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Are there Certain Personalities among Team Players? - Using the Concept "Team Player" Developed from the Instrument Readiness for Inter Professional Education Scale (Ripels)

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Abstract

Introduction: Successful team performance has been associated with traits of individual team members that facilitate team interaction and function. Personalities combine different traits and other psychological characteristics as defined by instruments such as the Big Five personality model. In this study we raised the question if there are certain personalities among team players?

Methods: We examined whether medical- and nursing-students who had been identified as "Team Players" with the instrument Readiness for Interprofessional Learning Scale, also convey certain personality traits as measured by a personality test.

Results: The study comprised n=670 participants of total N=955 invited (response rate 70.2%) medical and nursing students from two different universities in Sweden. They were asked to fill in these two instruments; the Big Five instrument and the RIPL Scale. The results showed that students who scored as being "Team Players" also scored as "agreeable" in the Big Five personality test, ($p<0.0001$) independent of gender, educational program and type of university.

Conclusion: This result in this study strengthens our hypothesis that our "Team Player" concept developed from the RIPL Scales seems to be accurate and suitable for identifying students that have a personality optimal for interprofessional collaboration. Possibly the items constituting the "Team Player" concept in this study could form a new instrument to identify team-players in interprofessional settings and education.

Keywords: Health care education; Interprofessional education; Personality; Team work

Introduction

Teamwork is an essential part of interprofessional education and teamwork is the process where a group of people with a common goal work together, often, but not necessarily, to increase the efficiency of solving the task at hand [1]. Regular communication, co-ordination, distinctive roles, interdependent tasks and shared norms are important features of such teams. There are increasing awareness of the need for health care professionals to be proficient in teamwork with corresponding implications for the development of learning opportunities for health students in this direction. For example, the Swedish National Board of Health and Welfare, has defined competence goals for state registration and certification of health care professionals. Interprofessional competence and teamwork is in focus in these goals; nurses should be able to define their own and other professions knowledge and competence areas in teamwork and encompass a holistic view of the patient, while physicians should be able to work in teams and collaborate with other professions in health and social care.

Successful team performance has been associated with traits of individual team members that facilitate team interaction and function, e.g. their learning ability, adaptability, risk taking [2]. However, also associations between the team member personalities and team collaboration are interesting to identify. Personalities combine different traits and other persistent psychological characteristics as defined by instruments such as the Big Five personality model [3]. This model gathers traits and other psychological features into the five major personality characteristics extraversion, agreeableness, conscientiousness, neuroticism, and openness. Paris, et al. [2], found that three of the five personalities which have been described in the Big Five personality model, (agreeableness, conscientiousness and extraversion) were positively correlated to team performance, while neuroticism was negatively related to team performance. Similar findings have been reported in another study, which confirmed the positive impact of agreeableness and conscientiousness, but found no influence of extraversion [4].

Team, Team Player, and the Notion of Personality

A team is a small number of people with complementary skills and commitment to a common purpose, performance goals, and an approach for which they hold themselves mutually accountable. A team holds regular meetings to discuss their goals and progress towards achieving those goals [1]. Teamwork in health and social care has been described as a dynamic process involving two or more health care professions with complementary backgrounds and skills, sharing common health goals and exercising a concerted physical and mental effort in assessing, planning or evaluating patient care [5]. Different cultures in each health profession, which includes values, beliefs, attitudes, customs and behaviors, contribute to the challenges of effective interprofessional teamwork. Professional culture also includes social class and gender [6].

In a literature review the authors [7] identified drivers, barriers and benefits of integrated working; staff development; and meeting the needs of service users as the key themes for integrated team working. Well-functioning interprofessional teams can also be regarded as communities of practice [8]. From this perspective, the team is a "mini-organization" in view of the accomplishment of overall tasks and goals. In a good team the individuals have different competences and collaboration arises under favorable conditions giving synergy effects.

There are few formally accepted definitions of the team player concept, but many lay perspectives on the notion. For instance, in sports, a team player is ready to make personal sacrifices to help the team keep winning and stay successful. A general and basic definition of team player could be; "a team player is a person who can function effectively as a part of a group, sharing information and striving towards a common goal. A team player cannot be selfish nor need recognition for one´s individual accomplishments." Tentative definitions of this concept are often found in organizational and economical publications and not least in sports. Another definition is that a team player acts co-operatively with other health care professionals and has a complementary background and skills in a dynamic process of teamwork and also in sharing common goals [5].

A medical student in the last semester at Linköping University describing team players; "The team players need to believe and trust that every player can do the job. Every player has certain qualities and strengths, and a team needs different types of players. A coach, who may be a doctor, a nurse or a physical therapist, depending on the situation, will make sure that everyone is aiming for the same goal and that there are no misunderstandings about tactics. Every now and then, the players need to help each other out, finding new solutions and fight the opponent together to be able to win the game" [9].

Personality is the particular combination of emotional, attitudinal, and behavioral response patterns of an individual. This is one definition that is widely accepted by the public, yet there still exist multiple definitions of personality. The term personality is difficult to define because there is little common agreement on how the term should be used. In everyday speech it usually refers to someone's public image. Different personality theorists present their own definitions of the concept based on their theoretical positions [10]. However, personality is a non-cognitive construction that is typically measured via self-report questionnaires but has also been assessed by other methods such as assessment-tests or interviews [11]. Although it appears that there are little current use of personality questionnaires for medical student selection, the use of interviews before admission to medical schools is widespread.

Aim of the Study

The aim of this study was to investigate if medical and nursing students that have been identified as team players also convey certain personality traits as measured by a personality test.

Methods

Participants

To collect data for this study two universities in Sweden, both with a IPE curricula and undergraduate medical and nursing educational programs were chosen. These two universities differ in the sense that one could be labelled as an "IPE University" and the other as "IPTW University" (Interprofessional Training Ward). Medical students starting their third or eight semesters and nursing students their third or fifth or sixth semester were invited to participate in the study. The approach of the study is thereby cross-sectional.

IPE training at the "IPE University"

At the IPE university, healthcare students are trained in 12 weeks with an IPE curriculum during their education and the pedagogical approach in this university is Problem-Based Learning (PBL) [12]. In the first semester all the students are trained in an integrated course labelled "Health, Ethics and Learning" for 8 weeks. In the middle of the student's education a 2 weeks interprofessional course is arranged where the theme sexology is applied on "Health, Ethics and Learning". Final the students (in the 8th semester for the medical students and the 6th and last semester for the nursing students) are trained in interprofessional practice at a student training ward for two weeks [13,14].

IPE training at the "IPTW University"

The students at the "IPTW University" are offered voluntary IPE activities during education, such as seminars in ethics and IPE days in primary care. In the last part of the education both medical and nurse students at the "IPTW University" has an obligatory two- week IPE placement at an interprofessional training ward, together with students from all the programs in health care at the university.

Data Collection

At the introduction lectures of the new semester for medical and nursing students at both the universities the students were informed both in a written leaflet and orally about the study and invited to fill in the questionnaire anonymously. We than told the students they were free to live without filling in the questioners. Oral content requested from the students, which accepted participate in the study.

The questionnaires

In this study we have used two well-established psychometric instruments to measure the concepts personality and team player respectively. The participants were also asked about, age group, university, educational programmer, stage of education and whether the student had any previous experience of working in healthcare.

The Big Five instrument [3,15] was used to measure students' personality and with the Readiness for Interprofessional Learning Scale (RIPLS) [16,17] we used the 11 items we labelled "Team Player" [18].

The Big five personality test

The Big Five personality test measures what psychologists consider to be the five fundamental dimensions of personality; conscientiousness, extraversion, agreeableness, neuroticism, and openness. The short variant of the Big Five instrument was used [19]. The Big Five model is considered to be one of the most comprehensive, empirical, data-driven research findings in the history of personal psychology. Here follows a short description of the five personalities [19].

Conscientiousness

Persons with a conscientiousness personality have a tendency to show self-discipline, act dutifully, and aim for achievement. It influences the way in which they control, regulate, and direct his/hers influences. This personality also has a tendency to show self-discipline and preference for planned rather than spontaneous behavior. Typical features for conscientiousness is; organized, thorough, and planful.

Extraversion

Persons with an extraversion personality are characterized by positive emotions, urgency, and they tendency to seek out stimulation and company of others. These persons also enjoy being with people, and are often perceived as full of energy. They tend to be enthusiastic and action-oriented. In groups they like to talk, assert themselves, and draw attention to themselves. Typical features for extraversion is; talkative, assertive, and energetic.

Agreeableness

Persons with an agreeableness personality have a tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others. Agreeableness persons are friendly, generous, helpful, and willing to compromise their interests to other. They also have an optimistic view of human nature. Typical features for agreeableness are; sympathetic, kind, and affectionate.

Neuroticism

Persons with a neuroticism personality have the tendency to experience negative emotions, such as anger, anxiety, or depression. These persons sometimes are called emotional instability. Persons with a neuroticism personality are also emotionally reactive and vulnerable to stress. Typical features for neuroticism is; tense, moody, and anxious.

Openness to Experience

Persons with an openness to experience personality have a general appreciation for art, emotion, adventure, unusual ideas, imagination, curiosity and variety of experience. These persons also are intellectually curious, appreciative of art, and sensitive to beauty. Persons with an openness personality tend to be, when compared to closed people, more creative and more aware of their feelings. Typical features for openness to experience are; having wide interests, being imaginative and insightful.

Gender and age differences

Cross-cultural research has shown some patterns of gender differences on responses to the Big Five Inventory. For example,

women consistently report higher in Neuroticism, Extraversion and Agreeableness, and men often report higher in Extraversion and Openness [20]. Many studies of longitudinal data, which correlate people's test scores over time, show a high degree of stability in personality traits during adulthood. It is shown that the personality stabilizes for working-age individuals within about four years after starting working [21]. There is also little evidence that adverse life events can have any significant impact on the personality of individuals.

The concept Team Player

The Readiness for Interprofessional Learning Scale was the first widely spread instrument for evaluating interprofessional learning activities, originally presented by [16], and translated to Swedish by [22]. This instrument has been criticized for problems with weak internal consistency in subscales [23]. Although cross cultural studies have showed good internal consistency for example [24].

In an earlier study the authors developed the concept "Team Player" from the instrument RIPL Scale. By using factor analysis, we got four instead of the originally three item groupings. One of the groupings with 11 items (questions 1-6, 9 and 13-16) had a high internal consistent. The original RIPL Scale gave a Cronbach´s alpha of 0.62, while the Cronbach´s alpha in the cluster we labelled "Team Player" gave a value of 0.88. The conceptual and semantic essence of these 11 items were scrutinized by an interprofessional expert panel of healthcare educators from the two participating universities, which resulted in an agreement to label this factor "Team Player" [18]. In this study we used the 11 items of RIPL Scale we labelled "Team Player".

Statistical Methods

We calculated scores for the concept "Team Player" and for the Big Five personality test, for each of the participants. Associations between the "Team player" and the "Big Five" test scores were then assessed for different groups of participants.

In model analyses of associations between "Team Player" scores and personality factors, we divided the study population using basic personal and background data, i.e. data on sex, study program, and type of university. Differences in "Team Player" scores for the Big Five personalities with regard to the presence of these background factors (y/n) were tested for each factor by student´s T-test. Associations between "Team Player" scores, the Big Five personalities, and interactions between pairs of personal and background factors also were studied. Correlations between continuous variables were analyzed by calculation of Pearson correlation coefficient.

By using multiple regression analyses we studied the associations between the socio-demographic variables sex, age, IPE/IPTW school, and medical/nursing program, and each of the five personalities in the "Big Five". Thereafter in multiple regression analysis we assessed the relative importance of the sociodemographic variables for the "Team Player" concept. A p-value <0.05 was considered statistically significant. All data were stored in a database and analyzed using the Statistical Package for the Social Sciences (SPSS) 20.0 software (Chicago, IL, USA).

Ethics approval

The Research Ethics Committee at Linköping University, Sweden, approved the study (Dnr. 2010/26-31). The students were informed both orally and in a written leaflet about the study. We invited the students to fill in the questioners and told them they were free to live without filling in the questioners. Oral content was also requested from the participants.

Results

The overall response rate was 70.2%, 955 students were asked to fill in the instruments and 670 students returned the questionnaire. At the "IPTW University" 577 students were invited at and 371 (64.3%) participated, while the "IPE University" 378 students were invited and 299 (79.1%) responded. Of the total participating students, 73.1% (n=490) were females and 26.9% (n=180) were males; 43.4% at the medical programs and 56.6% studied at the nursing programs. The students at the "IPE University" were slightly younger (p=0.026); 85.5% were under 30 years of age compared to 78.2% for the students at the "IPTW University". No differences were found between medical nurse students or female vs male at the universities. In the initial model analyses, we found that students who scored as being "Team Players" also scored as "*agreeable*" in the Big Five personality test, ($p<0.0001$) independent of socio- demographic variables gender, age, educational program and type of university.

Secondly, we found that female students categorized as "conscientious", "*agreeable*" and "*neurotic*" were more likely to be "Team Players" than corresponding males ($p<0.0001$) (Table 1). Also nursing students categorized as "*conscientious*" or "*agreeable*" were more likely to be "Team Players" than corresponding medical students.

In comparison, men and medical students categorized as "open" in the Big Five personality test were more likely to be "Team Players" than corresponding women and nursing students ($p<0.0001$ (Table 1).

Table 1: Mean and students T-test of the Big Five personalities and the concept "Team player" from RIPE Scale.

Conscientiousness				Extraversion			Agreeableness			Neuroticism			Openness		
	Mean	**S.D**	**p-value**	**Mean**	**S.D**	**p-value**	**Mean**	**S.D**	**p-value**	**Mean**	**S.D**	**p-value**	**Mean**	**S.D**	**p-value**
Women	4.06	0.52	<0.0001	3.4	0.62	0.7	4.18	0.49	<0.0001	2.6	0.68	<0.0001	3.5	1	<0.0001
Men	3.74	0.62		3.4	0.7		3.93	0.54		2.2	0.68		3.7	1	
Medical	3.92	0.59	0.02	3.5	0.69	0.8	4.01	0.52	<0.0001	2.4	0.71	0.2	3.7	1	<0.0001
Nurse	4.02	0.55		3.4	0.62		4.18	0.51		2.5	0.68		3.4	1	
IPE	4.01	0.57	0.22	3.4	0.66	0.4	4.18	0.48	<0.0001	2.5	0.7	0.9	3.5	1	0.66
IPTW	3.95	0.57		3.5	0.63		4.05	0.53		2.5	0.69		3.6	1	

In five multiple regression analyses we studied associations between the sociodemographic variables and each of the five personalities in the "Big Five" (Table 2). The results showed that females scored higher than men in the personalities "*conscientious*", "*agreeable*" or "*neurotic*". Being "*agreeable*" played a role in association with type of university, while being "*open*" mattered in association with age and type of study program.

Table 2: Results from five multiple regression analyses of associations between sociodemographic variables and the Big Five personalities.

	Conscientiousness *	**Extraversion ****	**Agreeableness *****	**Neuroticism ******	**Openness *******
Men/Women	<0.0001	N.S.	<0.0001	<0.0001	N.S.
Med/Nurse	N.S.	N.S.	N.S.	N.S.	<0.0001
HU/KI	N.S.	N.S.	<0.0001	N.S.	N.S.
Age	N.S.	N.S.	N.S.	N.S.	0.033

Multiple regression models for each of the "Big Five" personalities:

*df 5, F- value 11.11 and R-value = 0.28, Adjusted R-value = 0.07 p<0.0001

** df 5, F -value 0.59 and R-value = 0.07, Adjusted R-value = -0.01 p=0.707

***df 5, F -value 10.95 and R-value = 0.27, Adjusted R-value = 0.07 p<0.0001

**** df 5 F -value 6.50 and R-value = 0.22, Adjusted R-value = 0.04 p<0.0001

***** df 5, F -value 11.41 and R-value = 0.28, Adjusted R-value = 0.07 p<0.0001

N.S. No significance

Finally, we calculated one multiple model analysis assessing the relative importance of different independent variables for the concept "Team Player" (Table 3). The results showed that females (p<0.0001) and also nursing students (p<0.0001) were associated to the concept "Team Player", independently of their age or if they were attending an IPE or an IPTW university.

Table 3: Multiple regression between the socio-demographics variables and the concept "Team Player" from the RIPE Scale.

	Standardized Beta Coefficient	**p-value**
Men/Women	-0.159	<0.0001
Medical/Nurse -Students	0.242	<0.0001
IPE/IPTW	0.01	0.79
Age	-0.009	0.81

Multiple regression model; df 4, F-value 17.8 and R-value = 0.33, Adjusted R-value = 0.11. p<0.0001

Discussion

In this study we applied the concept "Team Player" developed from the RIPEL Scale and compared the concept with the personality test Big Five. The main findings in this study were that students, who scored high in the personality "*agreeableness*", and thus are expected to be compassionate and co-operative, also score high in the concept "Team Player" [18]. These results strengthen our hypotheses that the eleven items constituting the concept "Team Player" from the RIPEL Scale are useful for identification of "Team Players" among healthcare students. The results also show that women in three of the Big Five personalities *"agreeableness", "conscientiousness"* and *"neuroticism",* score higher than men, for the concept "Team Player", this is due to our earlier findings [18], which suggest that, female students and nursing students are more read for teamwork and interprofessional learning and education. Further nursing students in two of the Big Five personalities *"agreeableness"* and *"conscientiousness"* also score

significantly higher than medical students in the concept "Team Player". It seems as two of the Big Five personalities; *"agreeableness",* (having a tendency to be compassionate and co-operative) and "*conscientiousness"* (having a tendency to show self-discipline, act dutifully, and aim for achievement) are central as indicators of "Team Player" compared to the three other Big Five personalities.

Interviews and personality assessments have been tested as a part of selecting medical students [25] as studies have identified relationships between personality and job performance [26]. Selecting students into education is controversial but will probably influence the outcome. Learning style and personality in medical education could help educators to find persons who will be unsatisfied and stressed in workplace [27].

In a study two different personalities *"extraversion"* and *"introversion"* demonstrated differences in information style and in making decision and judgment [28]. As communication and decision making are essential in health care, teamwork and influence quality of care, such examples might inspirit educators to use instrument to find differences in personalities before starting an education. All over the world IPE are growing and one key factor for successful IPE is teamwork and how the members act in teamwork. One team player in teamwork could make differences in how the team act and perform [2,5]. Responsibility for managing the learning rests not only on individual but also on the group in IPE [29], is another issue why medical- and nursing schools in the future perhaps might want to become more aware of the benefits of using both personality assessments and IPE instruments such as "Team Player" when selecting students into educations. The need of new instruments in the area of IPE with god validity is an important problem all over the world [30] and a lot of new instruments are developed [31,32] are some examples.

In our study IPE experience was not related to personality, probably due to the stability in personality traits during adulthood as described in the Big Five personality test, i.e. personality is a noncognitive construct.

Possible limitations of our study include the participation rates and an uneven gender distribution among the respondents. The overall response rate was over 70%, which is quite acceptable, the participation rates for the students at the "IPTW University" were a bit lower (64%), which might have influenced the results. A possible risk of mass significance might occur when many questions are measured, although these questions were all included in well-established scales and index and not analyzed separately. Another limitation could be that the students in this study only were trained at two Swedish universities; this may also have influenced the results.

Conclusion

Students, who score high in the personality test Big five for the item "agreeableness", and thus are expected to be compassionate and co-operative also score high in the concept "Team Player". This result strength our hypothesis that our "Team Player" concept developed from the RIPL Scales seems to be accurate and suitable for identifying students that have a personality suitable for interprofessional collaboration. Possibly these 11 items constituting the "Team Player" concept in this study could form a new instrument to identify these team-players in interprofessional settings and education. It is a big challenge for the further tests and application of this instrument in interprofessional education.

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