which the strengths were selected in order to be subsequently introduced

**Table 2** Predictive character strengths of college adjustment

Dependent variable	Selected predictor strengths	Beta	T	Sig	Beta	Mallows Cp
Social dimension	Citizenship	0.7972	4.177	.000		
	Hope	0.6607	3.199	.001		
	Prudence	0.4893	2.042	.04		
	Social intelligence	0.3955	2.032	.04	.19	4.8
Institutional dimension	Vitality	0.7535	3.857	.000		
	Citizenship	0.5098	3.112	.002		
	Impartiality	-0.443	-2.680	.007	.13	4
Academic dimension	Vitality	0.6538	4.142	.000		
	Spirituality	0.3910	3.124	.002		
	Prudence	0.4309	2.513	.012	.18	1.20

into the stepwise method. The resulting regression model was made up of the strengths of vitality, citizenship, and impartiality as predictor variables (see Table 2). The coefficient of determination indicates that the regression model constructed explains 13% of the variance of the institutional dimension. The Mallows Cp was 4, which also indicates the precision of the model. The global model was statistically significant ( $F(g) = 11.32$  (206);  $p = 0.000$ ). All the predictor variables contribute significantly to the prediction model. The resulting regression equation was  $y = 6.66 - 0.44 x^1 + 0.75 x^2 + 0.50 x^3$  where  $y$  is the institutional dimension,  $x^1$  is vitality,  $x^2$  is citizenship, and  $x^3$  is impartiality.

### Academic Dimension

Regarding the academic dimension of university adaptation, Table 1 shows in bold the significant correlations from which the strengths were selected in order to be subsequently introduced into the stepwise method. The regression model explained 18% of the total variance and was made up of the strengths of prudence, spirituality, and vitality as predictor variables. The global model was statistically significant ( $F(g) = 16.54$  (206);  $p = 0.000$ ). All the predictor variables contribute significantly to the prediction model. The resulting regression equation was  $y = 7.19 + 0.43 x^1 + 0.39 x^2 + 0.65 x^3$  where  $y$  is the academic dimension,  $x^1$  is vitality,  $x^2$  is spirituality, and  $x^3$  is prudence.

### Discussion

The high demand for nursing professionals worldwide, particularly in Argentina, highlights the key role that education implies for future nurses (Aspiazu, 2017; World Health Organization, 2020). This article allows us to affirm that character strengths constitute a valuable resource for nursing students given their role as predictors of the ability to adapt to university life.

Regarding the social dimension of university adaptation, the linear regression analysis yielded, as the main predictors, the following strengths: citizenship (commitment to the social group), hope (expectation that things will turn out well), prudence (being cautious when making decisions), and social intelligence (awareness of one's emotions and feelings) (Peterson & Seligman, 2004). According to Peterson & Seligman (2004), the strengths of hope, citizenship, and social intelligence generate favourable expectations and promote the formation of committed and healthy relationships, taking into account the emotions and perspective of the other. For its part, prudence favours the analysis of relationships and prevents thoughtless and risky involvement with other people. In conclusion, the combination of these four strengths predicts the formation of a stable and strong social support network for the student (Gander et al., 2012; Peterson & Seligman, 2004; Rambod et al., 2013; Zaki, 2010).

The academic dimension of university adaptation has a central role since it is a necessary condition for the success and continuity of the student in the educational



institution (Alavi & Mansor, 2011; Rodriguez-Ayan & Sotelo, 2014). In our study, the strengths of character that were selected as predictors were as follows: prudence (being cautious in decisions), spirituality (having a sense of transcendence beyond one's own life and believing in something superior), and vitality (having high motivation, enthusiasm, and energy) (Peterson & Seligman, 2004). These results complement other empirical findings that reveal that academic achievement is associated with character strengths (Karris Bachik et al., 2021; Park & Peterson, 2009). In particular, a study carried out by Saldaña et al. (2014) found that prudence was one of the strengths most widely associated with academic performance. In sum, character strengths play an important role in students' academic achievement and success, which has a positive effect on their adjustment to college.

Finally, regarding the institutional dimension of university adaptation, the present study revealed that the character strengths that predicted it were as follows: vitality (having high motivation, enthusiasm, and energy), citizenship (having a sense of duty, work for the good of others, and companionship), and impartiality (equity when making a moral judgment) (Peterson & Seligman, 2004). A student who possesses these strengths will mostly feel identified with a university institution that represents the same values of equity and the common good over the individual. Dominguez-Lara et al. (2019) argue that this facet of adaptation is linked to the way in which the university effectively offers the support services that the student may need, generating a sense of institutional attachment. Credé & Niehorster (2012) consider that the students' identification with the university is reflected in their sense of belonging, that is, being part of an institution that ensures students' well-being. Likewise, for Baker (2002), institutional adaptation is also related to the idea of satisfaction. For this reason, the vitality or enthusiasm of the student for being part of the educational community is also a key to his or her adaptation.

Given the empirical evidence about the importance of studying the role of personality in adaptation to university (Abood et al., 2020; Eryilmaz & Kara, 2017; Lim & Kim, 2019; Lockenhoff et al., 2009; Rosito, 2020; Tomšik, 2018), an interesting future line of research is the inclusion of personality as a possible mediating variable in these regression models. On the other hand, it would be relevant to know if sociodemographic variables such as age or socioeconomic level could function as moderators between character strengths and social, academic, emotional, or institutional adaptation to university (Bowen et al., 2009; Crawford & Harris, 2008; Cabrera et al., 1993).

As for limitations, it should be mentioned that although the scale used in this study to measure adaptation to university takes into account the social, academic, and institutional dimensions, it would have been appropriate to also consider the personal-emotional dimension that focuses on the degree of adaptation of the students to psychological problems such as depression, anxiety, stress, and physical problems. For future research, it is considered appropriate to take this dimension into account, as other authors in other parts of the world have done (Baker & Siryk, 1984; Gravini Donado et al., 2021). For this purpose, it will be necessary to adapt or build a scale at the local level that considers the four dimensions together.

Also, it is worth mentioning that although character strengths are considered stable over time, as this is a cross-sectional study, it cannot be verified effectively if

those students who have strong predictive strengths effectively complete the bachelor's degree in a successful way. For this reason, it would be necessary to carry out a longitudinal study, to monitor the strengths of character of those students who drop out and those who successfully complete it. Future lines of research could include interventions that promote the development of predictive strengths of adaptation to the university. For example, to promote citizenship, students can be encouraged to participate in solidarity activities promoted by the university. This would favour greater empathy and foster a sense of belonging to the institution. To promote vitality, students could have talks with successful professionals to motivate them to continue with their studies. Likewise, workshops could be implemented with the aim of developing assertive communication skills and empathy in the participants, in order to strengthen social intelligence.

The authors of this work propose a preventive rather than reactive stance, since the best way to increase the availability of nurses in the health sector is from the university itself, by favouring conditions that promote the training of qualified professionals. As noted by Park (2004), character strengths serve as protective factors (Guo et al, 2015; Harzer & Ruch, 2015), allowing young people to reach their full potential and a successful academic path (Cardemil et al., 2002; Yu & Seligman, 2002).

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**Data Availability** The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

## Declarations

**Informed Consent** All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of the Universidad de la Defensa Nacional (UNDEF).

**Conflict of Interest** The authors declare no competing interests.

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