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Family communication and bi-dimensional student mental health in adolescents: A serial mediation through digital game addiction and school belongingness

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Abstract

The presence of communication within the family can be considered as a protective factor in preventing the development of mental health problems in school by acting as a buffer against mental health problems in adolescents. Thus, this study, which was designed to reveal the potential mechanisms between family communication and bi-dimensional student mental health (psychological well-being/distress) in Turkish adolescents, examined the serial mediator role of digital game addiction and school belongingness. The study sample consists of a total of 397 volunteering Turkish adolescents, including 206 girls (51.9%) and 191 boys (48.1%). The participants' ages range from 14 to 17 (M = 14.63 years, SD = 0.60). In this study, a cross-sectional and explanatory design based on structural equation modeling was used. The main findings of the study are as follows: (1) digital game addiction mediated the relationship between family communication and psychological well-being/distress, (2) school belongingness mediated the relationship between family communication and psychological well-being/distress, and (3) the relationship between family communication and psychological well-being/distress was serially mediated by both digital game addiction and school belongingness.

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KEYWORDS
digital game addiction, family communication, psychological distress, psychological well-being, school belongingness, student mental health

Practitioner Points

- Digital game addiction mediated the relationship between family communication and psychological well-being/distress.
- School belongingness mediated the relationship between family communication and psychological well-being/distress.
- Both digital game addiction and school belongingness serially mediated the relationship between family communication and psychological well-being/distress.

1 | INTRODUCTION

Adolescence is a complex period of life defined as a process of adaptation to rapid changes (Steinberg, 2016). The complex nature of this developmental process increases the risk of psychopathology and mental health problems with the transition to adolescence (Bor et al., 2014; McLeod et al., 2012). However, schools are one of the most appropriate settings for providing mental health services to adolescents and addressing their unmet mental health needs (Arslan, 2019; Schulte-Körne, 2016). This has to do with the fact that students spend most of their time at school (Rutter, 1985) and schools are at the center of students' lives and an important institution where they can establish relationships with other people (Willms, 2003). Although school is an effective environment in which well-being can be developed and sustained (Green et al., 2013), student mental health in schools has received scarce interest and the mechanisms underlying student mental health in the school environment as a positive institution are yet to be examined in detail.

Student mental health in schools focuses on the social, emotional and behavioral needs of students in the school environment (Franklin et al., 2012). Studies on student mental health mostly focus on a single dimension of mental health related to psychological distress (e.g., Renshaw & Cook, 2018; Yıldırım et al., 2023). However, Renshaw and Bolognino (2017) state in their student mental health in school model that bi-dimensional assessment is more effective in predicting variables such as school attendance, physical health, meaningful social relationships and academic achievement compared to unidimensional assessment. Therefore, in this study, student mental health in school was examined in two dimensions: psychological well-being and psychological distress. In unidimensional models, the presence of psychopathology is indirectly understood by the lack of well-being. However, two-dimensional models allow exploring two dimensions that include psychopathology and well-being criteria together (Guerra-Bustamante et al., 2019). Thus, psychological distress as an aspect of negative mental health can be prevented by using protective factors against risk factors that may affect psychological well-being, which is an aspect positive mental health (Renshaw & Arslan, 2019). Positioned in the positive dimension of mental health, psychological well-being is defined as having goals that direct one's life, realizing one's potential, taking responsibility, accepting oneself and one's past, and establishing quality relationships with others (Keyes et al., 2002; Ryff & Keyes, 1995). Psychological distress, on the other hand, refers to emotional suffering associated with negative mental health and experienced in the face of stressful life events (Hu et al., 2022). An individual's inability to cope

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effectively with a stressor causes emotional problems such as distress, restlessness, and stress (Ridner, 2004). Therefore, both psychological well-being and psychological distress are constructs that affect one's life satisfaction, development, and self-actualization (Linley, 2013; Ryff, 1989).

Previous studies on adolescent psychological well-being and distress have considered self-esteem (Liu et al., 2019), personality traits (Gómez-Baya et al., 2018), and social support (Zell & Moeller, 2018) as protective factors, while lack of social support (Ryan & Deci, 2001), negative parental attitudes (Gassman-Pines et al., 2020), and problematic internet use (Twenge & Campbell, 2019) have been examined as risk factors. This study investigates the underlying mechanisms by which adolescents' healthy family communication increases psychological well-being and reduces distress, two components of student mental health at school. The variables mediating this relationship are thought to be digital game addiction and school belongingness. These study variables have been associated with both positive and negative mental health of adolescents (Gassman-Pines et al., 2020; Twenge & Campbell, 2019). Consequently, this study is believed to be important in that it addresses student mental health in school in two dimensions.

1.1 | Family communication and student mental health in school

It is important for adolescents' mental health that they live in a safe environment, communicate with their families, and establish close relationships (Hellfeldt et al., 2019). An adolescent with good communication with his/her family feels safe because he/she receives unconditional acceptance and support from his/her family (Buehler, 2020), adolescents who fail to communicate with their families experience many behavioral and psychological problems (Rueter & Koerner, 2008). Healthy communication within the family increases social support and self-acceptance among family members, which leads to better mental and physical conditions and a positive coping style (Coyne & Downey, 1991; De Goede et al., 2009). And this has a protective effect on adolescents' mental health against the impacts of stressful events (Puffer et al., 2016).

Various studies in the literature have reported that with family communication, adolescents will feel better psychologically (KavehFarsani et al., 2020), have a positive view of the world (Stein et al., 2019), be supported academically, and have good relationships in general (Rueter & Koerner, 2008). An adolescent who feels good about himself/herself, gets satisfaction from his/her interactions, and has life goals is expected to experience self-compassion and well-being (KavehFarsani et al., 2020; Monin et al., 2020) and feel less stressful (Berryhill & Smith, 2021). However, it is also known that negative parental attitudes and family communication perceived by the child negatively affect student mental health in school by reducing school performance and academic achievement (Li et al., 2015; Masselam et al., 1990).

1.2 | The mediating effect of digital game addiction and school belongingness

Adolescents who have healthy relationships with their families are able to communicate effectively with their environment, set goals for life, and have an optimistic view of the future. On the contrary, adolescents who lack healthy communication with their families and feel rejected by them may isolate themselves from their environment and become lonely (Corsano et al., 2006). Adolescents who feel lonely and hopeless when they fail to establish a quality relationship with their parents may turn to digital games just to feel better (Jin et al., 2021; Mun & Lee, 2022). Research also shows that problematic and intensive computer use negatively affects life activities such as school life and leads to physical and mental problems (Caci et al., 2017; Teng et al., 2020; Twenge & Campbell, 2019).

It is known that adolescents who frequently play video games focus their attention on video games, which leads to decreased academic performance and alienation from school (Brunborg et al., 2014). Adolescents who are

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alienated from school may have difficulty perceiving themselves as a respected member of the school (Osterman, 2000), as their relationships at school deteriorate and they lack acceptance in the school environment (Willms, 2003). School belongingness is when students perceive themselves as a valuable, meaningful, and important part of their school (Arslan & Duru, 2017). Students who cannot feel belonging to school may feel lonely and depressed because they cannot have positive social relationships (Osterman, 2000). Therefore, it can be said that students' distress levels will increase and their psychological well-being will be negatively affected. Studies also show that school belonging and a positive school environment contribute to adolescents' well-being and psychological development (Arslan et al., 2020; Arslan, 2021; Parr et al., 2020).

1.3 | The present study

Since positive mental health in adolescence predicts fewer communication problems with other people, higher academic achievement and self-esteem, it is important to understand the mechanisms underlying mental health in the school environment, which is at the center of adolescents' lives (Kansky et al., 2016). In this study, digital game addiction and school belongingness, family communication and the path to student mental health were examined as mediating variables in light of the literature. There are studies demonstrating the relationships between these variables in the literature (Brunborg et al., 2014; KavehFarsani et al., 2020; Purwaningsih & Nurmala, 2021; Yao et al., 2022). However, to our knowledge, there is no research simultaneously examining these four variables. In this context, the aim of the present study is to explore the nature of the relationships between the variables together. At this point, the constructed model is believed to contribute to the literature.

In sum, the research question investigated in this study was "Do digital game addiction and school belongingness have a serial mediating role in the relationship between family communication and psychological well-being and distress?"

Our hypotheses were the following:

H1. Digital game addiction mediates the relationship between family communication and psychological well-being and distress.

H2. School belongingness mediates the relationship between family communication and psychological well-being and distress.

H3. Digital game addiction and school belongingness have a serial mediating role in the relationship between family communication and psychological well-being and psychological distress.

2 | METHOD

2.1 | Participants

To determine the appropriate sample size to test the mediating variable models, Monte Carlo Power Analysis was conducted before launching the study. In line with the recommendations in the literature, the total number of replications was set to 5000 (e.g., Mundform et al., 2011), the number of Monte Carlo draws per replication to 20000 (Preacher & Selig, 2012), the confidence interval to 95%, and the targeted power to 0.80 (Schoemann et al., 2017). Based on the findings, it was determined that a minimum of 210 adolescents were needed to test the serial mediator role of digital game addiction and school belongingness in the relationship between family communication and psychological well-being/distress at a power level of 0.80. In this context, the convenience sampling

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method was used in this study and 397 adolescents attending a public high school in Istanbul were reached. Of the adolescents, 206 (51.9%) were female, 191 (48.1%) were male, and their ages ranged between 14 and 17 (M = 14.63, SD = 0.60).

2.2 | Measures

2.2.1 | Family communication scale (FCS)

The scale was developed by Geçer and Yıldırım (2023) to measure family communication (e.g., "*I am satisfied with the way that we communicate in our family.*"). The scale is a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Higher scores on the scale indicate a higher level of positive family communication. As a result of the development studies, it was seen that the findings of the CFA analysis showed a good fit. The factor loadings of the scale were adequate-strong and ranged between 0.37 and 0.91. The findings also show that the FCS has a good Cronbach's alpha coefficient (α = .82). The Cronbach's alpha coefficient of the current study is .90.

2.2.2 | Digital game addiction scale (DGAS-7)

The digital game addiction scale was developed to identify problematic digital gaming behaviors of adolescents aged 12–18 (Lemmens et al., 2009). The DGAS-7 is a seven-item short form of the initial DGAS-21 instrument (e.g., *"I'm quite competent at what I do."*). The DGAS-7 is a five-point Likert-type scale (1 = *never*, 5 = *always*) with a single-factor structure. Scale scores range from 7 to 35. The EGAS-7 was adapted into Turkish by Irmak and Erdogan (2015). In the adaptation study, Cronbach's alpha coefficient of the scale was calculated as .72. The Cronbach's alpha coefficient of the current study is .84.

2.2.3 | School belongingness scale (SBS)

It was developed by Arslan and Duru (2017) to measure school belongingness. The scale includes 10 items and is rated on a 4-point Likert scale (1 = *never*, 4 = *always*). It consists of two sub-dimensions: school exclusion and school acceptance (e.g., *"I feel excluded in this school."*). A high total score on the scale indicates that students have a high level of school belongingness. The Cronbach's alpha coefficient of the total score for the scale is .86. The Cronbach's alpha coefficient of the current study is .84.

2.2.4 | Psychological wellbeing and distress screener

It was developed by Renshaw and Bolognino (2017) to be used as a school-based screener of two-dimensional mental health in middle and high school students. The scale was adapted into Turkish by Renshaw and Arslan (2019). In the scale, items targeting psychological well-being explain both emotional and adaptive behaviors, while items targeting psychological distress explain emotional and affective problems. It is a 10-item self-report behavior rating scale with two sub-dimensions: psychological well-being and psychological distress (e.g., *"Did you have a good time with your friends?"*). Both subscales consist of five items each organized on a 5-point Likert response scale (1 = *very rarely or never*, 5 = *very often or always*). However, no total score is obtained from the scale. The results show that the Cronbach's alpha coefficient for both factors is greater than .85. In this study, the Cronbach's alpha

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coefficient of the psychological well-being subscale was .88 and the Cronbach's alpha coefficient of the psychological distress subscale was .85.

2.3 | Procedure and ethics

To collect the data, permissions for the measurement tools to be used in the study were obtained from the principal investigators and ethics committee permission was obtained from Yildiz Techical University Social and Human Sciences Ethics Committee (Meeting No: 20230502048). Then, consent was obtained from the adolescents who would participate in the study and their families through the "child consent form". The consent form included information about the content and purpose of the study and the individuals conducting the study and indicated that the information of the participants would be kept confidential and that they could leave the study at any time.

To collect data for the study, the school administration was first contacted and permission was obtained. Then, the research was announced to the students at the school and the students who wanted to participate in the research were included in the study. To collect data for the study, the school administration was first contacted and permission was obtained. Then, the research was announced to the students at the school and the students who wanted to participate in the study and whose parents gave their consent were included in the study. Participation in the study was voluntary. After signing the informed consent forms, the participants were presented the questionnaires and pens. In addition, no information regarding the identity of the participants was collected within the scope of the study. All participants completed the questionnaire in approximately 25 min.

2.4 | Data analysis

Before analyzing the data, normality (skewness and kurtosis), one-way outlier, multi-way outlier, multicollinearity, and reliability coefficient calculations were made for the variables of the study. Since the absolute values of skewness and kurtosis were not greater than ±2, it was accepted that the variables were normally distributed (George & Mallery, 2010). The standardized scores of the variables were examined to determine the one-way outliers of the data. Since all of the standardized scores were found to range between −3 and +3, it was concluded that there were no one-way outliers in the data set (Schumacker & Tomek, 2013). None of the Mahalanobis values were greater than 15, indicating that there were no outliers (Çokluk et al., 2018). Finally, VIF (Variance Inflation Factors) and tolerance values were calculated to test for possible multicollinearity between independent variables, and the results showed that all VIFs were less than 10 and tolerance values were above 0.10. Therefore, the findings showed that there was no multicollinearity problem (Frost, 2019).

In addition, the reliability, mean, and SD values of the variables were analyzed and the relationships between family communication, digital game addiction, school belongingness, and psychological well-being/distress variables were examined with Pearson Product Moment Analysis. Finally, a two-stage approach was used to test the mediation model in line with the recommendations of Anderson and Gerbing (1988). In the first stage, the measurement model was tested. Then, the hypothetical model was examined, and indirect relationships were tested through digital game addiction and school belonging on the path from family communication to psychological well-being/distress. At this stage, to decide on the best model, AIC and ECVI values and chi-square differentiation tests were applied in SEMs and the model with smaller AIC and ECVI values was accepted (Kline, 2015). In the study, two different models in which psychological well-being and psychological distress were the dependent variables were tested since the total score could not be obtained from the Psychological Wellbeing and Distress Screener scale of student mental health in schools and it measures two sub-dimensions. In addition, age and gender were taken as covariate variables in the mediation models.

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In the analysis of the data, χ^2/df, GFI (Goodness of Fit Index), CFI (Comparative Fit Index), IFI (Incremental Fit Index), TLI (Tucker Lewis Index) and RMSEA were examined as goodness of fit indices. As stated in the literature, the accepted critical value for χ^2/df is <5 (Bollen, 1989), >0.90 for GFI, CFI, IFI and TLI (Hooper et al., 2008) and <.80 for RMSEA (Hu & Bentler, 1999). In addition, the parcellation technique (Little et al., 2002), which is used to reduce measurement errors in single-factor measurement, was also included in the SEM. Therefore, the unidimensional family communication scale was parceled into FC1 and FC2; digital game addiction into DG1 and DG2; psychological well-being into PW1 and PW2; and psychological distress into PS1 and PS2.

3 | RESULTS

3.1 | Descriptive statistics and relationships between variables

Before proceeding to structural equation modeling, descriptive statistics for the variables and the relationships between the variables are given in Table 1, which shows that psychological well-being is positively related to family communication ($r = .47$, $p < .01$) and school belongingness ($r = .69$, $p < .01$) and negatively related to digital game addiction ($r = -.29$, $p < .01$). Family communication is positively related to school belongingness ($r = .44$, $p < .01$) and negatively related to digital game addiction ($r = -.30$, $p < .01$). Psychological distress is negatively related to family communication ($r = -.42$, $p < .01$) and school belongingness ($r = -.54$, $p < .01$) and positively related to digital game addiction ($r = .40$, $p < .01$). In addition, the kurtosis and skewness values of the variables are within the range of ±1.

3.2 | Measurement model

In Model 1, a measurement model consisting of four latent variables (family communication, digital game addiction, school belongingness and psychological well-being) and eight observed variables was examined. As a result of the confirmatory factor analysis (CFA), the measurement model showed good fit. Fit indices for Model 1; $\chi^2_{(14, N = 400)} = 55.552$, $p < .01$; CFI = 0.97; NFI = 0.96; GFI = 0.97; IFI = 0.97; TLI = 0.94; RMSEA = 0.08. In Model 2, a measurement model consisting of four latent variables (family communication, digital game addiction, school belongingness and psychological distress) and eight observed variables was examined. As a result of the confirmatory factor analysis (CFA), the measurement model showed a good fit. Fit indices for Model 2; $\chi^2_{(14, N = 400)} = 75.272$, $p < .01$; CFI = 0.95; NFI = 0.94; GFI = 0.96; IFI = 0.95; TLI = 0.90; RMSEA = 0.08.

To test the measurement model, factor loadings, mean, standard deviation, composite reliability (CR), average variance extracted (AVE) and reliability coefficients (Cronbach's α and McDonald's ω) were checked and are

TABLE 1 Descriptive statistics and relationships.

Descriptive Statistics					Correlations				
	Mean	SD	Skewness	Kurtosis	1	2	3	4	5
1. Family communication	20.35	3.07	−0.718	−0.023	-				
2. Digital game addiction	14.59	5.53	0.757	−0.145	−.303**	-			
3. School belongingness	31.80	5.55	−0.698	0.172	.436**	−0.256	-		
4. Psychological well-being	18.76	5.09	−0.518	−0.728	.467**	−.295**	.694**	-	
5. Psychological distress	9.96	4.62	0.906	−0.123	−.425**	.402**	−.537**	−0581**	-

**$p < .01$.

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TABLE 2 Descriptive statistics, CR, AVE, and reliabilities.

Latent variables	Indicators	M	SD	α	Ω	Ave	CR
Family communication	FCPar1	9.97	1.75	.85	0.85	0.57	0.89
	FCPar2	10.38	1.56				
Digital game addiction	DGAPar1	8.04	3.18	.81	0.81	0.57	0.90
	DGAPar2	6.56	2.81				
School belongingness	OS	8.44	2.77	.82	0.83	0.51	0.89
	AS	15.25	3.48				
Psychological well-being	PWPar1	10.96	3.29	.88	0.87	0.65	0.90
	PWPar2	7.80	2.20				
Psychological distress	PSPar1	4.95	2.91	.81	0.82	0.58	0.87
	PSPar2	4.07	2.41				

presented in Table 2. The reliability of the variables was confirmed by Cronbach's α (.81–.88) and McDonald's ω (.81–.87). The CRs (Composite reliability) checked to test the measurement model were greater than 0.7 and AVEs (Average variance extracted) were greater than 0.5. Therefore, the model has sufficient convergent and discriminant validity (Bagozzi & Yi, 1988). As a result, all observed variables strongly represent the latent variables.

3.3 | Structural model

During the testing of the structural models for Model 1 and Model 2 separately, age and gender were added to the model as control variables.

The fully mediated model examined for Model 1 initially did not include direct pathways from family communication to psychological well-being. The fit indices of the fully mediated model showed a good fit ($\chi^2_{(25, N = 400)} = 94.503$, $p < .01$; GFI = 0.96; NFI = 0.94; CFI = 0.96; IFI = 0.96; TLI = 0.92; RMSEA = 0.08; ECVI = 0.387; AIC = 154.503). Then, the partial mediation model, in which the direct path from family communication to psychological well-being was drawn, was tested. The fit indices of the partially mediated model also showed a good fit ($\chi^2_{(24, N = 400)} = 94.268$, $p < .01$; GFI = 0.96; NFI = 0.94; CFI = 0.96; IFI = 0.96; TLI = 0.99; RMSEA = 0.08; ECVI = 0.392; AIC = 156.268). Therefore, the fit indices of both partial and full mediation models were found to be at acceptable levels. The AIC-ECVI values of the models were examined, which revealed that the AIC and ECVI values of the full mediation model were lower than those of the partial mediation model. As a result, the full mediation model (Figure 1) was preferred.

The fully mediated model examined for Model 2 initially did not include direct pathways from family communication to psychological distress. The fit indices of the fully mediated model showed a good fit ($\chi^2_{(25, N = 400)} = 106.875$, $p < .01$; GFI = 0.95; NFI = 0.92; CFI = 0.94; IFI = 0.92; TLI = 0.88; RMSEA = 0.08; ECVI = 0.418; AIC = 166.875). Then, a partial mediation model was tested in which the direct path from family communication to psychological distress was drawn. The fit indices of the partially mediated model also showed good fit ($\chi^2_{(24, N = 400)} = 105.947$, $p < .01$; GFI = 0.95; NFI = 0.92; CFI = 0.94; IFI = 0.94; TLI = 0.88; RMSEA = 0.08; ECVI = 0.421; AIC = 167.949). Therefore, the fit indices of both partial and full mediation models were found to be at acceptable levels. An examination of the AIC-ECVI values for which model to choose revealed that the AIC and ECVI values of the full mediation model were lower than those of the partial mediation model. As a result, the full mediation model (Figure 2) was preferred.

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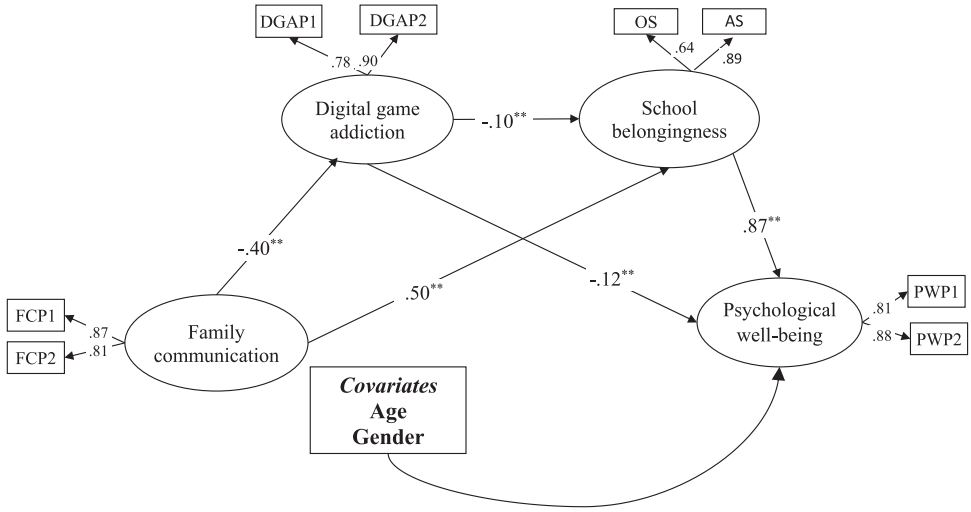

FIGURE 1 Structural equation modeling for the serial mediation model. $^{**}p < .01$, FCP, parcel of family communication; DGAP, parcel of digital game addiction; OS and AS, sub-dimensions of school belongingness; PWP, parcel of psychological well-being.

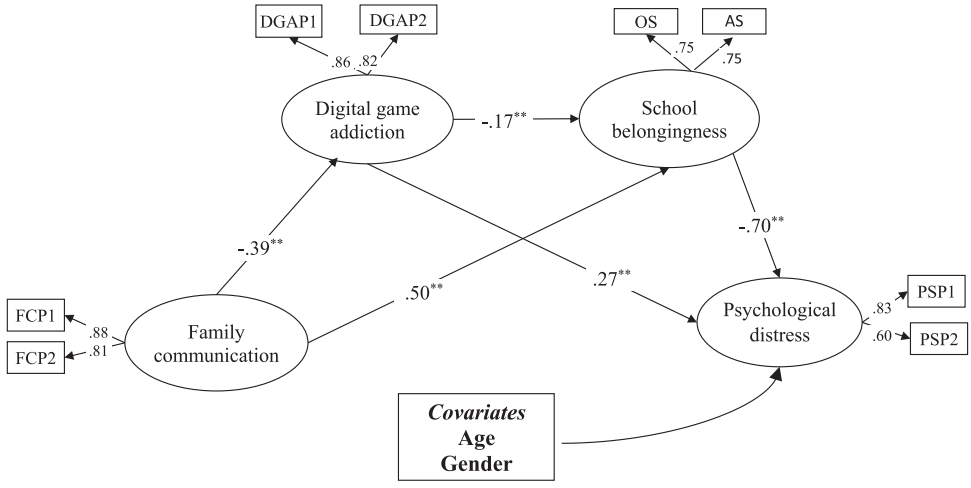

FIGURE 2 Structural equation modeling for the serial mediation model. $^{**}p < .01$, FCP, parcel of family communication; DGAP, parcel of digital game addiction; OS and AS, sub-dimensions of school belongingness; PSP, parcel of psychological distress.

4 | DISCUSSION

This study tested the serial mediating role of digital game addiction and school belongingness in the relationship between family communication and psychological well-being and psychological distress, which are components of student mental health in school. In this framework, the main findings are as follows: (1) digital game addiction mediated the relationship between family communication and psychological well-being/distress, (2) school belongingness mediated the relationship between family communication and psychological well-being/distress, and

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(3) both digital game addiction and school belongingness serially mediated the relationship between family communication and psychological well-being/distress. In conclusion, the hypotheses of the study were confirmed.

The first finding of the study supporting hypothesis H_1 was that increased family communication was associated with decreased digital game addiction, which predicted higher psychological well-being and lower psychological distress. Adolescents who have poor family communication and feel disconnected from their families may use digital games to fulfill their needs for entertainment and attachment. This may result in problematic and intensive use of digital games by adolescents, which may lead to a deterioration in their psychological health. Studies have also shown that family communication is a protective factor for adolescents to experience less digital game addiction (Boniel-Nissim & Sasson, 2018; Chiu et al., 2004; Naufal, 2023; Yayman & Bilgin, 2020). Therefore, poor family communication increases problematic internet use and online gaming behaviors. Existing literature also shows that family communication (KavehFarsani et al., 2020; Offer, 2013) and digital game addiction (Pappa et al., 2016; Van Rooij et al., 2017) are effective factors on adolescents' mental health and coping skills with psychosocial problems. Psychological resources such as family communication, motivations, and social skills are crucial in preventing addictions and protecting mental health (Gómez-Salgado et al., 2020). Therefore, it has been suggested that family communication and digital game addiction may also affect psychological well-being and distress as two components of student mental health in adolescents. This has been attributed to the fact that family communication is a protective factor for internalizing and externalizing problems of adolescents. In conclusion, the findings of this study are consistent with the findings of previous studies.

Family communication gives individuals the ability to cope with difficult situations. In the absence of family communication, video games can offer adolescents an escape from emotional and physical challenges. Increasing intensity of digital gaming negatively affects adolescents' mental health. The research here also supports the conclusion that increased family communication is associated with increased school belongingness among adolescents. Furthermore, increased school belongingness predicts high psychological well-being and low psychological distress. These findings support the H_2 hypothesis of the current study. In other words, adolescents with high family communication had high school belongingness, high psychological well-being, and low psychological distress, resulting in the protection of student mental health. Although studies examining family communication and school belonging together are limited, it is known that poor family communication reduces an individual's commitment to other institutions where he/she can socialize, his/her adaptation and other positive school outcomes (Dorrance et al., 2020; Duru & Arslan, 2017; Jowkar et al., 2011). This, in turn, reduces the adolescent's commitment to school, which is at the center of his/her life, and thus may negatively affect student mental health. It is also known that when family communication is poor, psychological and developmental needs cannot be met and commitment in adolescents decreases (Duru & Arslan, 2017). According to Osterman (2000), acceptance and inclusion increase individuals' sense of belonging. Strong family communication can also make a student feel valuable and powerful, which can lead to increased school engagement when transferred to the school environment. School is an institution that plays a central role in the daily lives of adolescents, where they can establish relationships with other people and show commitment (Willms, 2003). Therefore, the presence of school belongingness is an important factor in the positive development and well-being of adolescents in school environments (Arslan & Duru, 2017). In conclusion, the study result that family communication improves adolescents' student mental health by increasing school belongingness bears similarity to the findings of previous studies.

The final finding of this study that supports hypothesis H_3 is that family communication predicts psychological well-being and psychological distress, which are components of student mental health, by decreasing digital game addiction, which in turn increases school belongingness. Therefore, it seems plausible that family communication helps protecting student mental health as it supports school belongingness and prevents digital gaming from reaching a level that would disrupt daily functioning. Additionally, in our study, digital game addiction and school belongingness were found to fully mediate the relationship between family communication and psychological well-being/distress. This could be attributed to the fact that nurturing parent-child relationships and family connectedness as perceived by students shape adolescents' daily life functions and thus influence their mental health.

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Given that family communication is important in the development of attitudes and behaviors during adolescence (Armsden & Greenberg, 1987), family structure is believed to be a potentially serious risk factor in directing adolescents towards addiction (Mak et al., 2014). Jin et al., (2021) argue that the quality of the family environment should be questioned for a child's gaming addiction and that gaming cannot go beyond entertainment and relaxation in a healthy family environment. The more parents communicate with their children in their daily lives, the less likely their children are to become addicted to gaming. Otherwise, children's psychological needs may not be met, which might bring about mental health problems. Video games may also negatively affect adolescents' school belongingness by reducing academic career success, time management and attention skills (Chang & Kim, 2019). Studies have also shown that video game addiction decreases school belongingness because it increases school problems and truancy (Jeong & Kim, 2011), which in turn increases the risk of mood disorders, psychological distress, and social problems (Mentzoni et al., 2011; Wenzel et al., 2009). These results are consistent with the previous research on the consequences of family communication and related theoretical insights and provide an integrated view of the relationships between the variables under investigation.

4.1 | Limitations

One of the limitations of this study may be related to the fact that the adolescents in the study sample were Turkish. Since this is the first study to our knowledge to examine these variables together in the same model, similar studies conducted in other countries could be analyzed by cross-cultural studies to see whether adolescents around the world fit this model or whether they show differences according to culture. Another limitation is that only quantitative methods were used in this study as the data were obtained from self-report scales. It may be useful to conduct mixed-method studies in which qualitative data collection tools are used in addition to quantitative data collection tools to reduce bias in responses. Finally, this research is a cross-sectional study. Therefore, it may be valuable to conduct longitudinal studies to reach definitive conclusions about the cause-and-effect relationships between these variables.

4.2 | Implications

School counselors can develop interventions by making use of the findings presented in the research while developing preventive and remedial psychological support programs. For example, in intervention studies, specific activities can be designed to increase family communication and school belongingness and to reduce digital gaming behavior. These components can be included in individual or group school counseling sessions with adolescents as part of group counseling or psycho-education. Additionally, teachers in schools can incorporate such activities into their curricula to improve the student mental health of their adolescent students. In addition to direct interventions for students, counselors can also indirectly improve the quality of family communication by conducting intervention activities and trainings designed for parents among other family members. The widespread use of such programs in all schools and their inclusion in the content of school counseling programs can be interpreted as a form of investment in protecting the mental health of students at school.

5 | CONCLUSION

As can be seen from the research results, family coping skills and the use of family communication as a source of support are important for coping with stressful events and conditions and for social, behavioral and psychological adjustment. In addition, it is understood that family communication is an important protective factor for the mental

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health of adolescents. Family communication may cause adolescents to move away from digital game use and increase their school belonging. Thus, adolescents with better family communication may have an approach that can lead to better psychological health in the face of difficulties they experience at school. The findings of this study basically point to the development of a strong source of support in schools that can help protect students' mental health from digital game addiction and low school belonging.

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CONFLICT OF INTEREST STATEMENT

No conflict of interest exists for this manuscript for any of the authors.

DATA AVAILABILITY STATEMENT

Data will be available on request.

ETHICS STATEMENT

The study protocol has been approved by Yildiz Technical University Scientific Research and Ethical Review Board (ID: 20230502048). The study was performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its following updates.

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