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An evaluation of the psychometric properties of the strengths and difficulties scale in Turkey: Implications for other non-WEIRD countries

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Abstract

The Strengths and Difficulties Questionnaire (SDQ) is a very widely used scale in which parents, teachers or the child rate various aspects of the child's well-being. It is widely used in the Western world and is translated into 80+ languages. It is also used in countries that do not classify as WEIRD (Western, educated, industrialized, rich and democratic). However, unlike WEIRD countries, some studies indicate that the psychometric properties of the SDQ when used in non-WEIRD countries are questionable. Therefore, we gave the SDQ to the mothers and teachers of 310 3- to 5-year-olds in urban centres of Turkey and examined its psychometric properties. Turkey is not a WEIRD country because it is not Western, although the participants in our study were well educated, living in an industrialized area, rich relative to others in Turkey (although poor relative to Westerners) and democratic. As such, it is not drastically different from WEIRD countries and our question was whether even relatively small deviations from standard WEIRD criteria could result in questionable psychometric properties for the SDQ.

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1 | INTRODUCTION

The Strengths and Difficulties Questionnaire (SDQ) is a measure of child behaviour and well-being intended for children aged 2 to 17, usually with a parent or teacher (or for older children, children themselves) answering the 25 questions. It is translated into more than 80 languages, with separate scores for five subscales (emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and prosocial behaviour) as well as a total score. It has been normed in many countries such as the UK (Bryant et al., 2020; Goodman, 2001), Germany (Klassen et al., 2000), Italy (Di Riso et al., 2010), Greece (Giannakopoulos et al., 2009), Sweden (Smedje et al., 1999) and the Netherlands (Mieloo et al., 2012; Stone et al., 2015; van den Heuvel et al., 2017; Vugteveen et al., 2021). Originally, a five-factor model was thought to best fit the SDQ corresponding to the five subscales (Goodman, 2001; Klassen et al., 2000; Smedje et al., 1999) although subsequently, a three-factor model was also proposed that includes internalizing, externalizing and prosocial factors (Goodman et al., 2010). Of note is that the SDQ has mainly been normed in Western (often termed 'WEIRD') countries. Below, we consider the implications of this fact.

1.1 | WEIRD versus non-WEIRD countries

Heinrich et al. (2010) distinguished between WEIRD and non-WEIRD countries. WEIRD countries are Western, educated, industrialized, rich and democratic. An important question is how well this dichotomy captures the range of differences between societies. For instance, consider Turkey where the present study was conducted. Geographically and culturally, Turkey is a bridge between Europe, the Middle East and Asia. It is bordered to the west by Europe, the south by Syria and Iraq and to the east by Iran as well as former Soviet republics. Turkey is overall comparatively poor with per capita earnings of roughly $4000 (US) per capita in 2014 (https://www.ceicdata.com/en/indicator/turkey/annual-household-income-per-capita) compared to the United States per capita income of roughly $26,000 (US) (https://www.ceicdata.com/en/indicator/united-states/annual-household-income-per-capita). Yet, no country is completely heterogeneous and the same is true of Turkey where people in the cities are generally better off than agricultural workers in southeastern and eastern Turkey (Saatci & Akpinar, 2007) and with a similar situation for educational achievement (Ataç, 2017). This means that studies of participants in the cities of non-WEIRD countries might in fact be better characterized as WEIRD (Ghai, 2021). With respect to Turkey specifically, it raises the question of whether *relatively rich* in Turkey is the same as the notion of 'rich' attributed to WEIRD countries or whether the testing of participants in Turkish cities might be similar to WEIRD samples.

In fact, Turkey is clearly non-WEIRD in only one way; it is not Western. Any notion of 'Western' might include all sorts of characteristics but one characteristic noted by Maryanski (2010) is that Western societies tend to be individualist rather than collectivist. Collectivism is a description of a society in which the group takes precedence over the individual. Turkish culture is usually considered to be collectivist (e.g., Dost-Gözkan, 2022). Nevertheless, within Turkey there is a contrast between cities that tend to be more Western (richer, better educated, more individualist) and the countryside that is less Western. Considering Turkey as a whole, there are also potential differences in Turkish culture relative to Western culture that are not captured by the notion of WEIRD. As one example, cultures differ in their extent of religiosity. Whereas about 73% of Americans are religious, mainly Christian (Public Religion Research Institute, 2022), about the same percentage (72%) of those in the Czech Republic (a European nation) are non-religious (Starr, 2019). Religion is generally associated with higher levels of political conservatism (Malka et al., 2012) and prejudice (e.g., Rowatt & Al-Kire, 2021), meaning that differences in religiosity within and between Western societies might result in differences in political conservatism and prejudice. Turkey, on the other hand, is highly religious, but 99% of Turks are Muslim (World Population Review, 2023) rather than predominantly Christian like in WEIRD countries, with potential cultural differences as a result. Thus, religious differences within and between nations can lead to important differences in attitudes irrespective of their status as WEIRD or non-WEIRD countries.

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Not only is Turkey predominantly Muslim, but Turkish Islamism combines with neo-liberalism (Helm, 2018; Karaman, 2013). Neo-liberal characteristics include an economy with weak trade unions, poor workers' rights and little government intervention, and because neo-liberalism varies in Western nations (Mijs et al., 2016), Turkey's neo-liberalism makes it more similar to some Western nations than others, irrespective of their status as WEIRD or non-WEIRD countries. Moreover, there are Western countries such as Hungary (a European nation) that have embraced right-wing, populist ideals in which press freedoms have been eroded, judicial independence has been compromised, and multi-party democracy has been threatened (Herman, 2016). Once again, Hungary might be 'Western', but such characteristics help to illustrate the extent to which it is different than most other WEIRD nations.

In sum, the distinction between WEIRD and non-WEIRD is important in capturing *some* divergences between nations, but it also clearly fails to capture everything. The sample in the present study came from Turkey, and as stated above, Turkey diverges from the WEIRD criteria only in the sense that it is not Western, although because our participants were from cities in Turkey, they were more similar to Western participants than might be expected if they came from the countryside. As a result, differences in the psychometric properties of the SDQ in Turkish participants in our study would be particularly noteworthy because they would indicate that small deviations in a society from WEIRD criteria could affect a scale's psychometric properties.

1.2 | Use of the SDQ in WEIRD and non-WEIRD countries

The SDQ has been mainly normed and used in WEIRD countries. In such countries, there have only been a handful of studies, indicating that the SDQ is *not* a reliable and valid measure for identifying problems in children. For instance, Vaz et al. (2016) found that it is of limited utility when identifying issues in an Australian community sample. In general, however, the reliability, validity and factor structure are consistently good in these WEIRD societies.

Whereas research from inside WEIRD countries indicates good psychometric properties for the SDQ, research from outside the WEIRD spectrum provides a more nuanced picture. Psychometric properties such as reliability, validity and factor structure are important if researchers want to examine subscales separately. For instance, if one wants to identify peer problems or hyperactivity as a child's issue, then it is important that there is a clear factor structure that identifies those subscales as distinct. Otherwise, only the *total* difficulties scores should be used when evaluating children rather than subscale scores (Mieloo et al., 2012). Therefore, we consider research examining the psychometric properties of the SDQ in this section, beginning with studies that generally confirm the findings in WEIRD countries and ending with studies that obtained discrepant findings.

Gaete et al. (2018) examined 9- to 15-year-olds in Chile. Both a three-factor solution and particularly a five-factor solution provided a good fit to the data when parents were informants. In addition, the reliabilities with parents as informants were also good, ranging from 0.76 to 0.85 on the five subscales.

Chinese participants fit at least two of the five WEIRD criteria: educated and industrialized. In an urban sample from Hong Kong (Lai et al., 2010), the subscales were correlated as expected (e.g., hyperactivity and conduct: $r = 0.55$ on the parent SDQ; $r = 0.67$ on the teacher SDQ) with the lowest correlations between the emotional and hyperactivity/inattention subscales ($r = 0.29$) and the emotional and conduct subscales ($r = 0.12$). There was also good reliability, with the alphas on the overall teacher and parent versions of the SDQ, 0.81 to 0.84. On the subscales, hyperactivity/inattention and prosocial behaviour had alphas greater than 0.70. The lowest alphas were on the peer problems scale rated by parents ($\alpha = 0.45$) and teachers ($\alpha = 0.55$). These alphas were similar, though in some cases slightly lower, to those obtained in the UK (Goodman, 2001).

Other studies have failed to establish similar psychometric properties in non-WEIRD countries. For instance, in a sample of children from Taiwan, Liu et al. (2013) found a slightly atypical four-factor structure for the parent and teacher versions rather than the three- or five-factor solution typical in WEIRD countries.

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Hoosen et al. (2018) examined studies that had used different versions of the SDQ in 12 different African countries. Twenty-five such studies examined the reliability with alphas ranging from 0.18 to 0.89. Unfortunately, no mean alpha or *SD* was reported so the very wide range simply cannot provide confidence regarding the reliability of the SDQ in African countries.

In sum, the data for these non-WEIRD countries are mixed with reliabilities sometimes being good and sometimes being questionable. Likewise, the factor structure is sometimes clear and similar to that obtained in WEIRD countries but sometimes results in a different solution or no solution at all with distinct factors not arising.

1.3 | Use of the SDQ in Turkey

As described above, Turkey is similar in most ways to WEIRD countries but not in every way, and the question is whether the psychometric properties of the SDQ would be upheld in Turkey. Thus far, there have been only a handful of relevant studies. Güvenir et al. (2008) translated the SDQ into Turkish initially using fluent English speakers and then using backtranslation with professional translators. The essentials of the SDQ (e.g., scales) were retained, and the participants were adolescents from both clinical and community settings and their parents. They reported acceptable internal consistency for all scales except the peer problem scale. Furthermore, the overall score correlated significantly with the Child Behaviour Checklist and Youth Self Report scales, and the Turkish SDQ was able to discriminate between the clinical and community samples. They did not conduct a factor analysis to examine whether either the three- or five-factor solution held true in Turkey.

Likewise, Dursan et al. (2020) examined the SDQ with 1.5- to 4-year-olds. Reliabilities on individual subscales were generally good (0.70 to 0.81), with the exception of peer problems ($\alpha = 0.38$). To establish validity, Dursan et al. gave parents the Brief Infant-Toddler Social and Emotional Assessment, which measures psychosocial problems, generally obtaining the expected correlations between subscales of this test and the SDQ.

Yet, again, other studies lead to a more nuanced view. Stevanovic et al. (2014) examined the SDQ in a multicountry study (comparing Turkey, Serbia, Bulgaria, Croatia, Indonesia and Nigeria). Correlations between ratings of parent and teacher informants were generally lower than in the UK (Goodman, 2001). In addition, they failed to replicate the five-factor structure.

Husky et al. (2020) also examined the reliability of the SDQ in a range of countries, including Turkey, as well as Italy, Germany, the Netherlands, Lithuania, Bulgaria and Romania. The reliabilities with Turkish parents as informants were below the generally accepted cutoff of 0.70 on 4 of 5 subscales (particularly peer problems, $\alpha = 0.42$), although the alpha on the overall scale was good ($\alpha = 0.78$). With Turkish teachers as informants, the reliabilities were above 0.70 on all subscales except peer problems ($\alpha = 0.51$).

Likewise, Cheng et al. (2018) examined the SDQ in the same seven countries. The correlations between parent and teacher ratings were particularly low in Turkey and Romania. In Turkey, these were as follows: total score: $r = 0.29$, conduct: $r = 0.30$, hyperactivity/inattention: $r = 0.35$, peer problems: $r = 0.14$, emotional: $r = 0.16$, prosocial: $r = 0.10$.

In sum, the pattern of findings in Turkey is potentially even less promising than in other non-WEIRD countries in that the reliabilities are often problematic and there is no clear indication that the factor structure is similar to Western countries.

1.4 | Executive functions

As stated above, the subscales of the SDQ include emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and prosocial behaviour. There is evidence that 3-year-old children's executive control relates to two of the subscales: (1) negative emotionality (Moran et al., 2013) and (2) hyperactivity/inattention

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(Willoughby et al., 2010). In addition, parent rating scales of children's executive functions correlate with their responses on the SDQ (Dias et al., 2017), and training in executive functions led to a subsequent improvement on the peer relationship subscale relative to a control group (van Houdt et al., 2019). Thus, there are numerous findings, indicating that children's executive function abilities are related to their abilities measured on the SDQ.

One relatively well-used measure of executive control in preschoolers is the Bear/Dragon task (Reed et al., 1984), sometimes reframed as the Bear/Elephant task so as not to scare children. In this task, the child must inhibit following commands given by a dragon/elephant but follow commands given by the bear. Therefore, we examined the relation between children's performance on the Bear/Dragon task and their subscale scores on the SDQ. The Bear/Dragon task has been used in countries such as China, with Chinese (Sabbagh et al., 2006) and Vietnamese (Tran et al., 2019) children from collectivist cultures even performing better than Western participants. It is therefore suitable for non-WEIRD participants.

1.5 | Summary and present study

As described above, the psychometric properties of the SDQ are generally well supported in WEIRD countries. In contrast, there are deviations from this pattern in non-WEIRD countries, including in Turkey, where the present study was conducted. If the reliabilities for individual subscales are low and the factor structure does not support a three- or five-factor solution as in Western societies, then this might indicate that only the total difficulties score should be used when examining children rather than the subscale scores. Therefore, in the present study, we examined the psychometric properties of the SDQ in Turkey. As part of this effort, we gave them the Bear/Elephant task to examine the criterion validity of the SDQ, anticipating a correlation with the emotional symptoms, hyperactivity/inattention and peer relationship subscales as described above.

2 | METHOD

2.1 | Participants

Children ranged in age from 34 to 72 months ($M = 58.70$, $SD = 8.77$). Of the 310 participants, 156 were girls and 154 were boys. Mothers ranged in age from 24 to 47 years ($M = 35.36$, $SD = 4.33$) and fathers from 26 to 55 years ($M = 38.46$, $SD = 5.05$). The majority of the children were from intact families (91.1%), with the participants living in the Turkish cities of Istanbul or Muğla and children with autism or intellectual disabilities not tested. Most of the children were enrolled in private daycares or primary schools, and the mothers were four-year university graduates or higher (58.6%), and similarly most of the fathers had four-year university degrees or higher (55.7%). The majority of the mothers (70.1%) and almost all fathers (99.4%) were employed. The average monthly household income was 2800 TL ($SD = 4188,01$) and ranged from 200TL to 30000TL. Notably, the minimum wage was 846 TL in Turkey in 2014 at the midpoint of data collection (2013 to 2015) (https://harb-is.org.tr/asgari-ucret-846-tl/), which is well below our participants' incomes. Thus, children were from mostly middle- and higher-income families within Turkey. These characteristics mean that the participants in our study were WEIRD in four ways: they were relatively well educated, industrialized, rich (in Turkey at least, though not compared to Westerners) and democratic. However, they were non-WEIRD in one way: they were not Western. Again, as an illustration of this non-Western identity, they were overwhelmingly Muslim (which is not true of the majority of Westerners) and were mainly collectivist (whereas Westerners are individualistic).

Socioeconomic status was calculated by taking the average of the standardized (z) values of the education level of the mother, the education level of the father and the monthly total income of the household.

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We used G*Power to calculate power for the correlations carried out to establish the SDQ's validity. The needed number of participants with our design was 84 using the following settings: Test Family: Exact, Correlation: Bivariate normal model, A priori, Two tails, Medium-sized correlation of 0.30, $\alpha = 0.05$, Power = 0.80, Null hypothesis = 0. In fact, we tested 310 participants, all that we could test, to maximize the sample and to enable factor analysis and reliability checks (making sure not to check the results until data collection was completed). With this sample size, power was 0.99992.

The data in this study were collected as a part of a larger project supported by TUBITAK (Project No. 112 K038). Graduate students and undergraduate assistants visited families at their homes after taking the verbal and written consent of the parents. Families received monetary compensation (100 Turkish Lira) for their participation in the study and for investing their time.

2.2 | Materials

2.2.1 | Child inhibitory control

To assess child inhibitory control, the Bear/Elephant Task was used, which is a revised version of the commonly used Bear/Dragon task developed by Reed et al. (1984) and revised later by Kochanska et al. (1996). It assesses the extent to which children can control their motor responses in accordance with the rules introduced by the experimenter. Children were seated at a table throughout the behavioural assessment, and one trained experimenter managed the assessment. At first, the experimenter presented the children with a handmade bear and an elephant puppet. Then, she informed the children that they were supposed to do what one puppet asked, but they should not do what another one asked. Which of the animals' actions children should inhibit was counterbalanced across children, meaning that while some children were supposed to follow the commands of the bear, others should comply with the commands of the elephant puppet. For example, some children were told that if the bear asks them to touch their ear, they should do it but not do it when the elephant asks. Before starting the trials, some questions were asked to ensure that children knew the locations of the body parts, such as eyes, ears, and mouth, that were required for the task. For instance, the experimenter said, 'Could you please show me, where are your eyes?'. After that, to ensure that children understood the procedure of the task, several practice trials were conducted. After enough practice to ensure that children could follow the instructions, there were 20 trials: 10 for the bear alternated with 10 for the elephant.

Children's responses were coded by the trained experimenters on a scoring sheet during the tasks at home visits, and they received 0 points when they did not carry out the commanded action and 1 point when they correctly carried out the commanded action. Scores were summed across trials to create a range between 0 to 20, with higher scores indicating greater inhibitory control.

2.2.2 | SDQ

The Turkish translation of the SDQ described above (Dursan et al., 2020; Güvenir et al., 2008) was administered to mothers and the child's teacher.

3 | RESULTS

3.1 | Analysis plan

We will present the descriptive statistics for the SDQ and the measure of child inhibitory control. Then, we will report the results of preliminary analyses carried out prior to submission of the Stage 1 report. The preliminary

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analyses involved the following. First, we examined the reliability (Cronbach's alphas) of the SDQ subscales using both parents and teachers as informants. To this end, we will use item correlations with the total scale score, as well as the alpha over all items, to decide whether individual items should be deleted to improve the reliability of both the parent and teacher scales. A second preliminary analysis was to explore the factor structure of the SDQ using an exploratory factor analysis. However, given the established three- and five-factor solutions in Western samples, our plan is to use a confirmatory factor analysis to determine whether either of these solutions adequately describes the Turkish SDQ data. A third preliminary analysis was to examine the criterion validity of the SDQ, with an expectation that the hyperactivity subscale might correlate with a measure of child inhibitory control (see above) and also with child depression (Bryant et al., 2020). Finally, we will examine correlations between parent and teacher ratings of children on the SDQ. Our expectation is that these ratings should correlate with one another.

AUTHOR CONTRIBUTIONS

Ted Ruffman: Formal analysis; writing – original draft; writing – review and editing. **Bilge Selcuk:** Conceptualization; data curation; funding acquisition; investigation; methodology; project administration; supervision. **H. Melis Yavus-Muren:** Data curation; investigation; project administration. **Kubra Arikan:** Project administration. **Ipek Tuncay:** Project administration; supervision.

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DATA AVAILABILITY STATEMENT

Data is available at the following address: https://osf.io/psu8x.

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REFERENCES

Ataç, E. (2017). Modeling educational inequalities: Class, academic achievement, and regional differences in Turkey. *Education and Urban Society*, *51*(5), 659–692. https://doi.org/10.1177/0013124517747036

Bryant, A., Guy, J., The CALM Team, & Holmes, J. (2020). The strengths and difficulties questionnaire predicts concurrent mental health difficulties in a transdiagnostic sample of struggling learners. *Frontiers in Psychology*, *11*, 587821. https://doi.org/10.3389/fpsyg.2020.587821

Cheng, S., Keyes, K. M., Bitfoi, A., Carta, M. G., Koç, C., Goelitz, D., Otten, R., Lesinskiene, S., Mihova, Z., Pez, O., & Kovess-Masfety, V. (2018). Understanding parent-teacher agreement of the strengths and difficulties questionnaire (SDQ): Comparison across seven European countries. *International Journal of Methods in Psychiatric Research*, *27*, e1589. https://doi.org/10.1002/mpr.1589

Di Riso, D., Salcuni, S., Chessa, D., Raudino, A., Adriana, L., & Altoè, G. (2010). The strengths and difficulties questionnaire (SDQ). Early evidence of its reliability and validity in a community sample of Italian children. *Personality and Individual Differences*, *49*(6), 570–575. https://doi.org/10.1016/j.paid.2010.05.005

Dias, N. M., Trevisan, B. T., León, C. B. R., Prust, A. P., & Seabra, A. G. (2017). Can executive functions predict behavior in preschool children? *Psychology & Neuroscience*, *10*(4), 383–393. https://doi.org/10.1037/pne0000104

Dost-Gözkan, A. (2022). Adolescent-parent relationships and youth well-being in Turkey. *Child Development Perspectives*, *16*(3), 173–179. https://doi.org/10.1111/cdep.12459

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Dursan, O. B., Ögütlü, H., & Esin, I. S. (2020). Psychometric properties of Turkish version of the strengths and difficulties questionnaire for age 2–4. *Archives of Neuropsychiatry*, *57*(1), 40–44. https://doi.org/10.29399/npa.23674

Gaete, J., Montero-Marin, J., Valenzuela, D., Rojas-Barahona, C. A., Olivares, E., & Araya, R. (2018). Mental health among children and adolescents: Construct validity, reliability, and parent-adolescent agreement on the 'strengths and difficulties questionnaire' in Chile. *PLoS One*, *13*(2), e0191809. https://doi.org/10.1371/journal.pone.0191809

Ghai, S. (2021). It's time to reimagine sample diversity and retire the WEIRD dichotomy. *Nature Human Behavior*, *5*(8), 971–972. https://doi.org/10.1038/s41562-021-01175-9

Giannakopoulos, G., Tzavara, C., Dimitrakaki, C., Gerasimos, K., Rotsika, V., & Tountas, Y. (2009). The factor structure of the strengths and difficulties questionnaire (SDQ) in Greek adolescents. *Annals of General Psychiatry*, *8*, 20. https://doi.org/10.1186/1744-859.X-8-20

Goodman, A., Lamping, D. L., & Ploubidis, G. B. (2010). When to use broader internalising and externalising subscales instead of the hypothesised five subscales on the strengths and difficulties questionnaire (SDQ): Data from British parents, teachers and children. *Journal of Abnormal Child Psychology*, *38*(8), 1179–1191. https://doi.org/10.1007/s10802-010-9434-x

Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*(11), 1337–1345. https://doi.org/10.1097/00004583-200111000-00015

Güvenir, T., Özbek, A., Baykara, B., Arkar, H., Sentürk, B., & Incekas, S. (2008). Properties of the Turkish version of the strengths and difficulties questionnaire (SDQ). *Turkish Journal of Child and Adolescent Mental Health*, *15*(2), 65–74.

Heinrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, *33*(2–3), 61–83. https://doi.org/10.1017/S0140525X0999152X

Helm, T. (2018). *How neoliberal is Turkey? The Turkey Analyst*. https://www.turkeyanalyst.org/publications/turkey-analyst-articles/item/596-how-neoliberal-is-turkey?.html

Herman, L. E. (2016). Re-evaluating the post-communist success story: Party elite loyalty, citizen mobilization and the erosion of Hungarian democracy. *European Political Science, Review*, *8*(2), 251–284. https://doi.org/10.1017/S1755773914000472

Hoosen, N., Davids, E. L., de Vries, P. J., & Shung-King, M. (2018). The strengths and difficulties questionnaire (SDQ) in Africa: A scoping review of its application and validation. *Child and Adolescent Psychiatry and Mental Health*, *12*, 6. https://doi.org/10.1186/s13034-017-0212-1

Husky, M. M., Otten, R., Boyd, A., Pez, O., Bitfoi, A., Carta, M. G., Goelitz, D., Koç, C., Lesinskiene, S., Mihova, Z., & Kovess-Masfety, V. (2020). Psychometric properties of the strengths and difficulties questionnaire in children aged 5-12 years across seven European countries. *European Journal of Psychological Assessment*, *36*(1), 65–76. https://doi.org/10.1027/1015-5759/a000489

Karaman, O. (2013). Urban neoliberalism with Islamic characteristics. *Urban Studies*, *50*(16), 3412–3427. https://doi.org/10.1177/0042098013482505

Klassen, H., Woerner, W., Wolke, D., Meyer, R., Overmeyer, S., Kaschnitz, W., Rothenberger, A., & Goodman, R. (2000). Comparing the German versions of the strengths and difficulties questionnaire (SDQ-Deu) and the child behavior checklist. *European Child and Adolescent Psychiatry*, *9*(4), 271–276. https://doi.org/10.1007/s007870070030

Kochanska, G., Murray, K., Jacques, T. Y., Koenig, A. L., & Vandegeest, K. A. (1996). Inhibitory control in young children and its role in emerging internalization. *Child Development*, *67*(2), 490–507. https://doi.org/10.2307/1131828

Lai, K. Y. C., Luk, E. S. L., Leung, P. W. L., Wong, A. S. Y., Law, L., & Ho, K. (2010). Validation of the Chinese version of the strengths and difficulties questionnaire in Hong Kong. *Social Psychiatry and Psychiatric Epidemiology*, *45*(12), 1179–1186. https://doi.org/10.1007/s00127-009-0152-z

Liu, S.-K., Chien, Y.-L., Shang, C.-Y., Lin, C.-H., Liu, Y.-C., & Gau, S.-F. (2013). Psychometric properties of the Chinese version of strength and difficulties questionnaire. *Comprehensive Psychiatry*, *54*(6), 720–730. https://doi.org/10.1016/j.comppsych.2013.01.002

Malka, A., Lelkes, Y., Srivastava, S., Cohen, A. B., & Miller, D. T. (2012). The association of religiosity and political conservatism: The role of political engagement. *Political Psychology*, *33*(2), 275–299. https://doi.org/10.1111/j.1467-9221.2012.00875.x

Maryanski, A. (2010). WEIRD societies may be more compatible with human nature. *Behavioral and Brain Sciences*, *33*(2/3), 103–104. https://doi.org/10.1017/S0140525X10000191

Mieloo, C., Raat, H., van Oort, F., Bevaart, F., Vogel, I., Donker, M., & Jansen, W. (2012). Validity and reliability of the strengths and difficulties questionnaire in 5–6 year olds: Differences by gender or by parental education? *PLoS ONE*, *7*(5), e36805. https://doi.org/10.1371/journal.pone.0036805

Mijs, J. J. B., Bakhtiari, E., & Lamont, M. (2016). Neoliberalism and symbolic boundaries in Europe: Global diffusion, local context, regional variation. *Socius: Sociological Research for a Dynamic WORLD*, *2*, 1–8. https://doi.org/10.1177/2378023116632538

Moran, L. R., Lengua, L. J., & Zalewski, M. (2013). The interaction between negative emotionality and effort control in early social-emotional development. *Social Development*, *22*(2), 340–362. https://doi.org/10.1111/sode.12025

15227219, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/icd.2473 by ebru cinar - Koc University , Wiley Online Library on [02/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Public Religion Research Institute. (2022). *PRRI 2022 census of American religion: Religious affiliation updates and trends*. https://www.prri.org/spotlight/prri-2022-american-values-atlas-religious-affiliation-updates-and-trends/#:~:text=As%20of%202022%2C%2055%25%20of,from%2078%25%20in%202021

Reed, M. A., Pien, D. L., & Rothbart, M. K. (1984). Inhibitory self-control in preschool children. *Merrill-Palmer Quarterly*, *30*(2), 131–147.

Rowatt, W. C., & Al-Kire, R. L. (2021). Dimensions of religiousness and their connection to racial, ethnic, and atheist prejudices. *Current Opinion in Psychology*, *40*, 86–91. https://doi.org/10.1016/j.copsyc.2020.08.022

Saatci, E., & Akpinar, E. (2007). Assessing poverty and related factors in Turkey. *Croatian Medical Journal*, *48*(5), 628–635.

Sabbagh, M. A., Xu, F., Carlson, S. M., Moses, L. J., & Lee, K. (2006). The development of executive functioning and theory of mind. *Psychological Science*, *17*(1), 74–81. https://doi.org/10.1111/j.1467-9280.2005.01667.x

Smedje, H., Broman, J. E., Hetta, J., & von Knorring, A. L. (1999). Psychometric properties of a Swedish version of the "strengths and difficulties questionnaire". *European Child and Adolescent Psychiatry*, *8*(2), 63–70. https://doi.org/10.1007/s007870050086

Starr, K. J. (2019). Once the same nation, the Czech Republic and Slovakia look very different religiously. https://www.pewresearch.org/short-reads/2019/01/02/once-the-same-nation-the-czech-republic-and-slovakia-look-very-different-religiously/

Stevanovic, D., Urbán, R., Atilola, O., Vostanis, P., Singh, B. Y. P., Avicenna, M., Kandemir, H., Knez, R., Franic, T., & Petrov, P. (2014). Does the strengths and difficulties questionnaire—Self report yield invariant measurements across different nations? Data from the international child mental health study group. *Epidemiology and Psychiatric Sciences*, *24*(4), 323–334. https://doi.org/10.1017/S2045796014000201

Stone, L., Janssens, J. M. A. M., Vermulst, A. A., van der Maten, M., Rutger, C. M., Engels, E., & Otten, R. (2015). The strengths and difficulties questionnaire: Psychometric properties of the parent and teacher version in children aged 4–7. *BMC Psychology*, *3*, 4. https://doi.org/10.1186/s40359-015-0061-8

Tran, C. D., Arrendondo, M. M., & Yoshida, H. (2019). Early executive function: The influence of culture and bilingualism. *Bilingualism: Language and Cognition*, *22*(4), 714–732. https://doi.org/10.1017/S1366728918000160

Van den Heuvel, M., Jansen, D. E. M. C., Stewart, R. E., Smits-Engelsman, B. C. M., Reijneveld, S. A., & Flapper, B. C. T. (2017). How reliable and valid is the teacher version of the strengths and difficulties questionnaire in primary school children? *PLoS One*, *12*(4), e0176605. https://doi.org/10.1371/journal.pone.0176605

van Houdt, C. A., Aarnoudse, C. S. H., van Wassenaer-Leemhuis, A. G., Laarman, A. R. C., Koopman-Esseboom, C., van Kaam, A. H., & Oosterlaan, J. (2019). Effects of executive control training on attentional, behavioral and emotional functioning and self-perceived competence in very preterm children: A randomized controlled trial. *Frontiers in Psychology*, *10*, 2100. https://doi.org/10.3389/fpsyg.2019.02100

Vaz, S., Cordier, R., Boyes, M., Parsons, R., Joosten, A., Ciccarelli, M., Falkmer, M., & Falkmer, T. (2016). Is using the strengths and difficulties questionnaire in a community sample the optimal way to assess mental health functioning? *PLoS One*, *11*(1), e0144039. https://doi.org/10.1371/journal.pone.0144039

Vugteveen, J., de Bildt, A., Theunissen, M., Reijneveld, S. A., & Timmerman, M. (2021). Validity aspects of the strengths and difficulties questionnaire (SDQ) adolescent self-report and parent-report versions among Dutch adolescents. *Assessment*, *28*(2), 601–616. https://doi.org/10.1177/1073191119858416

Willoughby, M. T., Blair, C. B., Wirth, R. J., & Greenberg, M. (2010). The measurement of executive function at age 3 years: Psychometric properties and criterion validity of a new battery of tasks. *Psychological Assessment*, *22*(2), 306–317. https://doi.org/10.1037/a0018708

World Population Review. (2023). *Is Turkey a Muslim country 2023?* https://worldpopulationreview.com/country-rankings/is-turkey-a-muslim-country

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