PREDICTORS OF RELATIONAL SKILLS DEVELOPMENT ON USER INTIMACY PRESERVATION¹

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ABSTRACT

Objective: To understand which variables are predictive of the development of dimensions of relational skills in preserving the user’s privacy. Methods: A descriptive study - correlational of quantitative approach. Available population - students of the degree in nursing from two schools. Data collection tools: questionnaire characterization of the students, the clinical context and an Inventory of Relational Skills of Help. Processing data using the IBM® SPSS® Statistic Software. Procedures performed to comply with the ethical and legal component of nursing research with humans. Results: We have identified three statistically significant predictors: School, Year, Monitoring in Clinical Teaching through the predictors of screening methods (check Forward, Backward selection and Stepwise selection). We did the analysis for each of the dimensions of relational skills, generic skills, empathetic skills, communication skills and contact skills. Conclusions: The variables “year of the course” and “school A or B” are predictors of relational skills and in all aspects of these skills, which means they have explanatory power in the development of relational skills in these students. Descriptors: Regression Analysis; education based on competency; Nurse-patient relationships; privacy.

INTRODUCTION

The term Competence in nursing began to be delimited in the twentieth century, more specifically in the ‘70s, when the Competency-Based Teacher Education in the United States approached the terms competence and performance. In the 90 they proceeded to the distinction between competence and qualification (Rebelo, Teixeira, Moura, Teixeira & Alves, 2005). In the process of “Tuning Educational Structures in Europe - Reference Point for the Design and Delivery of Degree programs in Nursing” (European Commission, s / d) is made the distinction between learning results and competencies. In this context, skills are acquired or developed during the student’s learning process and represent a dynamic combination of knowledge, skills and abilities developed by the student. Learning outcomes are measurable and determining the level of competence that has been acquired or developed. These results are not determined for each student, but they are important indications for higher education institutions, which evaluate whether students have a corresponding competence development to the required level (Wegewijs et al, 2010).
Competence, like any concept, can have several definitions according to the used context and each author, i.e., it is a polysemic concept, which is supported on different theoretical approaches (Pires, 2002).

According with Ceitil (2007, p.6) "skills are a set of characteristics that a person shows in a particular concrete environment and generates high levels of performance, only observable in the act in a dynamic action."

So we can say that the acquisition of skills translates into a dynamic process in which certain competence always mobilizes various individual resources (know how to mobilize the knowledge, attitudes, values, skills, etc.) and it is implemented in a given context. It is a dynamic process and that there is an interaction between the person and the context in which this is accomplished, we can say that the power is always in constant configuration and reconfiguration.

Understanding the role of intimacy in care is a key issue for the establishment of relational skills in the care process of user, since it focuses on developing interpersonal relationships. The lack of intimacy can cause vulnerability to be careful. Some consulted studies (Almeida, 2004; Camilo, Morais, Sources, Bastos & Ferreira, 1999; Picco, Santoro & Garrino, 2010; Pupulim & Sawada, 2005, 2012; Smith, 2010; Smith & Dall’Agnol, 2011) address the theme of intimacy/privacy in the care related to professionals and not students. We consider important to conduct this study to see if the students during the acquisition and development of relational skills have the notion of preserving the intimacy of the user in the care process, to dignify the user as a human being.

For Bureau (1995), intimacy is a matter of presence, which has little to do with acting, but with the presence of the person of quality in itself and the quality of presence to the other. Since authors such as Williams (2001) speak of therapeutic intimacy, that is, intimacy that is needed in nurse-user relationship, which is critical to the wellbeing and recovery of the wearer.

In the formation of nursing students, the aim is to develop skills, based on understanding of the ethical dimension of care in order to "promote ethical development with respect for the autonomy of persons presupposes prudence, critical thinking, citizenship awareness and responsibility "(Bettencourt, 2008, p.61). Thus, the nursing education model should be based on a reflective process enabling students to acquire attitudes and behaviors that enable to acquire professional skills.

**Objective**

To understand which variables are predictive of the development of dimensions of relational skills in preserving the privacy of the user.
METHODOLOGY

This is a descriptive study - correlational of quantitative approach. The questionnaire with open and closed questions, proposed to students, was based on its construction, whether the conceptual framework or the formulated research questions as well as the scale used, which is designed for students. Their responses were analyzed using the IBM SPSS Statistic Software (Statistical Package for Social Sciences) from which we made a deductive analysis.

The accessible population was students of the degree in nursing from a School of Nursing integrated in a University (A) and a School of Integrated Health in Polytechnic Institute (B). Our sample consisted of all nursing students of these schools from year to begin the first clinical teaching. Each school has specific objectives for their training in nursing.

The data collection tools were a questionnaire to characterize the students and the clinical context and an Inventory of Help Relational Skills (ICRA). The data collection to the students was during the theoretical period.

The questionnaire was constructed in order to offer us a personal characterization of student, to characterize their socio-demographic situation and the clinical context. It consists of 13 open and closed questions.

Other data collection tools that we have used is the Inventory Help Relational Skills (ICRA), Ferreira, Tavares and Duarte (2006, p.58) - which is a self-response instrument that aims to evaluate the acquisition of relational skills of students from CLE in preserving the intimacy in the care process. The first author authorization is applied for using the ICRA through email which was positive answer.

For data collection we performed several procedures to comply with the ethical and legal component of nursing research with humans. It was initially requested an opinion from the Committee on Health Ethics and Welfare of the University of Évora, with an individual request to the principal of School A and the principal of School B. Regarding the participants, we asked informed consent for their participation in the study.
ANALYSIS AND DISCUSSION OF RESULTS

The sample consisted of 299 nursing students of the Nursing Degree Course (CLE) from two public schools, one School of Nursing integrated in a University (A) and a School of Integrated Health in Polytechnic Institute (B). In terms of data collection site, we found that 48.5% belong to School A and 51.5% belong to school B.

From the 299 students enrolled in the study, 11.4% were attending the 1st year, 22.4% attended the 2nd, and the same percentage attending the 3rd year and 18.7% of students attending the 4th year of CLE and 25.1% are still graduate students of CLE.

Most students are women with 86.3% and only 13.7% are male.

With respect to variable age of the students, this is between <19 to 39 years-old, reaching the majority in the range of 20-29 years-old with 77.6%, followed by the range of <19 years-old with 15.7% and only 6.4% in the range of 30-39 years-old.

Regarding marital status of the students surveyed, it was found that the majority (93.9%) is single, 2.7% are married and 2.4% live in facto unions. It was also found that 0.7% reported they are divorced/separated.

In the analysis of the dependent variable or response (ICRA) with the independent variables or predictors, we predict the behavior of the dependent variable (and their dimensions) from independent variables, reporting on the margin of error of these forecasts. We applied the Multiple Linear Regression Model (MRLM) (Maroco, 2011 Pestana & Gageiro, 2000). This model consists of a “statistical, descriptive and inferential technique, which permits analysis of the relationship between the dependent variable and a set of independent variables” (Pestana & Gageiro, 2000, p.474).

With this analysis we intend to establish a predictive model of the acquisition and development of relational skills in students of the degree in nursing, expressed by ICRA, and the independent variables “year, school, sex, marital status, age, type of monitoring in CE, option of the course and qualifications”. When we preceded the estimation of linear regression model between the dependent variable and the independent variables, we established two questions: is it possible to estimate what influences the acquisition/development of relational skills as a function of the independent variables? Do all predictor variables have interest to the model?

2 Data collected to students at the last meeting held in each school at the end of the course.
At this stage of the analysis we proceeded only to the analysis of standard linear regression, so we used all the variables (Method: Enter). In the following table (Table 1) we presented a summary of the model and according to the adjusted correlation coefficient ($r^2 = 0.180$) we can say that 18% of the total variability of relational skills is explained by the independent variables in the adjusted linear regression model. With the statistic **Durbin-Watson** ($d$) we can verify as to the independence of the waste, in our study we can assume that the residuals are independent i.e. there is no autocorrelation of waste, because we have the statistic value $d = 1.916$, close to $2^3$.

### Table 1 - Model resume

<table>
<thead>
<tr>
<th>Model</th>
<th>Multiple correlation ($R$)</th>
<th>Coefficient of determination ($R^2$)</th>
<th>Adjusted coefficient of determination ($R^2_{adj}$)</th>
<th>Standard error of estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.450&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.203</td>
<td>.180</td>
<td>30.292</td>
<td>1.916</td>
</tr>
</tbody>
</table>

<sup>a</sup> Predictors: (Constant), Accompaniment, EC, Sex, Marital Status, School, Age, Year, Academic qualifications, option of course.

<sup>b</sup> Dependent Variable: Full Scale (ICRA).

Source: SPSS

According to Figure 1, we can affirm that the residues present normal distribution, since most of the points is on the main diagonal line without substantial deviations, then the waste is considered representative of a normal distribution. Regression of statistical variable satisfies the hypothesis of normality (Hair, Black, Babin, Anderson & Tatham, 2006).

3 Values of the Durbin-Watson test: “values close to 2, there is no autocorrelation of waste; for values close to 0 the mean is a positive autocorrelation; for values near 4 there is a negative autocorrelation” (Pestana & Gageiro, 2000: 467).
In figure 2 we can observe how the waste has been spread more or less randomly around zero, and we can observe the presence of two outliers. However it is in the following chart we can get more information, because in large samples the standardized waste and studentized waste take very similar values. But it is in studentized waste that ponders the influence of each observation on the model (Marôço, 2011).

In the graph of studentized residues, it is evident the presence of two outliers, the deleted residual standard point near the -4 and -6 and the expected value adjusted near 290 and 280, respectively.

By making accurate testing to the occurrence of outliers and the normal distribution assumption did residual excluded studentized, the Kolmogorov-Smirnov test p-value is 0.916, therefore the variable "non-standardized residuals" follows a normal distribution.

To know if the adjusted model is significant, we calculated the ANOVA of regression, which say that at least one of the independent variables have a significant effect on the variance of the dependent variable. We can also say that the model is highly significant because we have assigned a value of $F = 9.058$ to 285 degrees of freedom associated with $p < 0.001$ (p-value = 0.000).

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4 “Extreme observations, not features, which have residues that are considerably higher, in absolute terms, to waste from other observations (more than two standard deviations from the mean)” (Marôco, 2011: 695).
The results show that the analysis of the absolute values of standardized coefficients Beta suggest that the variables "year, school and accompaniment EC" have the highest relative contributions to explain the behavior of relational skills. For a significant (p <0.05) we can conclude that only the variables year, school and accompaniment EC significantly affect the dependent variable. Even using the Bonferroni correction (p = 0.01) it is kept significance for these variables.

We proceeded to the analysis using the stepwise method, which allows removal of a variable whose importance in the model is reduced by the addition of other variables (Marôco, 2011). The independent variables that best predict the dependent variable (relational skills) are the School followed by the year and monitoring in clinical teaching. The data show that the model is highly significant.

We can also report that 9.3% of the variation of relational skills in model 1 are explained by the School, 17.8% explained by the School/year and 19.6% are explained by school / year / type of monitoring in clinical teaching (Table 2).

<table>
<thead>
<tr>
<th>Model</th>
<th>Multiple correlation (R)</th>
<th>Coefficient of determination (R²)</th>
<th>Adjusted coefficient of determination (R²)</th>
<th>Standard error of estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.305&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.093</td>
<td>.090</td>
<td>31.919</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.422&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.178</td>
<td>.173</td>
<td>30.436</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>.442&lt;sup&gt;c&lt;/sup&gt;</td>
<td>.196</td>
<td>.187</td>
<td>30.165</td>
<td>1.874</td>
</tr>
</tbody>
</table>

<sup>a</sup> Predictor: (Constant), School;
<sup>b</sup> Predictors: (Constant), School, Year;
<sup>c</sup> Predictors: (Constant), School, Year, Monitoring EC;
<sup>d</sup> Dependent Variable: Total Scale (ICRA).

Source: SPSS

The Stepwise method identified three statistically significant predictors: School, Year, accompaniment on EC. However before accepting these results as valid regression, we examine the degree of Multi-collinearity and their effect on the results. We conducted ANOVA, which confirms the results reported above, since the total sum of squares for each of the models is explained by each variable for each model. For each one with a significance level of 0.000, it shows that the contribution of each variable is significant.

For the multi-collinearity degree<sup>5</sup> and their effect on the results, we use the process where through comparison of the conclusions which was obtained from the values of the

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<sup>5</sup> Association between the independent variables (Maroco, 2011).
variance inflation factor (VIF) and the variable tolerance (T). By VIF we made the diagnosis of multi-collinearity between the independent variables. Because the VIF values are less than 5 Multi-collinearity does not exist between variables and when T is near zero, the variable can be written as a quasi-linear combination of the other independent variables. Before other random samples from the same population, the coefficient associated with this variable can have a completely different value obtained for this sample. In our case the values of T are mostly close to 1, except the variable monitoring in EC when the value of T is closer to zero (t = 0.386). We can conclude that the colinearity between the variables is low, or no VIF value exceeds 10.0, and tolerance values show that co-linearity does not explain more than 10% of the variance of any independent variable. We can see that the VIF and the tolerance values indicate inconsequential co-linearity in our study.

To detect the multicollinearity we can use the eigenvalues of matrix of correlations between the independent variables. The above conclusion is supported when we observe the condition index because none have values greater than 30.0, even using a reference value of 15 for the condition index. So we do not find evidence of multi-collinearity in the results.

After using the predictors of screening methods (Forward selection, Backward selection and stepwise selection), our predictive independent variables are the year, the school and the type of monitoring in EC, the remaining were excluded (gender, age, marital status and qualifications).

Then we calculated the linear regression for each dimension of relational skills (dependent variable), using the same independent variables. For the size of generic skills, the predictor variables are the year, the school and the type of monitoring in EC.

We found that the school is predictive of the development of generic skills and explains 6.5% of the variability in this dimension, that 1.17% is explained by variable school and year and the school, year and the type of monitoring increment 1.32 % of the variability in generic skills. So these three variables explain the variability found in the development of generic skills. We have also found, by the F test that shows a significance level of 0.000, that there are significant differences between the coefficients of the variables.

We observed through the regression coefficients that in this dimension of relational skills does not occur co-linearity among the independent variables.

For empathic skills dimension, it was only removed the variables marital status and age, so the predictor variables are the year, the school the type of monitoring EC and sex.

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6 Value of VIF<10.0 and Value of T ≤10%.
In multiple regression with stepwise selection having the empathetic dimension skills as dependent variable, Model 4 explains 13.8% of the variability of the development of relational, with a value of $d = 2.108$, which indicates that the residues are independent.

Moreover, the regression model tells us that these variables can have a significant, since the value associated with the F test is 0.000. However, it still tells us that the correlation is positive for the variables school, year and sex, and so when one increases the other also increases, while for the type of monitoring the correlation is positive, which tells us that when this increases, the empathic skills have decreased, that is, when the type of monitoring is the guiding nursing of care unit (3), the empathic skills have diminished.

With regard to the correlation between independent predictors we did not notice co-linearity between them.

In the dimension of communication skills the predictors are only the year and the school, all the rest are removed because there is not statistical significance. Also in this dimension of relational skills there is not co-linearity between predictor variables.

In multiple linear regressions of variable communication skills, according to the data we can say that 8.5% of the variability of the development of these skills is associated with the school where students are studying and 21.2% is associated with the year of the course attending, the F test presents significance of 0.000. This data reveals that may be predictive of the development of this dimension of skills.

In the last dimension analyzed, contact skills, we found that the predictor variables are the year and the school, which accounts for around 10.7% of the variability of developing this dimension of relational skills with a significance associated with the F test of 0.000.

Making the analysis of the results of multiple linear regression between the dependent variable (relational skills), its dimensions and the independent variables, we found that showed the independent variables year, school, monitoring in EC and sex of students, as can be seen in figure 3.
Concluding this analysis, we can say that the variables year of the course and school (A or B) are predictors of relational skills in all dimensions of these skills, which means they have explanatory power in the development of relational skills in nursing students analyzed.

**CONCLUSIONS**

The variables year of the course and school A and B are predictors of relational skills and all aspects of these skills, which means they have explanatory power in the development of relational skills in these students. Some of the dimensions are followed up by other variables such as sex and monitoring in EC, the empathic skills, and monitoring in EC in generic skills. These results lead us to reflect on the curriculum of nursing courses and how they are organized, as well as the type of follow-up of students in clinical training.
due to significant differences between students of the two schools. According to the study of Melo & Parreira (2009) there is a need to consider some variables, including the presence of the teacher, maturity and sex in order to assist with the formation of nurses and promote the development of these basic skills for quality performance nurses, thus enabling the provision of more effective and humane care.

The predictor variables are evidenced relatively on the subscale of empathic skills “year, school, sex of students and the type of monitoring in clinical education”, and subscale of contact skills and communication “the year and the school” as facilitating factors in the acquisition/development of these relational skills in preserving the privacy of users during the care process.

It is the interaction with the reality that students are going to be confronted with their difficulties and to the specifics related to the course they have chosen. As we previously discussed about the maturity of these students to deal with the student-user relationship during clinical teaching, we will be improving each year of the course. We also found that graduate students have higher mean values to the theoretical values, in these subscales of skills. The year of the course is one of the predictor variables in these subscales of skills which implies the preservation of the privacy of the users i.e. the advance of the course, students will experience situations that give them maturity in both personally and professionally, as stressed by Street (2009, p.406) when "a change in their development (...) sequentially along the clinical teachings...".

On the other hand, the curriculum of the course is very important as we have been discussing. School B has a more favorable curriculum for students to develop such skills related to the privacy of users, while at School A there is not a single course that specifically addresses this issue, which may have influenced statistically significant differences between two data collection points. Rock (2008, p.276) in his study confronted the ideas of different participants, including young nurses, teachers and students, and concluded that young nurses stressed that "training for the development of relational skills available to them in an academic context included theoretical and theoretical-practical and teaching methods, discussion of relational situations and stimulating the self-knowledge" and concluded that "the academic path is important for the development of relational skills of help". Teachers and students emphasize the kind of pedagogical tools facilitating the development of relational skills, particularly named reflective methodologies and the type of supervision in partnership.

Regarding the sex of the students as predictor of emotional skills, our study found that male students have a higher average when compared to women in this dimension of relational
skills. Also Rocha (2008) in a study found higher values in males in this dimension of relational skills. On the contrary, Augustine (2008) found a more positive influence of women in the perception of emotions to show more empathy and to be more competent in interpersonal relationships. However this author states that Goleman (2003; 2005) found that men are more self-confident and optimistic and adapt more easily to situations.

The type of monitoring in clinical education is also one of the predictors for the development of relational skills in preserving the privacy of users, as shown by the data of our study. The average values in the subscale of contact skills are higher when students are accompanied by "school teacher" while the subscales of empathic and communication skills, the average values are higher when monitoring in clinical teaching is carried out by a "supervisor nurse and the head teacher of the school". It should be noted that the role of the teacher is highlighted as a substantial element of the development of such skills.

In a study Rua (2009, p.405) reports the "importance of supportive relationship felt by students during clinical teaching (...) they need a permanent supervision, support and encouragement..." i.e. "the supervisory process is always underlying, whereby it is extremely influential in the development of students' skills and this depends not only on supervise relationship, but also of the supervisory strategies adopted...(Rua, 2009, p.410). Also in the study of Melo (2005, p.136) is "showed the monitor role" as a predictor in the contact, communication and generic skills what may be a promoter in the development of such skills by students.

In our study these predictor variables show its importance in the development of relational skills of nursing students by interfering in their behavior as students and future nurses. In one or otherwise, variables will influence how each student will behave towards the care situations, where particularly sex and year of the course stand out, variables that are intrinsic to each student, while the school and the type of monitoring in EC are extrinsic to students. These last ones are, therefore, what we think that may be changed in each school so that students acquire and develop this area of skills more harmoniously with nursing care.

REFERENCES


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