

Development, Validity and Reliability of The Social Capital Scale for Adults

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Abstract

This study aims to develop the Social Capital Scale for Adults (SCS-A). Random sampling method was used in the study, and individuals were reached via an online survey form. The answers given by 479 individuals who voluntarily participated in the study were edited and analyzed. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) performed item pool. The results were questioned at 0.01 and 0.05 significance levels. Varimax rotation method was used in the study. In the final analysis, the KMO (Kaiser-Meyer-Olkin) value was calculated as 0.926, Bartlett's Test of Sphericity $p < 0.05$, Chi-square=41517.001 and SD=4465, $p = 0.000$ were obtained. According to the CFA analysis, X²/Degrees of Freedom, GFI, AGFI, RMSEA, SRMR, RMR, CFI, NNFI, IFI, NFI, and PGFI. Based on these findings, it is possible to say that the model is acceptable. As a result of EFA, it was found that there were 14 components with eigenvalues above 1 for 95 items, whose contribution to the total explained variance would be taken as basis, and the total explained variance was 71.372%. In SCS-A, all items had the highest correlation value with the factor they were factored into, and the overlap value was not less than 0.1. The Cronbach's Alpha coefficient of the SCSA scale was found to be 0.966 and the variance explained by the scale was 71.372%. Cronbach's Alpha coefficients of the factors ranged from the lowest F14 = 0.790 to the highest F01 = F14 = 0.961. Accordingly, both the internal consistency of the factors and the internal consistency of the entire scale were at a level that can be considered highly reliable. Considering the findings and results of the study, it can be said that the Social Capital Scale is a valid and reliable measurement tool for Turkish adults.

Keywords: Social Capital Scale, Adults, Social Capital, Validity, Reliability.

Yetişkinler İçin Sosyal Sermaye Ölçeğinin Geliştirilmesi, Geçerlilik ve Güvenilirliğin Yapılması

Özet

Bu çalışmanın amacı Yetişkinler İçin Sosyal Sermaye Ölçeği'ni (SCS-A) geliştirmektir. Çalışmada rastgele örnekleme yöntemi kullanılmış olup, bireylere çevrimiçi anket formu aracılığıyla ulaşılmıştır. Çalışmaya gönüllü olarak katılan 479 bireyin verdiği yanıtlar düzenlenerek analiz edilmiştir.

Keşfedici Faktör Analizi (EFA) ve Doğrulayıcı Faktör Analizi (CFA) ile madde havuzu yapılmıştır. Sonuçlar 0,01 ve 0,05 anlamlılık düzeylerinde sorgulanmıştır. Çalışmada Varimax rotasyon yöntemi kullanılmıştır. Son analizde KMO (Kaiser-Meyer-Olkin) değeri 0,926, Bartlett'in Küresellik Testi $p < 0,05$, Ki-kare=41517,001 ve SD=4465, $p = 0,000$

olarak hesaplanmıştır. CFA analizine göre, X2/Özgürlük Derecesi, GFI, AGFI, RMSEA, SRMR, RMR, CFI, NNFI, IFI, NFI ve PGFI. Bu bulgulara dayanarak, modelin kabul edilebilir olduğunu söylemek mümkündür.

EFA sonucunda, toplam açıklanan varyansa katkısı esas alınacak 95 madde için özdeğerleri 1'in üzerinde olan 14 bileşen olduğu ve toplam açıklanan varyansın %71,372 olduğu bulunmuştur. SCS-A'da, tüm maddeler faktörleştirildikleri faktörle en yüksek korelasyon değerine sahipti ve örtüşme değeri 0,1'den az değildi. SCSA ölçeğinin Cronbach's Alpha katsayısı 0,966 ve ölçeğin açıkladığı varyans %71,372 olarak bulunmuştur. Faktörlerin Cronbach's Alpha katsayıları en düşük F14 = 0,790'dan en yüksek F01 = F14 = 0,961'e kadar değişmektedir. Buna göre hem faktörlerin iç tutarlılığı hem de tüm ölçeğin iç tutarlılığı oldukça güvenilir kabul edilebilecek düzeydedir. Çalışmanın bulguları ve sonuçları göz önüne alındığında, Yetişkinler İçin Sosyal Sermaye Ölçeği'nin Türk Nüfusu için güvenilir bir ölçek olduğunu söylemek mümkündür.

Anahtar Kelimeler: Sosyal Sermaye Ölçeği, Yetişkinler, Sosyal Sermaye, Geçerlilik, Güvenilirlik.

INTRODUCTION

Although the concept of Social Capital (SC) is mostly studied in sociology, in recent years, it has attracted the attention of all branches of science, especially social sciences and health sciences, whose field of study is human. The concept of SC is essentially a network of relationships based on the individual's relationship with himself/herself, other individuals, the state and institutions, and the sum of values based on belonging, reciprocity and trust. This network of relationships is also the entire social ecology of the individual. In order to understand and transform the individual, it is necessary to understand and transform his/her social ecology. Therefore, any approach that is not based on the ecology of the individual will not be successful.

The concept of SC was formed by combining the concepts of "social" because the interaction between people affects various parameters related to human health, emotional state, psychology, productivity, and "capital" because this interaction reflects the accumulation of interactions such as family, friendship, shared origin, belonging to the same club, or having the same religion.

Bourdieu (1) defines the concept of capital as "the accumulated history of a society or an institution", while Ardahan (2) defines it as "asset, owned value". According to Ardahan (2), the types of capital are a) "Physical Capital" consisting of real properties and infrastructures in a region, b) "Economic Capital" as the sum of monetary resources, properties and assets that can be converted into investment, c) "Human Capital" consisting of education, talent, knowledge, skills and work efficiency, d) "Cultural Capital" describing the accumulation of culture that provides socio-economic differences and advantages to societies, e) "Health Capital" describing the physical, mental and emotional well-being of individuals, f) Since the mid-20th century, the concept of "Social Capital", which is based on social interaction, relationship and all trust-based structures, has been added to these capital concepts. In recent years, Gross (3) introduced the concept of "Emotional Capital" as an individual's ability to increase positive emotions and decrease negative emotions, in other words, the ability to manage one's own emotions, and Luthans et al. (3) introduced the concept of "Psychological Capital", which is the combination of an individual's hope, optimism, self-efficacy and psychological resilience.

The concept of SC was first introduced by Durkheim while studying "the reasons that lead individuals to suicide" (5). The concept of SC, which became a part of economic life with the concept of "human capital" in the 1960s, was considered as a production factor by Theodore Schultz and Becker (6). Coleman (7) viewed SC as "a public good and public value created by social networks". According to Putnam (8), SC is the sum of values that should be taken out of the concept of human capital, which is a part of the economy, and should be considered as the sum of "relationships formed by trust, norms and social networks". Contrary to Coleman (7), Dasgupta and Serageldin (9) see SC as "the total value of the relationships that individuals develop among themselves" and not a public good, while Portes (10) defines it as "the sum of the set of values possessed by individuals and society" and Fukuyama (11,12) defines it as "a set of norms based on sincerity and trust that encourage interaction and harmonious cooperation among individuals". Gleaser (13) sees SC as "the social and institutional reflection of decisions made at the individual level", Grootaert and Van Bastelaer (14) consider it as "the contributions of institutions, relationships, attitudes and values that connect people to economic and

social development", Heral (15) defines SC as "the ability of people to work together as individuals, institutions, groups or organizations for common goals".

When the common aspects of the definitions are brought together, the concept of SC can be defined as "the sum of values, norms, formal and informal networks, common values based on trust, affecting the common goals, activities, mutual relations, and ability to work together of individuals and societies."

When the concept of SC is considered in different ways in terms of its "plane", "form", "severity" and "quality", its context can be better understood (6). The concept of SC has three types in terms of its nature: a) "Binding SC", which is based on the relations between individuals in a homogeneous society, where the idea of "being one of us" is based on a common identity such as family, relatives, ethnic background, religion, sect, belonging to the same business, or being from the same country, etc., b) "Bonding SC" describes horizontal relationship networks that, although heterogeneous, share some common values with weak social ties, enable different groups with different identities to come together, and are formed voluntarily, which can be given up when necessary, c) "Bridging SC", which brings together acquaintanceships and friendships formed at distant and less intense social, professional and all societal levels (16). When the concept of SC is examined in terms of its form, a two-dimensional structure emerges. The first of these is "horizontal networks", which are formed by members having equal or equivalent status, with an asymmetrical relationship among themselves, mostly in an informal structure, such as family, neighbourhood, friendship, hobby group membership, and any structure that requires voluntary participation, and the second is "vertical networks", which are formed by members with status differences, with asymmetrical relationships among themselves, mostly formal, such as educational institutions, government offices, and relationships in the work environment (6). The concept of SC can be considered in two dimensions in terms of its severity: "strong networks", which are used to describe the bonds between nuclear families, kinship, friendship and closed groups of friends, where there are strong mutual ties, trust and cooperation, and "weak networks" where there are superficial, distant and infrequent relationships and interactions (6, 17). SC is considered in three dimensions in terms of its plane. These are the "micro structure", where the relationship is examined at the level of individuals and groups, the "meso structure", which is discussed at the level of non-governmental organizations and social institutions, and the "macro structure", where state institutions and international relations are discussed (18, 19). There is only one way to understand an individual's world, regardless of his/her age, level of education, income, or social status. It requires being able to see the individual's constructed life on each of these planes.

In societies, institutions, businesses and states where there is no trust, no sense of belonging, no mutually obligatory or voluntary cooperation, no collective action, it is certain that all other capitals, including SC, cannot be created, the existing ones cannot be protected or even expanded. In addition, according to Putnam (20, 21) and Fukuyama (12), productivity and competitiveness decrease in businesses with low levels of SC, and the crime rate increase in societies. According to them, SC is an effective tool to reduce the crime rate and create a safe city.

Measuring the level of SC in a society or group has been possible with scales developed based on the mentioned determinants. Researchers studying SC have addressed one or a few dimensions of SC, which is a very broad concept, in their studies. Studying the concept of SC in all its dimensions requires quite comprehensive studies on topics that concern the entire ecology of the individual. Considering the common points of the scale studies conducted on this subject to date, it is possible to summarize the determinants of SC under the following headings.

a) One of the most important determinants of the concept of SC is the "relationship network" that begins with the relationship and interaction of the individual with the individual. This relationship involves having social interaction by phone, face-to-face or via social media. This interaction includes the social interactions and encounters in the individual's daily life. These include relationships with "family", "relatives", "social friends", "co-workers and schoolmates", "neighbours". These are social interactions that can be carried out in many contexts such as attending weddings and birthdays, giving and attending dinner invitations, mutual visits, asking for help on any issue from familiar or unfamiliar individuals, and being ready and willing to help when these individuals ask for help (Putnam 8, 20, 22, 23, 24, 25, 26, 28, 29, 30). The neighborhood relationship mentioned here refers to the "physical neighborhood" in all SC studies conducted to date. However, recently, especially with the penetration of the Internet in every field, the experts of the subject have

been addressing the issue of the "social media neighborhood or digital neighborhood", which is much more effective than the physical neighborhood in the life of the individual. The first study on this subject was conducted by Ardahan (31) on adolescent individuals. It was also studied as a separate factor in the new scale approach discussed in this study. The existence of meaningful and satisfying relationships with the family, relatives, neighbours, close environment, colleagues and the quality level of the relationship are among the factors that positively affect the quality of life of individuals (32). The relationship between individuals also means voluntary and/or compulsory cooperation. For the realization of a defined mission, any kind of solidarity between individuals, whether institutional or not, is the continuation of this cooperation (33).

b) Another important determinant of the SC is "trust". Trust can also be used to mean the womb in which life is carried on safely. Trust in the relationships between friends, family, coworkers, neighbors, and strangers; trust in our employer that our employment contract won't be terminated; trust that we'll get paid on time; trust that we'll advance in our career once we meet the requirements; and trust in the "physical security" and "human-based trust" of our surroundings, as well as trust arising from "the individual's relationship with the state, the private sector, and non-profit institutions" are all values whose existence can be viewed as an active investment (8, 20, 22, 23, 24, 25, 26, 27, 29, 30, 34, 35, 36, 37, 38).

c) The institutions mentioned here are all public institutions such as schools, hospitals, municipalities, tax offices, private sector, public interest associations, foundations, recreation and sports institutions. Living in cities has become increasingly important these days for all people, but especially for children for a variety of sociological reasons, including income inequality, opportunity inequality, and the increasing heterogeneity of cities as a result of intense migration. In order to live in a safe environment, individuals are willing to spend more due to many demands such as purchasing safe houses and creating environments isolated from traffic and strangers (39). Other factors that have a positive impact on people's quality of life include trust in institutions, the place of residence, close friends, family, and coworkers (32).

d) Another important determinant of the concept of SC is the sense of "belonging" (7, 20). This sense of belonging is at an individual level and it also meets the need at the third level of Maslow's hierarchy of needs. This sense of belonging includes the individual's feeling of belonging to a family, relatives, a club, an association, a social organization, a country, a city, a neighborhood, a lifestyle, a religion, a political view, an ethnicity, a school, a business, a sports club, a color, a song.

e) It is also a structure based on human relations that provides benefits in many areas such as structuring all individual relationships in a win-win format with the "principle of reciprocity" in a value-added form, creating a sense of social solidarity, financial support, commercial relations, economic interaction, facilitating business follow-up in institutions, and adaptation in relocations and new settlements (22, 24, 25, 26, 27, 29, 35, 36, 38, 40, 41, 42). Reciprocity describes a two-way, not one-way, relationship of interest and gain.

f) The sense of belonging can also manifest itself as "participating in decisions in the place of residence, sharing responsibilities of the results, participating in management, taking part in civil society, involving in politics or local government, being a member of parent-teacher associations and clubs, and engaging in various activities" Any sense of belonging will bring with it the responsibility of participating in decisions on individuals (7, 22). This may also occur for the accomplishment of a supported mission or for opposed events. All of these participations are processes of creating voluntary unity and cooperation. This can also be shaped as a means of social pressure. For example, if environmentalism is a mission that is supported, the individual may participate in environmental activities, while an individual who is opposed to violence against women may take part in activities, organizations and processes because of this opposition. This participation may be one-time, or it may take place in a structure that overlaps with the principles of "volunteering" that has turned into a serious leisure activity (22, 43).

g) In addition, "Sensitivity to social problems", which means that the individual does not ignore the problems of the society he/she is in during events that are not within his/her control, that he/she is mostly against, does not support and will never support and "taking initiative in social issues", one of the actions taken voluntarily in revealing and solving these issues, is the leadership put forward by an individual to manage the process and create an expected result when no one has forced him/her to do an action and it is not

his/her duty to do that action (20, 22, 31). For example, sensitivity to social problems is a stance against the pressure of the state which has reached the level of cruelty experienced by women in Iran regarding their clothing style, the environmental massacre committed for the sake of profit in our country, the conditions of animals living imprisoned lives in zoos, also called animal prisons, and child abuse in congregations.

h) "Tolerance to diversity" means not discriminating against those who are not like oneself in terms of their political views, ethnic origin, skin color, sexual preferences, countries of origin, appearance, etc., accepting them as they are, defending their rights to the fullest even if they are not like oneself, and opposing discriminatory attitudes towards them. Tolerance to diversity, which is a very important concept especially in developing and underdeveloped societies, can also be considered as "the reward for the progress made in development" in developed societies (22, 27, 35, 36). Tolerance to diversity is also an important element that enables the establishment of a relational bridge between people.

i) The society we live in, "family, close circle and pressure from others" can often affect individuals' behaviors and lifestyles positively or negatively, whether the individual wants it or not. The individual's family, relatives, social environment, work environment, and society, even if they do not interact, can create conditioning pressure that is prioritizing, praising or criticizing any form of behavior on individuals' values, attitudes and behaviors. Belonging behavior can also be considered as a didactic element that requires being like those in the structure to which one belongs. If an individual belongs to a place, he/she is forced to be like them by internal or external pressure. While internal pressure comes from within the individual, external pressure is the pressure from others. While this idea of being like them may enable the development of the individual, it may also be one of the important factors in restricting the freedom of the individual (44). An individual who prefers to wear revealing clothes in a neighborhood where everyone dresses in a way that covers their bodies, may feel under pressure due to his/her clothing choice. This is also considered a recreational obstacle (45, 46). Pressure from family, close circle and others is also one of the factors that negatively affect individuals' quality of life (32).

j) In addition to the determinants listed here, "economic relations", "income", "education level", "health", "meaning of life", "self-worth", "personal skills" (41, 47, 48) "social and recreational potential of the place of residence and the level of participation in them" that affect the ecology of the individual (24, 25) have also been studied as determinants of SC.

Measurement Of Social Capital

The difficulties in defining social capital and identifying its elements are also reflected in the measurement of this concept. The reason for these different definitions and explanations is that researchers from different disciplines treat social capital as a different object of study. There are studies on this subject, generally developed by social scientists and involving adults.

According to Bowling (49), there is currently no scale that is considered the gold standard for assessing the main aspects of social capital with an acceptable level of reliability and validity.

The generalization of science that "nothing that cannot be measured can be improved" is the basis of all studies on SC, as in every social issue. If something is to be improved, it must first be made measurable. While applications based on a single measurement give a score on that subject, studies based on two measurements reveal the change in the sample over time if the measurement is made on the same main sample at different times, and if the measurement is made on samples taken from two different main masses, it reveals the difference in the compared samples. For this reason, the measurement of SC has been a priority for many researchers to date. Of course, making a measurement based on the entire "human ecology of the individual" requires a very comprehensive and complex approach. Researchers studying the determinants of SC have tried to define it by focusing on "proximal" and "distal" indicators in their studies. Studies that prioritize scale development based on the determinants of SC can be listed by years as follows:

- Spellerberg (47) focused his SC study on the distal determinants of SC in a society and individuals, namely health, life expectancy, health status, suicide rate, crime rate, teenage pregnancy, higher education participation rate, employment rate, family income level, marital relationship and divorces, job security, job growth, trade balance and GDP growth.

- Onyx and Bullen (22) discussed the determinants of SC under the headings of "participation in local government", "Social Mediation or Proactivity in the Social Context", "feelings of trust and safety", "physical neighborhood relations", "family friendship relations", "tolerance to diversity", "value of life", "business connections" and "proactivity in the social context".
- Hjøllund and Svendsen (34) discussed the determinants of SC under the headings of "organizations of which one is a member", "trust", "family, kinship, neighborhood relations", "value of connections with close and distant environment" and "participation in civil society".
- Narayan and Cassidy (35) examined the determinants of SC under the headings of "trust in institutions, environment and people", "group work and belonging", "asking for help from others and being ready to help", "daily socialization with family, relatives and friends", "tolerance to diversity", "participation in politics and civil society".
- Stone (36) studied the determinants of SC under the headings of "social networks based on friendship, family and neighborhood relations", "participation in social activities, group activities and visiting friends, family members and relatives for important social events", "participation in civil society and local government", "sense of belonging to an institution, family or structure", "tolerance for difference".
- Harper (40) discussed the determinants of SC under the headings of "social participation in activities and organizations", "social network and social support", "created and shared trust and reciprocity", "participation in public events" and "structures of the place of residence".
- Alanen and Niemelainen (37) addressed the determinants of SC under the headings of "participation in volunteering activities or recreational activities", "friendship relationship", "trust in individuals, environment and institutions", "economic opportunities of the living environment".
- Kay and Pearce (50) discussed the determinants of the SC concept under the headings of "trust", "social networks", "belonging", "reciprocity" and "cooperative behavior".
- Grootaert et al. (23) addressed the determinants of SC under the headings of "neighborhood relationship", "social cohesion, participation in civil society, administration and politics", "receiving support and help from others", "sense of trust and solidarity", "acting together and cooperation", "relationships and communication", "sociability, conflict and violence", "empowerment and political action".
- Looman (41) discussed the determinants of SC in four factors under the headings of "participation in activities for the public good ", "sense of belonging", "participation in spiritual relationships", " relationship with school " and "requesting help".
- Van der Gaag and Webber (48) examined the determinants of SC under the headings of "local resources and opportunities", "getting expert advice", "personal skills" and "problem solving skills and resources".
- Chen et al. (24) under the headings of "frequency of contact with family, friends, relatives, neighbors, coworkers, old friends", "regular contact with family, friends, relatives, neighbors, coworkers, old friends", "trust in family, friends, relatives, neighbors, coworkers, old friends", and "the level of help from family, friends, relatives, neighbors, coworkers, old friends when requested", "the sum of values held by individuals in interaction", "the level of performing the activities organized by public institutions, political, economic and social groups and organizations", "the level of performing the activities organized by cultural and recreational groups and organizations such as sports, music, dance", "the extent to which activities organized by public institutions, political, economic and social groups and organizations address your rights and interests", "the extent to which activities organized by cultural and recreational groups and organizations, such as sports, music, dance, etc., address your rights and interests", "the extent to which public institutions, political, economic and social groups and organizations help you upon your request", "the extent to which cultural and recreational activities, such as sports, music, dance, etc., address your rights and interests upon your request, and "the presence, social connection, social influence, and significant power in decision-making of these two groups and organizations"

- Looman and Farrag (42) discussed the determinants of SC under the headings of "Participation in the Public Interest", "Sense of Belonging", "Connection with Systems" and "Family Role in Society".
- Archuleta and Miller (38) discussed the determinants of SC under the headings of "network dimension", "frequency of contact", "trust in people", "getting help from people", "Resources and assets for personal networks", "Organizational network dimension in the community", "participation in organizations", "organizational rights and interests", "organizational structure to provide assistance" and "institutional assets and resources".
- Wang et al. (25) discussed the determinants of SC under the headings of "the level of meeting with friends", "the level of meeting with fellow citizens and former classmates", "trust in coworkers", "trust in family and relatives", "the level of close relationship with family, relatives, friends", "the level of doing professional work with family, relatives and friends", "asking for help from coworkers", "asking for help from friends in the social world", "the level of doing and participating in cultural and recreational activities organized by public institutions, political, economic and social groups in the society where the individual lives", "the level of social connection of these groups and organizations", "the level of social impact of these groups and organizations", "the level of representation of your interests by cultural, recreational groups and organizations", "the level of representation of your interests by governmental, political, economic and social groups and organizations" and "depending on the demand, the percentage of cultural and recreational groups and organizations meeting your demand".
- Uçar (51) discussed the determinants of SC under the headings of "Strategic Trust", "Generalized Trust", "Institutional Trust", "Common Values", "Group Belonging and Trust".
- Meek et al. (26) discussed the determinants of SC under the headings of "Shared communication language", "shared vision", "reciprocity norms", "social trust", "individual relationship network", individual belonging".
- Zhao et al. (27) discussed the determinants of SC under the headings of "participation in local government", "Social Agency or Proactivity in Social Context", "feelings of trust and safety", "neighborhood relations", "family friendship relationship", "tolerance to difference", "value of life" and "work connections".
- Maķevica et al. (29) studied the determinants of SC under the headings of "institutional trust", "Barriers to social support from acquaintances", "receiving social trust and support", "Social relations", "Sense of belonging", "Trust in people".
- Forsell et al. (30) developed a scale regarding the participation in recreational and sports clubs under the headings of "Friendship, Acceptance-Approval", "Behavioral Norms", "Trust-Reciprocity" and "Participation in Management".
- In addition, studies on SC scales have also been conducted for adolescents by Koutra et al. (52), Aminzadeh et al. (53), Pavia et al. (54) and Ardahan (31).

The Need for A New Scale

The answer to the question of why there is a need to develop a new scale when there are many studies on the measurement of SC is the reason for conducting this study. There are generally two main reasons for developing a new scale in scale studies. The first and most important reason is that the existing scales are not sufficient to explain the whole "individual ecology" in terms of measurement, and the second reason is to get more effective results with a smaller list of questions (31).

In the new study, the determinants of SC were addressed with a question list of 95 items under a total of 14 headings: "Kinship Relationship", "Physical Neighborhood", "Family Relationship", "Social Media (Digital) Neighborhood", "Workplace/School Relationship and Institutional Loyalty", "Friendship Relationship", "Family and Environmental Pressure", "Participation in Local Government", "NGO Membership (Playing a Role in Civil Society)", "Trust in Public Institutions", "Tolerance to Diversity", "Safety of the Living Environment", "Sensitivity to Social Problems" and "Taking Initiative in Social Issues".

Each scale listed above measures the SC value of an individual by taking one or more determinants together. The scales developed by Onyx and Bullen (22), Narayan and Cassidy (35), Chen et al. (24), Wang et

al. (25) are among the most widely cited scales and have validity and reliability in many languages. Compared to the current study, Onyx and Bullen's (22) study differs from the SCS-A in terms of "Trust in Institutions", "Social Media Neighborhood" and "Sensitivity to Social Problems". In Narayan and Cassidy's (35) study, some items from the dimensions of "trust in institutions, the environment and people", "group work and belonging", "asking for help from others and being ready to help", "daily socialization with family, relatives and friends", "tolerance to diversity", "participation in politics and civil society" were included in the item pool of the SCS-A. The studies of Chen et al. (24) and Whan et al. (25) differ from the SCS-A in terms of "Trust in Institutions", "Social Media Neighborhood", "Sensitivity to Social Problems", "Participation in Local Government", "Safe Living Environment" and "Taking Initiatives in Social Issues". Some items from the study of Uçar (51) under the headings of "Strategic Trust", "Generalized Trust", "Institutional Trust" and "Group Belonging and Trust" were included in the SCS-A.

In addition, Chen et al. (24) and Wang et al. (25) had questions with similar structures in their studies. For example, the positive or negative answers to the question "the level of help from family, friends, relatives, neighbours, coworkers, old friends when requested" could not be differentiated from which social relationship they would or would not represent. When an individual cannot ask for help from his/her family for various reasons but asks for help from friends in his/her social world, two different individuals who can ask for help from their family but cannot ask for help from their friends receive the same score on the scale. Similarly, this similarity is present in "having regular meetings with family, friends, relatives, neighbors, coworkers and old friends" and "trusting family, friends, relatives, neighbors, coworkers and old friends". In order to eliminate this similarity, "asking for help", "meeting" and "trusting" were asked separately in the new scale.

The aim is to measure the human ecology of the individual in the most effective way. The most distinctive feature of the new measurement tool is to transfer the three basic approaches of SC, namely "Binding", "Bonding" and "Bridging" relationship values to the proposed new method with measurement values based on "strong" and "weak" network relationships within the scope of "horizontal" and "vertical" networks and to make measurements on this basis.

METHOD

This study is a descriptive study and the ethical permission was obtained from Akdeniz University, Social and Human Sciences Scientific Research and Publication Ethics board, with the decision dated 30/11/2020 - 261 and numbered 261.

Random sampling method was used in the study, individuals were contacted with an online survey form via social media, telephone message groups or e-mail between 01/06/2022-01/09/2022, and the 479 data obtained from those who voluntarily participated in the study were processed after editing.

The item pool was created with common items taken from the scales developed by Onyx and Bullen (22), Narayan and Cassidy (35), Chen et al. (24), Wang et al. (25), Uçar (51), Ardahan (32), Spellerberg (47), Hjøllund and Svendsen (34), Stone (36), Harper (40), Alanen and Niemelainen (37), Kay and Pearce (50), Grootaert et al. (23), Looman (41), Van der Gaag and Webber (48), Looman and Farrag (42), Archuleta and Miller (38), Uçar (51), Meek et al. (26), Zhao et al. (27) Maķevica et al. (29) and Forsell et al. (30).

The items were translated and back-translated by two foreign language instructors who were proficient in both Turkish and English. As suggested by Deniz (55) and Esin (56), the teachers first translated the items from English to Turkish. After a week, they translated the Turkish text back into English and compared it with the original English spelling of the items. The language validity of the original item and the translated item was evaluated with the query "1=Translation is not appropriate and should be redone, 2= Translation is not fully appropriate and should be revised, 3= Translation is fully appropriate". Each item was re-translated until it received a total of 3+3=6 points from two foreign language instructors.

The created item pool was sent to four academicians who are competent in this field and they were asked to evaluate the scope of the items as suggested by Lawshe (57) and Gözüm and Aksayan (58) (1= Not Appropriate, should be removed, 2= Somewhat Appropriate, should be replaced with the item ".....", 3= Appropriate but it would be better if the current item "....." is revised as follows, 4= Very Appropriate).

The experts' evaluations were made by using the Davis Technique for the Content Validity Ratio (CVR) (59). In the CVR calculation, the number of experts who evaluated the items as "appropriate" and "very appropriate" was divided by the total number of experts and the CVI was calculated for each item. A calculated CVR value higher than 0.80 is considered appropriate. The CVR value of the questionnaire items was determined to be 0.90, and five of the 115 items in the item list were revised and included in the question list in their final form.

The revised item list was administered face-to-face to 10 men and 10 women with different demographic characteristics to perform the Comprehensibility Test of the items. They were asked to evaluate each item (1= It Is Not Clear What Is Being Said, 2= The Meaning Is Not Fully Understood, More Than One Meaning Occurs, 3= The Meaning Is Understood But Not Clear, 4= The Meaning Is Fully Understood). Just like in the Davis Technique, the number of respondents who scored "3= The Meaning Is Understood But Not Clear, 4= The Meaning Is Fully Understood" was divided by the total number of respondents, and the Comprehensibility Test Score of the items was found to be 0.95. Since the calculated Comprehensibility Test Score value was higher than 0.80, no changes were made in the item list.

While preparing the survey questions, a four-point Likert Scale (1: Definitely No, 2: Frequently No, 3: Frequently Yes, 4: Definitely Yes) was used to weight each item.

Statistical Analysis: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were administered to a total of 479 data sets, as suggested by Auerbach and Beckerman, (60) and Aytaç and Öngen (61). Item-total correlations were applied to the factors obtained as a result of factor analysis. To evaluate the internal consistency of the scale, Cronbach's Alpha coefficients of the sub-dimensions formed as a result of EFA were examined, and Pearson correlation coefficients were used to examine the relationship between the factors of the resulting scale. The results were questioned at 0.01 and 0.05 significance levels. Varimax rotation method was used in the study. EFA results was given in Table-1 and CFA results was given in Table-3.

Calculation of Total SC Score: In calculating the total score of SCS-A, the Newton-Raphson method was used as mentioned in Erkuş's (70) study, and the results given in Table-4 were obtained. Since the Total Social Capital Score (TSCS) will give a value that can be used in many comparisons, it will give an idea about that sample and the opportunity to compare the TSCS with scores obtained from different samples at different times. The following steps were followed in the calculation of the TSCS.

Process Step-01: First, the average value of each factor (FAV) must be found. $FAV = (\sum_{i=1}^t Mi) / t$ is used to find this. Here t is the total number of items in that factor, and Mi is the value of the response to the item i . This process must be done for 14 factors in SCS-A and data entry of each person.

Process Step-02: The FMVi value found for each factor is multiplied and summed with the equivalent of the explained variance over 100 (Xi) given in Table-1 to find the TSCS. In new studies to be conducted using this scale, it is recommended to carry out validity and reliability. The Rotated Variance (RVi) and Xi values of each factor should be calculated according to the new EFA and included in the process. RVi values should be taken from the Rotated Variance % row as seen in Table-1. If EFA is not preferred, the values in the original scale can be used.

Process Step-03: In determining the contribution of each factor to the TSCS, $\sum_{i=1}^f [(DAVi) * 100] / 71,372$ will be accepted as the coefficient of contribution to the explained variance of the scale out of 100. Here " f " is the number of factors in the scale. Since there are 14 factors in this scale, $f = 14$. For example, in determining the contribution of each factor to TSCS, it will be found as $(7.991 * 100) / 71.372 = 11.196267$ for F01, $(4.752 * 100) / 71.372 = 6.658073$ for F08.

Process Step-04: Here, the FMVi calculated from the data entered by each person will be multiplied by the constant Xi and summed to find the contribution of $\sum_{i=1}^f [FODi * Xi]$ to the TSCS. Here " f " is the number of factors in the scale. For example, in a data set of 500 individuals, TSCSi should be found for each individual's data. The TSCSi value will be between 100-400 for each individual's entered value. The minimum and maximum values that each factor can take in this example are given in Table-5. The closer each person's TSCS score is to 400, the better they will be. Since FMVi will take values between one '1' and four '4', the minimum value will be found by multiplying Xi by one '1' and the maximum value will be found by multiplying Xi by four '4'. Here, the values of 1 and 4 are due to the use of Likert Scale (1: Definitely No, 2:

Frequently No, 3: Frequently Yes, 4: Definitely Yes) in weighting each item. These calculated values should be evaluated by experts in the field and recommendations should be made accordingly.

An example of calculating the Total Capital Score is given in Table-4a. This value will be interpreted based on the Maximum and Minimum values of the TSCSi value given in Table-4 and calculated for this study. Each value in the table should be evaluated on an individual basis and by taking into account the human ecology of the individual by an expert on social capital and the subject for which the study was conducted. This evaluation will be in two stages. The first interpretation should be made on TSCSi and the second evaluation should be made on the item values of each factor.

SCS-A can be used as a total scale by calculating TSCS for each data set, or each factor can be used independently as it consists of 14 factors.

RESULTS

A total of 479 people participated in the study and 62.0% (n=297) of the participants were female with an average age of 31.55 ± 10.31 and 38.0% (n=182) were male with an average age of 37.68 ± 12.06 .

In this study, which aimed to develop the Social Capital Scale for Adults (SCS-A) and test its validity and reliability for the Turkish population, the first EFA was applied to a total of 115 item lists. 20 items with total variance values less than 0.5 and factoring other than the required factor were removed and EFA was applied again to the remaining 95 items. In the final analysis, the KMO (Kaiser-Meyer-Olkin) value was calculated as 0.926, Bartlett's Test of Sphericity $p < 0.05$, Chi-square=41517.001 and SD=4465, $p = 0.000$. According to Field (2000), the KMO value is the lower limit of 0.50, and EFA should not be applied to data sets with KMO values below it. However, since the Kaiser- Meyer- Olkin value was greater than 0.5 and Bartlett's test was statistically significant, as recommended by Çokluk et al. (2012) and Field (2000) to evaluate the suitability of the data set for factor analysis, the data set was found to be suitable for factor analysis. All factors with eigenvalues above 1, obtained by the principal component technique, were accepted as factors. The Cronbach's Alpha coefficient of the SCS-A scale was found to be 0.966 and the variance explained by the scale was 71.372%. Cronbach's Alpha coefficients of the factors were between $F_{14} = 0.790$ and $F_{01} = F_{14} = 0.961$. Accordingly, both the internal consistency of the factors and the internal consistency of the whole scale can be considered highly reliable (61). The results are summarized in Table 1. The items in the SCS-A and the correlation values of a total of 14 factors has the highest correlation with the factor it is factored into.

Table 1. Factor Loads, Common Variance Values															
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.										,926					
Bartlett's Test of Sphericity										Approx. Chi-Square		41517,001			
										df		4465			
										Sig.		,000			
Factors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	VarianceX±SS
Cronbach's Alpha	0,961	0,932	0,948	0,922	0,949	0,946	0,940	0,914	0,905	0,870	0,875	0,922	0,838	0,790	
Rotated Eigenvalues	7,591	7,445	7,31	6,731	6,465	5,587	5,012	4,514	3,568	3,484	3,422	2,548	2,416	1,709	Cronbach's Alpha of the Whole Scale
% of															
Rotated Variance	7,991	7,837	7,695	7,085	6,806	5,881	5,275	4,752	3,756	3,667	3,602	2,683	2,543	1,799	0,966
Rotated Cumulative %	7,991	15,828	23,523	30,609	37,414	43,295	48,57	53,322	57,078	60,745	64,347	67,03	69,573	71,372	

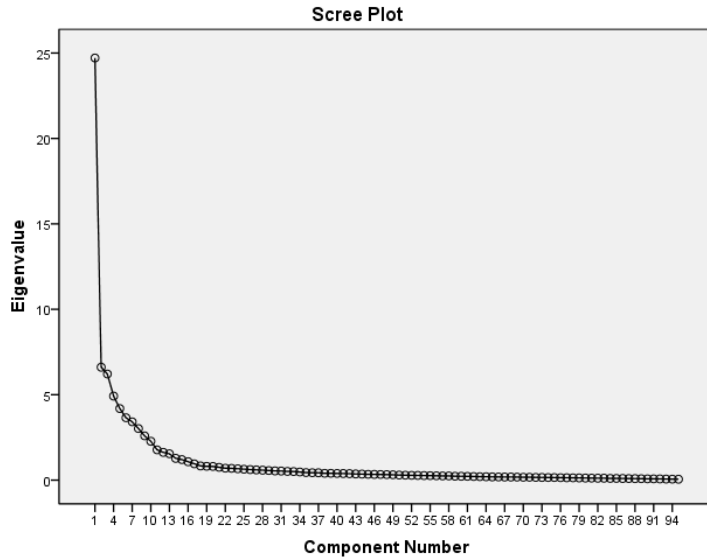


Figure-1. Scree Plot Graph for the Number of SCS-A Factors

The scree plot graph for the factors is given in Figure-1. The vertical axis of the graph shows the eigenvalues of the factors and the horizontal axis shows the factors. When the scree plot graph is examined, it is seen that the highly accelerated decline decreases after the 10th point and the acceleration falls below 1 after the 14th factor. The downward trend seen from the first point is shown with points in the degree of contribution to the variance, and each interval between the two points means one factor (62). After the 14th point, the contributions of the factors to the total variance decrease.

As a result, the SCS-A, consisting of 95 items and 14 factors, was obtained. The factors obtained by EFA were named as "Kinship Relationship", "Physical Neighborhood", "Family Relationship", "Social Media (Digital) Neighborhood", "Workplace/School Relationship and Institutional Loyalty", "Friendship Relationship", "Family and Environment Pressure", "Participation in Local Government", "NGO Membership (Taking Role in Civil Society)", "Trust in Public Institutions", "Tolerance to Diversity", "Safety of the Living Environment", "Sensitivity to Social Problems" and "Taking Initiatives in Social Issues". Factor names and items are given in Table-2.

Table 2. Factor Names and Items

F01- Kinship Relationship	AKIL01: When I think of all the members of our relatives, I see myself as a part of them
	AKIL02: I believe that I can get support from my relatives in solving my financial, emotional, social, work/school problems when necessary.
	AKIL03: I think my relatives spare enough time for me.
	AKIL04: My relatives trust each other.
	AKIL05: I feel valued in my relationship with my relatives.
	AKIL06: I feel safe in my relationship with my relatives.
	AKIL07: I think I spare enough time for my relatives.
	AKIL08: I participate in various social activities with my relatives.
	AKIL09: I care about what my relatives think about my attitudes and behaviors.
F02- Physical Neighborhood	FKOM01-I think my neighbors and other acquaintances spare enough time for me.
	FKOM02- I find our neighborhood relations sufficient / satisfactory.
	FKOM03-We visit our neighbors as a family.
	FKOM04-We can borrow the things we need from our neighbors.
	FKOM05-I think I spend the necessary time for my neighbors and other acquaintances.
	FKOM06-I visited and/or paid close attention to our neighbors recently.
	FKOM07-I participate in various social activities with our neighbors.
	FKOM08-I feel valued in my relationship with my neighbors.
	FKOM09-I can ask for help from our neighbors when I need it.
	FKOM10-I care about what my neighbors think about my attitudes and behaviors.

	FKOM11-It makes me happy to run into our neighbors or acquaintances when I go out/shopping.
	FKOM12-Our neighbors are respectful to other individuals living in the same place.
F03- Family Relationship	AILIS01- I feel safe in my relationship with my family.
	AILIS02- I see myself as part of my nuclear family.
	AILIS03- I feel valued in my relationship with my family.
	AILIS04- I believe that I can get support from my family in solving my financial, emotional, social, work/school problems when necessary.
	AILIS05- Members in my family trust each other.
	AILIS06- I care about what my family thinks about my attitudes and behaviors.
	AILIS07- I think my family spares enough time for me.
	AILIS08- I participate in various social activities with my family.
	AILIS09- I think I spend the necessary time for my family.
F04- Social Media (Digital) Neighborhood	DIKOM01- I chat with my followers on social media, like their posts and interact with them.
	DIKOM02- I feel valued in my relationship with my followers on social media.
	DIKOM03- I care about what my social media followers think about my attitudes and behaviors.
	DIKOM04- I follow my followers' posts about their daily lives.
	DIKOM05- I share about my daily life or activities on social media.
	DIKOM06- I participate in various social activities with my social media followers.
	DIKOM07- I believe that I can get support from my social media followers in solving my financial, emotional, social, work/school problems when necessary.
	DIKOM08- I think my life has become richer thanks to my followers on social media
	DIKOM09- I do not hesitate to share about myself and/or topics I am interested in on social media.
	DIKOM10- I share / follow / support posts about aid campaigns, social and environmental problems on social media.
	DIKOM11- I use social media to access information or activities related to my interests
F05- Relationship and Commitment with Workplace/School	IOBAG01- I feel valued in my relationships with individuals at my workplace/school.
	IOBAG02- I see myself as a part of my workplace/school.
	IOBAG03- People at my workplace/school trust each other.
	IOBAG04- I feel safe around people at my workplace/school.
	IOBAG05- I believe that I can get support from individuals at my workplace/school in solving my financial, emotional, social, work/school problems when necessary.
	IOBAG06- I think that individuals at my workplace/school spare enough time for me.
	IOBAG07- I participate in various social activities with individuals at my workplace/school
	IOBAG08- I care about what people at my workplace/school think about my attitudes and behaviors.
F06- Friendship Relationship	ARILI01- I think my friends spare enough time for me.
	ARILI02- I feel safe around my friends.
	ARILI03- I think I spare the necessary time for my friends.
	ARILI04- I participate in various social activities with my friends.
	ARILI05- I believe that I can get support from my friends in solving my financial, emotional, social, work/school problems when necessary.
	ARILI06- My friends trust each other.
	ARILI07- I feel valued in my relationships with my friends.
	ARILI08- I care about what my friends think about my attitude and behavior.
F07- Family and Environmental Pressure	ACBAS01- If my followers on social media put pressure on my lifestyle and/or choices, it does not affect my decisions/behaviors.
	ACBAS02- If individuals at my workplace/school put pressure on my lifestyle and/or choices, it does not affect my decisions/behaviors

	ACBAS03- If my neighbors put pressure on my lifestyle and/or choices, it does not affect my decisions/behaviors.
	ACBAS04- If people I don't know put pressure on my lifestyle and/or choices, it does not affect my decisions/behaviors.
	ACBAS05- If my friends put pressure on my lifestyle and/or choices, it does not affect my decisions/behaviors.
	ACBAS06- If my family puts pressure on my lifestyle and/or choices, it does not affect my decisions/behaviors.
F08- Participation in the Local Committee	YKKAT01- In the last two years, I participate(d) in a voluntary social movement for any emergency response such as environmental pollution, public transport problems.
	YKKAT02- In the last two years, I volunteer(ed) and/or support(ed) work in a social project in the immediate vicinity.
	YKKAT03- In the last two years, I participate(d) in any social assistance or solidarity activity with groups, such as charity bazaar, school/workplace choir, animal rights protection event, handicraft exhibition.
	YKKAT04- I voluntarily participate(d) in a project to provide a new service in my field in an organization such as youth centers, scout centers, child care and entertainment for the disabled.
	YKKAT05- In the last two years, I participate(d) in any initiative such as health, environment, education, religion, management on behalf of my workplace/neighbourhood.
	YKKAT06- I participate(d) in any work group voluntarily at or outside my workplace/school.
F09- NGO Membership (Taking a Role in Civil Society)	STKUY01- I am actively involved in the management and organization committee of any club, association or community.
	STKUY02- I am a member of any club, association or community such as sports, handicrafts, social clubs and associations/I actively participate in their activities.
	STKUY03- I see myself as a part of a community and/or hobby group organized in a club, association or social media.
	STKUY04- I am an active member of a community at my workplace, such as a social activity and/or sports club.
	STKUY05- I am an active member of a community on social media.
F10- Trust in Public Institutions	GUKUR01- Things are done as they should be in public institutions.
	GUKUR02- When people experience a problem, they can easily apply to a government institution to solve their problems and seek their rights.
	GUKUR03- Institutions are not discriminatory in the society I live in.
	GUKUR04- There is no need for an acquaintance (friends in high places) to make things work in this country.
	GUKUR05- There are institutions where people can seek their rights when faced with injustice.
F11- Tolerance to Diversity (Lifestyle, political opinion, ethnicity, religious belief, sexual preference, etc.)	FATOL01- I like to live among individuals with different lifestyles.
	FATOL02- I do not worry about making friends with individuals with different lifestyles.
	FATOL03- I believe that individuals from different geographies/cultures enrich the place I live (work/school, neighborhood, apartment, etc.).
	FATOL04- A foreigner who moves to our neighborhood, who is new to our job/school, or a person from a different culture is easily accepted.
F12- Trust in the Environment (trusting the physical environment)	GUCEV01- I feel safe in the environment I live in.
	GUCEV02- The neighborhood I live in is known as a reliable place.
	GUCEV03- I feel safe walking in my neighborhood after dark.
F13-	SPDUY01- We talk about social problems with individuals at my workplace/school.
	SPDUY02- We talk about social problems with my relatives.

Sensitivity to Social Problems	SPDUY03- We talk about social problems with my friends.
	SPDUY04- We talk about social problems with my followers on social media.
	SPDUY05- We talk about social problems with my neighbors and other acquaintances.
	SPDUY06- We talk about social problems with my family.
F14- Taking Initiative in Social Issues	SKINS01- When I need something to make an important decision or complete a job, I can reach the necessary things myself, even if no one supports me.
	SKINS02- I take the initiative to solve social problems when necessary, even if I am not asked or told.
	SKINS03- I am willing to show a conciliatory attitude when I have a disagreement with anyone about stray animals, using common areas, or other issues that are on the general agenda, etc.

As a result of CFA applied to the data set, statistically adequate fit results were obtained in all fit indices. The results are given in Table 4. As can be seen from the table, X^2 / Degrees of Freedom 11410.46 / 4279: 2,667, GFI = 0.60, AGFI = 0.62, RMSEA= 0.064, RMR= 0.051, SRMR = 0.059, CFI= 0.96, NFI= 0.93, NNFI = 0.95, PGFI = 0.60, IFI= 0.96.

Table 3. CFA Fit Index Values (individual factors)

X^2 / Degree of Freedom	= 11410.46 / 4279: 2,667 (Excellent Fit)		
GFI	= 0.60 (Medium Fit)	CFI	= 0.96 (Excellent Fit)
AGFI	= 0.62 (Medium Fit)	NFI	= 0.93 (Good Fit)
RMSEA	= 0.064 (Good Fit)	NNFI	= 0.95 (Excellent Fit)
RMR	= 0.051 (Excellent Fit)	PGFI	= 0.60 (Medium Fit)
SRMR	= 0.059 (Good Fit)	IFI	= 0.96 (Excellent Fit)

Table 4a. Calculation of the Contribution to Total Social Capital Score (Example)

Factors F_i	Factor Mean Value FMV_i	Rotated Variance % (RV _i)	Explained Variance over 100 (X _i)	Contribution to TSCS _i $FMV_i * X_i$	Contribution to TSCS _i in this example	
					Min _i = 1 *	Max _i = 4 * 11,196267
F01	FMV ₁	7,991	11,196267	FMV ₁ *11,196267	11,196267	44,785068
F02	FMV ₂	7,837	10,980497	FMV ₂ *10,980497	10,980497	43,921988
F03	FMV ₃	7,695	10,781539	FMV ₃ *10,781539	10,781539	43,126156
F04	FMV ₄	7,085	9,926862	FMV ₄ *9,926862	9,926862	39,707448
F05	FMV ₅	6,806	9,535952	FMV ₅ *9,535952	9,535952	38,143808
F06	FMV ₆	5,881	8,239926	FMV ₆ *8,239926	8,239926	32,959704
F07	FMV ₇	5,275	7,390854	FMV ₇ *7,390854	7,390854	29,563416
F08	FMV ₈	4,752	6,658073	FMV ₈ *6,658073	6,658073	26,632292
F09	FMV ₉	3,756	5,262568	FMV ₉ *5,262568	5,262568	21,050272
F10	FMV ₁₀	3,667	5,137869	FMV ₁₀ *5,137869	5,137869	20,551476
F11	FMV ₁₁	3,602	5,046797	FMV ₁₁ *5,046797	5,046797	20,187188
F12	FMV ₁₂	2,683	3,759177	FMV ₁₂ *3,759177	3,759177	15,036708
F13	FMV ₁₃	2,543	3,563022	FMV ₁₃ *3,563022	3,563022	14,252088
F14	FMV ₁₄	1,799	2,520596	FMV ₁₄ *2,520596	2,520596	10,082384
Total Social Capital Score TSCS		Total Explained Variance $\sum_{i=1}^f DAV_i = 71,372$	$100 = \sum_{i=1}^f (DAV_i * 100) / 71,372$	$= \sum_{i=1}^f FOD_i * X_i$	100,00	400,00

DISCUSSION AND CONCLUSION

In the last EFA calculation, KMO value was calculated as 0.926, Bartlett's Test of Sphericity $p < 0.05$, Chi-square=41517.001 and SD=4465, $p=0.000$. The KMO value is above the 0.5 limit recommended by Field (63) and Çokluk et al. (62). Therefore, it can be concluded that the data set is suitable for factor analysis.

The Cronbach's Alpha coefficient of the SCS-A scale was found to be 0.966 and the variance explained by the scale was 71.372%. Cronbach's Alpha coefficients of the factors range from the lowest F14 = 0.790 to the highest F01 = F14 = 0.961. Bayram (2004) states that a Cronbach's Alpha value of over 0.70 is sufficient for reliability. Accordingly, both the internal consistency of the factors and the internal consistency of the whole scale can be considered highly reliable (64, 62).

As a result of EFA, it was found that there were 14 components with eigenvalues above 1 for 95 items and whose contributions to the total explained variance would be taken as basis, and the total explained variance was 71.372%.

The first EFA was conducted in SCS-A with a total of 115 items. After removing The 20 items with total variance values below 0.5, factoring out of the required factor, and with overlap values, EFA was applied to the remaining 95 items. After determining the number of factors of the scale through EFA, the Rotated Component Matrix was examined to find out which items matched which factors. Two conditions must be met for items to be overlapping (62). The first of these is that an item gives a high loading value (correlation value) with two or more items that are close to each other, and the second is that the difference between the loading values is less than 0.1. In SCS-A, all items have the highest correlation value with the factor they are factored into, and the overlap value is not less than 0.1.

As a result of the analysis, the lowest factor load value for F01 is 0.742 and the highest is 0.854, for F02 the lowest is 0.566 and the highest is 0.766, for F03 the lowest is 0.625 and the highest is 0.852, for F04 the lowest is 0.561 and the highest is 0.803, for F05 the lowest is 0.699 and the highest is 0.830, for F06 the lowest is 0.589 the highest is 0.782, for F07 the lowest is 0.703 the highest is 0.903, for F08 the lowest is 0.635 the highest is 0.835, for F09 the lowest is 0.673 the highest is 0.806, for F10 the lowest is 0.706 the highest is 0.824, for F11 the lowest is 0.681 and the highest is 0.837, for F12 the lowest is 0.797 and the highest is 0.821, for F13 the lowest is 0.485 and the highest is 0.616, for F14 the lowest is 0.417 and the highest is 0.460. When the factor load values are examined in terms of size, it can be said that SPDUY06, SKINS01, SKINS02 and SKINS03 items showed a good fit, while all other items showed excellent fit (62).

The common factor variance values of each item in the SCS-A range from a maximum of 0.875 to a minimum of 0.504. Since the difference between the highest variance value and the lowest variance value is greater than 0.20, it can be assumed that there is homogeneity among the variables (62).

The construct validity of the scale obtained with EFA was tested with CFA. According to the analyses, X^2 / Degree of Freedom was calculated as 2,667, which shows that there is an excellent fit according to Sümer (65) and Schreiber et al. (66). Apart from this, absolute fit indices scores showed medium fit in GFI and AGFI, good fit in RMSEA and SRMR, and excellent fit in RMR according to Çokluk et al. (62) and Marsh et al. (67). According to Sümer (65), incremental fit indices had excellent fit scores in CFI, NNFI and IFI, good fit scores in NFI, and medium fit scores in PGFI. With these findings, it is possible to say that the model is acceptable.

The factors "participation in local government", "feelings of trust and safety", "physical neighborhood relations", "family friendship relations" and "tolerance to diversity" in Onyx and Bullen's (22) study, the factors "trust in institutions, the environment and people", "asking for help from others and being ready to help", "daily socialization with family, relatives and friends", "tolerance to diversity", "participation in civil society" in Narayan and Cassidy's (35) study, the factors "having regular meetings with family, friends, relatives, neighbors, co-workers, old friends", "trust in family, friends, relatives, neighbors, co-workers, old friends", "the level of help from family, friends, relatives, neighbors, co-workers, old friends when requested", "the level of help from public institutions, political, economic and social groups and organizations when requested", "the level of help from cultural and recreational groups and organizations such as sports, music, dance, etc. when requested" in the studies of Chen et al. (24) and Wang et al. (25), the factors "Strategic Trust", "Generalized Trust", "Institutional Trust", "Group Belonging and Trust" in Uçar's (51) study were factored into the same

factors in the SCS-A consisting of 14 factors and 95 items. This reveals the reliability of the results of the SCS-A.

Similarly, some items in the factors "Family Relationship", "Perceived Environmental Safety", "Neighborhood Relationship", "Sparing time", "Social Pressure", "Work/School Life" in Ardahan's (32) Quality of Life Scale study were factored into the same factors in the SCS-A. This increases the reliability of the results of the SCS-A.

SCS-A can be used as a total scale by calculating TSCS for each data set, or each factor can be used independently as it consists of 14 factors.

In their study, Narayan and Cassidy (35) indicated that measuring SC based only on the elements that constitute it was an incomplete effort and added questions that they developed based on the results of SC to the survey questions. Putnam (20), who conducted important studies on the concept of SC, stated that SC can have negative as well as positive effects on individuals, depending on its nature. It was emphasized that social capital, which is initially fully affirmed because it facilitates individuals to act cooperatively and effectively, should be evaluated according to the nature of the networks, taking into account the negative externalities that it may later produce. In this study, all these important points were taken into consideration when creating the item pool. In the literature, each of the different dimensions of the concept has been treated as if it were social capital itself (68, 69). Although each of these dimensions adds value to the concept, none of them alone is sufficient to fully explain the concept. In the present study, the 95-item, 14-factor, comprehensive SCS-A developed for adults will enable comprehensive evaluations in future studies.

Considering these findings and results, it is possible to say that the Social Capital Scale for Adults is a reliable scale for the Turkish population.

REFERENCES

- Bourdieu, P. (2012). Ökonomisches Kapital, kulturelles Kapital, soziales Kapital. In: Bauer, U., Bittlingmayer, U.H., Scherr, A. (eds) Handbuch Bildungs- und Erziehungssoziologie. Bildung und Gesellschaft. VS Verlag für Sozialwissenschaften, Wiesbaden. https://doi.org/10.1007/978-3-531-18944-4_15 <http://unirot.blogspot.de/images/bourdieuKapital.pdf> (date of access: 09/09/2023)
- Ardahan, F. (2014a). Examining the relation between social capital, life satisfaction and academic achievement: school of physical education and sport case. *International Journal of Human Sciences*, 11(1): 1212-1226.
- Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, 2, 271-299.
- Luthans, F., Youssef, C.M. & Avolio, B.J. (2007). *Psychological capital: Developing the human competitive edge*. Oxford, UK: Oxford University Press.
- Durkheim, E. S. (1951). *uicide: A Study in Sociology*. Glencoe, IL: The Free Press.
- Field, J. (2008). Sosyal Sermaye, 2. Baskı, İstanbul Bilgi Üniversitesi Yayınları, İstanbul.
- Coleman, J.S. (1988). Social Capital in the Creation of Human Capital, *American Journal of Sociology Supplement*, 94: 95-120.
- Putnam, R.D. (1993). *Making Democracy Work: Civic Traditions in Modern Italy*, Princeton, NJ: Princeton University Press.
- Dasgupta, P. ve Stiglitz, J. (1999). Social Capital: A Multifaceted Perspective, Washington, DC: World Bank.
- Portes, A. (1998). Social capital: Its origins and application in modern sociology. *Annual Review of Sociology*, 24: 1-24.
- Fukuyama, F. (1995). *Trust: The social virtues and the creation of prosperity*. New York: Free Press.
- Fukuyama, F. (1999). Social Capital and Civil Society (Conference), The Institute of Public Policy, George Mason University, October 1, 1999, <https://www.imf.org/external/pubs/ft/seminar/1999/reforms/fukuyama.htm>. (date of access: 12/09/2023)
- Glaeser, E.L. (2001). The formation of social capital. *Canadian Journal of Policy Research*, 2:34-40.
- Grootaert, C. and Van Bastelaer, T. (2002). Social capital: from definition to measurement. In: Grootaert C, van Bastelaer T, eds. *Understanding and measuring social capital: a multidisciplinary tool for practitioners*. Washington, DC: World Bank Publications; 2002 pp. 41:84
- Heral, İsmail. (2006). "Sosyal Sermaye", http://www.eastweststudies.org/tr/makale_detail.php?makale=58&tur=100 (date of access: 13 Mayıs 2010).
- Fidan, Y. & Yurdasever, E. (2017). A Study On Social Capital Profile of Vocational School Students: The Case Of Ordu University Social Sciences Vocational School. *Manisa Celal Bayar Üniversitesi Sosyal Bilimler Dergisi*. 15(1):219-248. Doi: 10.18026/cbayarsos.297890.
- Granovetter, M.S. (1973) The Strength of Weak Ties. *American Journal of Sociology* 78: 1360—80
- Claridge, T. (2018). Explanation of the different levels of social capital: individual or collective? *Social Capital Research & Training*, Dunedin, New Zealand.
- Payne, G.T., Moore, C.B., Griffis, S.E. & Autry, C. W. (2011). Multilevel challenges and opportunities in social capital research. *Journal of management*, 37(2), 491-520.
- Putnam, R.D. (2000). *Bowling Alone: The Collapse and Revival of American Community*, Simon & Schuster: New York.
- Putnam, R.D. (2001). Social Capital: Measurement and Consequences. <http://www.oecd.org/dataoecd/25/6/1825848.pdf>. (date of access: 12/09/2023)

22. Onyx, J. & Bullen, P. (2000). Measuring Social Capital in Five Communities, *Journal of Applied Behavioral Science*, 36(1): 23-42.
23. Grootaert, C., Narayan, D., Jones, V. N., and Woolcock, M. (2004). Measuring social capital. An integrated questionnaire. World Bank Working paper no. 18, The World Bank, Washington, DC. <https://documents1.worldbank.org/curated/en/515261468740392133/pdf/281100PAPER0Measuring0social0capital.pdf> (Erişim tarihi 12/09/2023)
24. Chen, X., Stanton, B., Gong, J., Fang, X., ve Li, X. (2009). Personal Social Capital Scale: an instrument for health and behavioral research. *Health education research*, 24(2), 306-317.
25. Wang, P., Chen, X., Gong, J. & Jacques-Tiura, A. J. (2014). Reliability and validity of the personal social capital scale 16 and personal social capital scale 8: two short instruments for survey studies. *Social Indicators Research*, 119, 1133-1148 DOI 10.1007/s11205-013-0540-3
26. Meek, S., Ryan, M., Lambert, C. & Ogilvie, M. (2019). A multidimensional scale for measuring online brand community social capital (OBCSC). *Journal of Business Research*, 100, 234-244.
27. Zhao, S., Li, Y., Su, Y. & Sun, L. (2021). Reliability and validity of the Chinese general social capital scale and its effect on physical disease and psychological distress among Chinese medical professionals. *International Journal of Environmental Research and Public Health*, 18(12), 6635.
28. Maķevica, D., Šuriņa, S., Perepjolkina, V. & Mārtinsons, K. (2022). Development and initial validation of the second version of the Multidimensional social capital scale (MSCS V2). In SOCIETY. INTEGRATION. EDUCATION. Proceedings of the International Scientific Conference (Vol. 2, pp. 25-37).
29. Forsell, T., Tower, J. ve Polman, R. (2022). Development of a scale to measure social Capital in Recreation and Sport Clubs. *Leisure Sciences*, 42(1), 106-122.
30. Ardahan, F. (2023). Development Of Social Capital Scale for Adolescent, Validity, and Reliability Study for Turkish Population. *European Journal of Physical Education and Sport Science*, 10(2):55-77. DOI: 10.46827/ejpe.v10i2.4955
31. Ardahan, F. (2022). Developing Quality of Life Scale, Making Its Validity and Reliability for Turkish Population. *Journal of Global Sport and Education Research*, 5 (1), 18-38. Retrieved from <https://dergipark.org.tr/tr/pub/jogser/issue/70487/1092828>
32. Ardahan, F. (2012). Sosyal Sermaye Ölçeği geçerlilik, güvenilirlik çalışması, *Uluslararası İnsan Bilimleri Dergisi*, 9(2):773-789.
33. Hjøllund, L. & Svendsen, G.T. (2000). Social capital: A standard method of measurement. Working papers 00-9, Aarhus School of Business, Dept. of Economics
34. Narayan, D. & Cassidy, M.F. (2001). A Dimentional to Measuring Social Capital: Development and Validation of A Social Capital Inventory. *Current Sociology*. 49(2): 59-69.
35. Stone, W. (2001). Measuring social capital. Towards a theoretically informed measurement framework for researching social capital in family and community life. Research paper no. 24, February 2001.
36. Alanen, A. & Niemeläinen, S. (2003). Sosiaalisen paaoman subjektiivisten mittareiden etsintaa luottamus, ystavyysuhteet ja toiminta aluetasolla Suomessa. (In Finnish, abstract in English). [Search of subjective measures of social capital – trust, friendships and participation at the regional level in Finland.] Available from <http://www.tilastokeskus.fi/org/tut/dthemes/papers/sospaa.pdf>.
37. Archuleta, A. J. & Miller, C. R. (2011). Validity evidence for the translated version of the Personal Social Capital Scale among people of Mexican descent. *Journal of the Society for Social Work and Research*, 2(2), 39-53
38. Ardahan, F. (2014b). Bireylerin Sosyal Sermaye Profili: Antalya Örneği. *ASOS Journal, Akademik Sosyal Araştırmalar Dergisi*, 2(8): 38-56. [dx.doi.org/10.16992/ASOS.435](https://doi.org/10.16992/ASOS.435).
39. Harper, R. (2002). The measurement of social capital in the United Kingdom. Office for National Statistics. Available from <http://www.oecd.org/dataoecd/22/52/2382339.pdf>. (Erişim Tarihi 12/09/2023)
40. Looman, W. S. (2006). Development and testing of the social capital scale for families of children with special health care needs. *Research in nursing & health*, 29(4), 325-336.
41. Looman, W. S. & Farrag, S. (2009). Psychometric properties and cross-cultural equivalence of the Arabic Social Capital Scale: Instrument development study. *International journal of nursing studies*, 46(1), 45-54.
42. Ardahan, F. (2018). Comparison of the Social Capital, Life Satisfaction, Achievement Perception and Emotional Intelligence Level of the Volunteers and Non-Volunteers. *European Journal of Physical Education and Sport Science*. 4(6):45-68. doi: 10.5281/zenodo.1249064
43. Ardahan, F. (2014c). Sosyal Sermaye, Yaşam Doyumu ve Akademik Başarı İlişkisi: Akdeniz Üniversitesi, BESYO Örneği. *Uluslararası İnsan Bilimleri Dergisi*, 11(1): 1212-1226.
44. Deniz Öz, N. and Ardahan, F. (2019). Köyde Rekreasyon Engelleri Ölçeği Geçerlilik ve Güvenirlilik Çalışması, *Mediterranean Journal of Humanities*, XI(1):131-141.DOI: 10.13114/MJH.2019.453
45. Ardahan, F. and Yakut Tekmenüray, B. (2022). Development of Recreational Barriers Scale of Mothers with Child Between 0-2 Years Old and Making Its Validity and Reliability for Turkish Population. *Journal of Global Sport and Education Research*, 5 (1), 64-85. Retrieved from <https://dergipark.org.tr/tr/pub/jogser/issue/70487/1085645>
46. Spellerberg, A. (1997). Towards a framework for the measurement of social capital. In D. Robison (Ed.), *Social capital and policy development*. Victoria, University of Wellington: Institute of Policy Studies.
47. Van der Gaag, M.P.J. & Webber, M. (2008). Measurement of individual social capital: Questions, instruments, and measures. In *Social capital and health* (pp. 29-49). New York, NY: Springer New York
48. Bowling, A. (1997). *Measuring health: a review of quality of life measurements scales*. London: Open University Press. pp. 109.
49. Kay, A. & Pearce, J. (2003). Soziales Kapital. CBS Network Services Limited und Technologie-Netzwerk Berlin e.V. Berlin.
50. Uçar, E. (2016). The Study of Reliability and Validity of Social Capital Scale. *Ihlara Journal of Educational Research IHEAD*, 1(1): 19-40.
51. Koutra, K., Orfanos, P., Roumeliotaki, T., Kritsotakis, G., Kokkevi, A. ve Philalithis, A. (2012). Psychometric validation of the youth social capital scale in Greece. *Research on social work practice*, 22(3), 333-343.
52. Aminzadeh, K., Denny, S., Utter, J., Milfont, T. L., Ameratunga, S., Teevale, T. & Clark, T. (2013). Neighbourhood social capital and adolescent self-reported wellbeing in New Zealand: a multilevel analysis. *Social Science & Medicine*, 84, 13-21.

53. Paiva, P. C. P., Paiva, H. N. D., Oliveira Filho, P. M. D., Lamounier, J. A., Ferreira, E. F. E., Ferreira, R. C., ... ve Zarzar, P. M. (2014). Development and validation of a social capital questionnaire for adolescent students (SCQ-AS). *PloS one*, 9(8), e103785.
54. Deniz, Z. (2007). Psikolojik ölçme aracı uyarlama. *Ankara Üniv Eğ Bil Fak Dergisi*. 40:1-16.
55. Esin MN. (2015). Veri toplama yöntem ve araçları & veri toplama araçlarının güvenilirlik ve geçerliği. İçinde: Erdoğan S, Nahcivan N, Esin NM, editörler. *Hemşirelikte Araştırma Süreci, Uygulama ve Kritik*, 2. Baskı. İstanbul: Nobel Kitapevleri; ss.193-231
56. Lawshe CH. A quantitative approach to content validity. *Personnel Psychology*. 1975;28(4):563-75. DOI: 10.1111/j.1744-6570.1975.tb01393.x
57. Gözüm, S. and Aksayan, S. (2003). Kültürlerarası ölçek uyarlaması için rehber II: psikometrik özellikler ve kültürlerarası karşılaştırma. *Hemşirelikte Araştırma Geliştirme Dergisi*, 1, 3- 14.
58. Davis LL. Instrument review: Getting the most from a panel of experts. *Appl Nurs Res*. 1992;5(4):194-7. DOI: 10.1016/S0897-1897(05)80008-4
59. Auerbach, C. & Beckerman, N. L. (2011)4. HIV and PTSD: a confirmatory factor analysis of the PCL screening instrument. *Journal of Social Service Research*, 37(2), 152-164.
60. Aytaç, M. & Öngen, B. (2012). Doğrulamalı faktör analizi ile yeni çevresel paradigma ölçeğinin yapı geçerliliğinin incelenmesi, *İstatistikçiler Dergisi*, 5, 14-22.
61. Çokluk, Ö., Şekercioğlu, G. & Büyüköztürk, Ş. (2010). *Multivariate statistics for the social sciences: SPSS and LISREL applications*. Ankara: Pegem Akademi.
62. Field, A. (2000). *Discovering Statistics using SPSS for Windows*. London, Thousand Oaks, Sage Publications, New Delhi.
63. Bayram, N. (2004). *Sosyal Bilimlerde SPSS İle Veri Analizi*, Ezgi Kitabevi, Bursa.
64. Sümer N. (2000). *Structural Equation Models (In Turkish: Yapısal Eşitlik Modelleri)*. *Turkish Journal of Psychology (In Turkish: Türk Psikoloji Yazıları)*. 3(6):49-74
65. Schreiber, J.B., Nora, A., Stage, F.K., Barlow, E.A. & King, J. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A review. *The Journal of Educational Research*. 99(6): 323-338.
66. Marsh, H.W., Hau, K.T., Artelt, C., Baumert, J. & Peschar, J.L. (2006). OECD's brief self-report measure of educational psychology's most useful affective constructs: Cross-cultural, psychometric comparisons across 25 countries. *International Journal of Testing*. 6(4): 311-360.
67. McPherson, K.E., Kerr, S., Morgan, A., McGee, E., Cheater, F. M., McLean, J. & Egan, J. (2013). The association between family and community social capital and health risk behaviours in young people: an integrative review. *BMC public health*, 13(1), 1-13.
68. Ehsan, A., Klaas, H. S., Bastianen, A. ve Spini, D. (2019). Social capital and health: A systematic review of systematic reviews. *SSM-population health*, 8, 100425.
69. Erkuş, A. (2014). Ölçek Geliştirme Yöntemleri II: Psikolojik Değişkenin Ne ve Nasıl Olduğunu Ortaya Çıkarmanın Tek Yolu, Faktör Analitik Yöntemler ve Yeni Bir Öneri. Erkuş A (Der.) *Psikolojide ölçme ve ölçek geliştirme-I, Temel kavramlar ve işlemler içinde* (ss.92-112). Ankara: Pegem Akademi.