

ADOLESCENTS' SMARTPHONE USAGE IN ACTIVE RECREATION AND NATURAL ENVIRONMENT

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Abstract

In today's society, smartphone usage in active recreation (natural environment) is somewhat controversial because some believe that smartphones promote an access to resources; however, some believe that smartphones distract attention from environment; therefore, the present study aims at determining adolescents' smartphone usage in active recreation and natural environment. An instrument of survey (non-standardized) was carried out six months (January – June, 2022) through an intentional sampling of survey group size of 2108 (100%) adolescent boys and girls: (i) Urban adolescent boys and girls (42.50%, n = 896); (ii) Rural adolescent boys and girls (57.50%, n = 1212), aged $18.50 \pm .40$ years. Statistics (e.g., descriptive, inferential) was used to analyze and compare the data. When considering the adolescents' smartphone usage, on average, 45.00% (n = 949) of survey group spent 1 – 3 hours of using smartphones and about 38.32% (n = 808) of survey group spent time using smartphones in active recreation (natural environment). About 4.80% (n = 102) of survey group spent time using specific, recreation apps (e.g., Geocaching, GeoCaches). Increasing the physical activity is necessary; therefore, smartphone usage (recreation apps) may increase time spent in active recreation and influence physical activity levels of adolescents.

Key words: Adolescence, Nature, Physical Activity, Recreation, Smartphones.

Introduction

Active recreation includes active play (e.g., walking, hiking) undertaken outside, before, during, and after school (Arundel et al., 2022). Being outside (outdoors) and participating in active recreation provides an opportunity for learning about natural environments. Combination of active play and being outside is providing various benefits; in particular, health, social connections, interaction with nature and/ or cultural heritage. Being outside may improve mood and subjective well-being (Winter et al., 2020). Active recreation may overlap with competitive play (activity); in particular, orienteering, ski race and/ or combine with environmental education – educational trails (Juško et al., 2021).

Using smartphones (recreation apps) in facilitating active recreation is common among adolescent boys and girls and is somewhat controversial (Bolliger et al., 2020) because some believe that smartphones promote access to resources – educational apps (e.g., Treasure-Hit, Mobilogue) (Michalakakis et al., 2020), and some believe that smartphones increase inattention because of false sense of security and discharge the development of outdoor navigations through much of relying on devices (Dickson, 2004). Many of us are using smartphones (apps) in active recreation (e.g., map, compass); therefore, recreation apps may serve in significant ways in outdoor adventures.

Because many gaps (information) remain in literature in terms of Slovak scale, the present study aims at determining adolescents' smartphone usage in active recreation and natural environment.

Material and methods

In terms of study aim (see Introduction), the target population consisted of 2108 (n) (100%) adolescent boys and girls; (i) Urban adolescent boys and girls (42.50 %, n = 896); (ii) Rural adolescent boys and girls (57.50%, n = 1212), aged $18.50 \pm .40$ years) and attending the secondary schools. Adolescent boys and girls (n = 2108) consisted of convenience sample (population density – urban vs. rural), recruited through the communication services (Internet) (e.g., Instagram, Meta – Facebook) (Darko et al., 2022). Self-report measure (survey) was carried out six months (January – June, 2022), aiming for intentional sampling, regarding age and place of residence (urban vs. rural). Data interpretation process (authentic) consisted of 2220 (100%) adolescent boys and girls; however, 5.05% (n = 112) were excluded (Table 1). Reasons for not meeting the inclusion criteria were as follows: (i) Not sick (ill); (ii) Owning the smartphone(s); (iii) Place of residence – area of ≥ 15000 – urban vs. ≤ 5000 – rural).

The present study was carried out in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments and/ or comparable ethical standards. All subjects provided written informed consent.

Tab. 1: Characteristics of survey group (2108 (n), 100%)

Place of residence	Adolescent boys	Adolescent girls	Boys + Girls
Urban (≥ 15000)	490 (54.68%)	406 (45.32%)	896 (42.50%)
Rural (≤ 5000)	546 (45.05%)	666 (54.95%)	1212 (57.50%)
Urban + rural	1036 (49.14%)	1072 (50.86%)	2108 (100%)

Self-report measure (comparative study) was carried out six months (January – June, 2022), in order to determine (analyze, compare) adolescents' smartphone usage in active recreation and natural environment. Developing the instrument of survey (non-standardized) made it easier to analyze and compare the data, consisting of two sections: (i) Demographic information (e.g., place of residence, gender, age); (ii) Survey items, consisting of five questions (closed – 4 – 5 survey answers) (see Results). Instrument of survey was available online, collecting the data (January – June, 2022). Incentives were not given (voluntary participation); however, adolescent boys and girls (100%, $n = 2108$) received feedback about their personal results afterwards (Microsoft Forms, Office 365, Microsoft Corp., Redmond, WA, USA) (Andrade, 2020).

Available survey data, collected through the instrument of survey, was tabulated (Table 1) and figured (Figure 1 – 4) (see Results) in database design. Incidence of responses (each item; 1 – 5) of adolescent boys and girls (100%, $n = 2108$) was evaluated (e.g., analyze, compare) by using the Tap3 – Gamo (statistical software) (Banská Bystrica, Slovakia). After cleaning the data (adolescent boys and girls; 100%, $n = 2108$), descriptive statistics (e.g., measures of frequency, measures of central tendency) were used to analyze and compare the data. Chi-square test (χ^2) (inferential statistics) of which the significance level (α) was .01 and .05, evaluated the differences between 2108 (100%) adolescent boys and girls: (i) Urban adolescent boys and girls (42.50%, $n = 896$);(ii) Rural adolescent boys and girls (57.50%, $n = 1212$) (Turhan, 2020).

Results

In terms of study aim (see Introduction), Fig. 1 illustrates smartphone usage of adolescent boys and girls (100%, $n = 2108$). When considering the smartphone usage of adolescent boys and girls (100%, $n = 2108$) (i.e., “survey group”), 45% of survey group spent 1 – 3 hours of using smartphones; in particular, 41.28% ($n = 370$) of urban and 48.72% ($n = 590$) of rural survey group. 1.69% ($n = 36$) of survey group spent 0 hour(s) of using smartphones, compared to 11.28% ($n = 238$) of survey group who spent ≥ 5 hours of using smartphones. Out of 2108 (100%) adolescent boys and girls, 28.68% ($n = 604$) of survey group spent 3 – 5 hours of using smartphones, compared to 13.38% ($n = 282$) of survey group who spent ≤ 1 hour of using smartphones. Difference between 2108 adolescent boys and girls (100%) (urban vs. rural) was significant (statistically; $p < .01$) ($p = 1.18 \text{ E-}06$; $\chi^2_{(3)} = 33.02$).

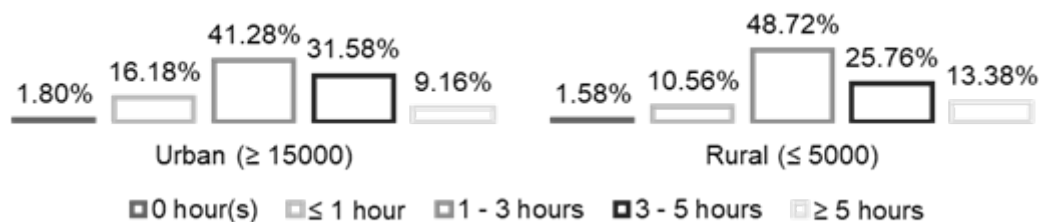


Fig. 1: Smartphone usage of adolescent boys and girls

Fig. 2 illustrates the smartphone activity of adolescent boys and girls (100%, $n = 2108$). When considering the smartphone activity of survey group, 64.12% ($n = 1352$) of survey group spent time on social networking service (e.g., Instagram, Meta – Facebook), compared to 2.80% ($n = 58$) of survey group who spent time in active recreation (natural environment). 540 adolescent boys and girls (25.62%) out of 2108 (100%) spent time in artistic activity (e.g., listening to music and podcasts, recording videos), compared to 7.48% ($n = 158$) of survey group who spent time gaming smartphones. Difference between 2108 adolescent boys and girls (100%) (urban vs. rural) was significant (statistically; $p < .01$) ($p = .002$; $\chi^2_{(3)} = 33.02$).

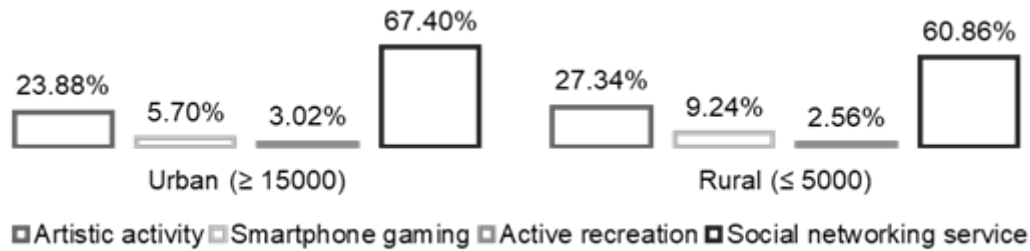


Fig. 2: Smartphone activity of adolescent boys and girls

Smartphone usage in active recreation of adolescent boys and girls (100%, n = 2108) illustrates Fig. 3. Out of 2108 (100%) adolescent boys and girls, 38.32% (n = 808) of survey group spent time using smartphones in active recreation; in particular, natural environment, compared to 14.02% (n = 296) of survey group who spent time using smartphones in sports environment. 395 adolescent boys and girls (18.75%) out of 2108 (100%) spent time using smartphones in both of environments, compared to 28.92% (n = 610) of survey group who spent time in different environments ("None"). Difference between 2108 adolescent boys and girls (100%) (urban vs. rural) was significant (statistically; $p < .01$) ($p = 8.08 \text{ E-}16$; $\chi^2_{(3)} = 72.38$).

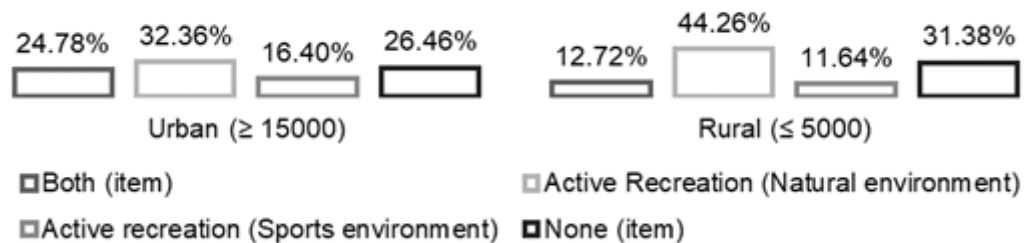


Fig. 3: Smartphone usage in active recreation of adolescent boys and girls

Smartphone usage of recreation apps of adolescent boys and girls (100%, n = 2108) illustrates Fig. 4. Out of 2108 (100%) adolescent boys and girls, 4.80% (n = 102) of survey group spent time using recreation apps (e.g., Geocaching, Geo Caches), compared to 23.65% (n = 498) of survey group who knew how to use recreation apps. 36.92% (n = 778) of survey group was not aware of recreation apps. 34.62% (n = 730) of survey group was aware of; however, was not using recreation apps (personal decision). Difference between 2108 adolescent boys and girls (100%) (urban vs. rural) was significant (statistically; $p < .01$) ($p = 5.45 \text{ E-}15$; $\chi^2_{(3)} = 68.50$).

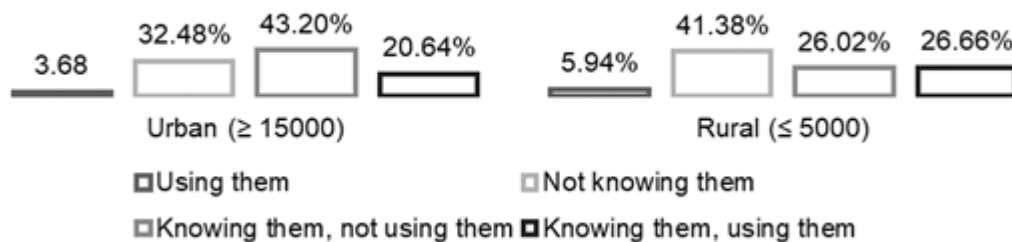


Fig. 4: Smartphone usage of recreation apps of adolescent boys and girls

Discussion

Research reviewing the smartphone usage (apps) for nature conservation and/ or active recreation provides influences (negative and positive) on adolescents' experience of nature, i.e., may create the spectacle out of nature; however, may harm the relationship with nature through the loss of practical quality (Adams, 2019). Consequences of adolescents' smartphone usage in active recreation is depending on category and/ or level of device use. 4.80% (n = 102) of survey group spent time using recreation apps (e.g., Geocaching, GeoCaches), which combines technology (smartphone apps) with outdoor adventure and explores locations near and far (Ihamaki, 2012). Most of literature; however, emphasizes the theory (discussion) of impact of smartphone usage, rather than experiences of being outside (outdoors) and participating in active recreation with device use (Arts et al., 2021). Technology

(e.g., traditional, new), whether maps, compass, trails (Juško et al., 2021), and/ or Geocaching (Schneider, Jadczková, 2016) is crucial in shaping adolescents' active recreation in natural environments (Arts et al., 2021); therefore, in order to better understand the dynamics between nature and adolescents' smartphone usage, more research is necessary to understand the consequences of smartphone usage in active recreation and to ensure that current generation continues to receive variety of benefits from active recreation in natural environments.

Conclusion

Digital technology (e.g., smartphones, recreation apps) plays an important role in active recreation and adventure in natural environment; however, may hinder active recreation (outdoor). Recognizing the ways, smartphones (apps) change active recreation experiences, encourages the world, where everyone (user of smartphone) may profit from nature and digital technology. Smartphones (apps) have features (capability) that may enhance nature and active recreation, rather than degrade. Smartphones (apps) are an adequate education tool in improving the quality of life (well-being), in inspiring to explore the nature (outdoors) and in promoting the active recreation of adolescent boys and girls (100%, n = 2108). Recreation apps may serve in significant ways to help adolescent boys and girls to connect with natural environment in lasting ways.

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Conflict of interest

The author(s) have no conflicts of interest to declare. The author(s) declare that the research was conducted in the absence of any commercial and/ or financial relationships that could be construed as a potential conflict of interest.

Souhrn

V dnešní společnosti je používání chytrých telefonů při aktivním odpočinku (v přírodním prostředí) poněkud kontroverzní, protože někteří se domnívají, že chytré telefony podporují přístup ke zdrojům; někteří se však domnívají, že chytré telefony odvádějí pozornost od životního prostředí; proto je cílem této studie zjistit, jak dospívající používají chytré telefony při aktivním odpočinku a v přírodním prostředí. Nástroj průzkumu (nestandardizovaný) byl prováděn šest měsíců (leden - červen 2022)

prostřednictvím záměrného výběru vzorku velikosti průzkumné skupiny 2108 (100 %) dospívajících chlapců a dívek: (i) městští dospívající chlapci a dívky (42,50 %, n = 896); (ii) venkovští dospívající chlapci a dívky (57,50 %, n = 1212), ve věku $18,50 \pm 4,40$ let. K analýze a porovnání dat byla použita statistika (např. deskriptivní, inferenční). Pokud jde o používání chytrých telefonů adolescenty, v průměru 45,00 % (n = 949) dotazované skupiny trávilo 1 - 3 hodiny používáním chytrých telefonů a přibližně 38,32 % (n = 808) dotazované skupiny trávilo čas používáním chytrých telefonů při aktivním odpočinku (v přírodním prostředí). Přibližně 4,80 % (n = 102) dotazované skupiny trávilo čas používáním specifických, rekreačních aplikací (např. Geocaching, GeoCaches). Zvýšení pohybové aktivity je nezbytné, proto používání chytrých telefonů (rekreačních aplikací) může zvýšit čas strávený aktivním odpočinkem a ovlivnit úroveň pohybové aktivity dospívajících.

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