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Architecture of aggression in cyberspace: Testing cyber aggression in young adults in Hungary

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Key Words: anonymity, deindividuation, social networking sites, cyberbullying, flaming, threatening online, legitimate aggression, Bryant-Smith Aggression Scale

Abstract:
In order to test whether and how violence is exacerbated in online social networking sites, we utilized the Bryant-Smith Aggression Scale (Bryant & Smith, 2001), and included examples in the questionnaire offering solutions for 7 different hypothetical cases occurring online (Kiss, 2017). The questionnaire was sent to social work and law school students in Hungary. Prevalence and levels of aggression and its manifestation as violence online proved to be not more severe than in offline social relations. Law students were more aware than students of social work that online hostile acts are discrediting. Students of social work were significantly more prone to break into physical fights than were law students and higher level of aggression was observed in their online behavior as well. Those who spend more time online tend to be more active online and bear a significantly higher level of aggression compared to those who are less active online. To conclude, higher education has a significant role in establishing control. This is especially crucial with law students who might have to work closely with the police and local residents aiming to establish peaceful communication, problem solving, and cooperative solutions in grassroots community policing programs.

Purpose of the Study

The purpose of the research was to measure the prevalence and patterns of different forms of aggression in cyberspace (online social networking sites) in young adults in Hungary. For the research we utilized the Bryant-Smith Aggression Scale (hereinafter BSAS; Bryant & Smith, 2001) operating with different manifestations of aggressive behavior. In order to examine whether offline forms of aggression transform into online social media sites, we included additional case scenarios after the original questionnaire, displaying various situations. After reading these situations, the answerers had to give their preferred way of reaction to each situation. The offline aggression levels then were

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compared and correlated to the answerer's online aggression levels. The answerers' offline and online aggression levels were measured and their correlating items were identified. The second aim of the study was to validate the new scale added, and determine whether this scale was capable of reflecting the level of offline aggression in cyberspace. In addition, because we collected the sample from two different university freshmen populations, differences in manifestations of specific forms of aggression in cyberspace were identified.

Problem Background

It is well-known that violence occurs even in cyberspace, and even those who could otherwise be law-abiding and norm-conforming in their everyday life might be involved in various violent acts online. Theories tested by empirical research say we develop a second moral standard when online (Michelet, 2003), which manifests in a wide range of social deviant activities from gender and identity swapping (Turkle, 1997; 2005) to online harassment (Duggan, 2017; Joinson, 2005). These are born out of the perceived anonymity of social networking sites (Hinduja & Patchin, 2015) and the downdraft of conformity (Aronson, 2007 [1972]) in cyberspace (Klein-Menting, 2014). The perpetrator of online harassment is often anonymous and prefers online social networking sites for facilitating aggressive acts (Duggan, 2017). Perceived anonymity and pseudonymity online might result in disinhibition (Suler, 2004), a state of mind freed from behavioral restraints online. Young internet users quickly adopt the online arena, where there is a greater freedom supported by the perceived anonymity and lack of external control (Michelet, 2003). Messages conveyed in cyberspace lack the vocal and visual cues that would communicate disappointment, concern, and misunderstanding, such as facial expressions and body language (Suler, 2004). It also decreases the likelihood of immediate consequence (Hinduja & Patchin, 2015). Cyberspace also deindividuates users, who might fall into a "subjective state" in which they lose self-consciousness (Singer et al., 1965). Interacting online releases people from traditional constraints on their behavior by deindividuating them (Diener, 1980).

Numerous core crime theories have been tested in cyberspace, such as social learning, general theory of crime, and routine activity theory. The possibility exists not only of users falling victim of various online acts such as online fraud, online harassment, online sexual abuse, and facing adult content harmful to them, but they can also become perpetrators of cyberbullying activities. Peer involvement in online deviant activities plays a crucial role in conditioning the individual and determining his or her choices (Rogers & Smoak, 2006; Holt & Bossler, 2007). According to Cyber-Routine Activity Theory (Choi, 2008) the more time spent online, the better the chances are of encountering criminal activity. Because leisure time is increasingly spent on social networking sites, people experience criminality on this platform. Routinely engaging in risky online leisure activities, such as frequently sharing life events and personal information, expressing opinions and feelings on sensitive issues through social networking sites (SNS), and poor online security management further add to the risk of interpersonal violence victimization in cyberspace (Choi, 2008; Choi & Lee, 2017). Pursuing risky SNS activities indicates a person's low level of self-control (Donner et al., 2014; Peterson & Densley, 2017). According to studies testing general theory of crime (Gottfredson & Hirschi, 1990), aggression and antisocial behavior have a common root in low self-control, with change attributable to environmental influences (Runions, 2013). Reactive and instrumental forms of aggression are closely correlated with the level of self-control, gratification, the power and intensity of provocative stimuli, and are rooted in young ages when identity seeking is intense (Runions, 2013). Research shows that users falling victim of online harassment tend to fear that online aggression transfers into real life scenes and continues to happen there (Duggan, 2017). Forms of online and offline bullying (as a type of online aggression) are intercon-

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nected and intertwined; either offline or online bullying activities happen first, it might likely continue in both scenes (Englander, 2013). The person's level of aggression in general correlates to the level of their online aggression.

Additionally, different types of aggressive acts experienced online influences and increases the user's aggression level they communicate with others online (Budnikas, 2015). Sontag and colleagues claim that the online spaces help users with higher levels of general aggression derive tension (Sontag et al., 2011). In cyberspace, aggressive acts can happen anytime promptly, independently of time and space. Because external control is not perceived, its users act deliberately, often at the cost of harming others. Peer group is a nurturing environment for cyberbullying behaviors involving youth. Those who were more aggressive in real life showed a higher level of involvement in any kind of cyberbullying activity as well. Additionally, suffering from others' proactive or reactive aggression contributed to an elevated level of aggression in the victims. Students involved frequently in online aggressive acts demonstrated inferior emotional control abilities and were involved repeatedly in manipulative emotional interactions. Aggressive adolescents, especially those who have a weaker external control (teacher or parent), often chose cyberspace as their scene of offending (Sontag et al., 2011). Low self-control is highly correlated with engaging in deviant activities online. Users with lower self-control more often engage in threatening online behavior, downloading copyright protected material, and generally are more risk seeking and self-centered compared to those with higher self-control (Donner et al., 2014).

In 2017, the proportion of young people aged 15-24 using the internet (71%) was significantly higher than that of the total population (48%) (ITU, 2017). There is a gender gap in internet usage as the proportion of online men exceeds the proportion of online women worldwide, with 12% (ITU, 2017). At the same time, mobile broadband has become increasingly more affordable than fixed broadband services which, along with the pervasiveness of smartphone technology (ITU, 2017) and the growing popularity of online SNSs (Facebook, Twitter, Myspace, Instagram, Google+, Snapchat, Ask.fm, etc.), provides the uninterrupted ability for users to communicate with each other in real time, theoretically, 24 hours a day.

The referred age group (those who were born before 2000, a.k.a. generation "Z") started to use the internet on a daily basis in school. The rise of SNSs dates back to the time when they attended K-12 education (i.e. Facebook, the first globally favored SNS, was established in 2004). The prevalence and patterns of cyberspace aggression in this age group has not yet been widely tested.

Olweus defines bullying as a specific type of aggression, when a student "is exposed, repeatedly and over time, to negative actions on the part of one or more other students" (Olweus, 1995: 197). Negative actions include physical and psychological – verbal and non-verbal – contact, gestures, and exclusion from a group. An additional feature of bullying is an imbalance of power which implies a particular relationship context (Olweus, 1995). Cyberbullying is the online version of bullying between schoolchildren (Smith, 2012; Hinduja & Patchin, 2012; Antoniadou & Kokkinos, 2015). While bullying and cyberbullying in schoolchildren have been researched extensively, little attention is paid to the possible manifestations of online aggression in adults who spend many hours a day online living an active life on SNSs (Runions, 2013). Aggression is a broader construction of bullying, it does not necessarily imply power differential (Runions, 2013).

Methodology

To measure aggression, we utilized the Bryant-Smith Aggression Questionnaire/Scale. The BSAS includes 12 items distributed to four underlying factors: Physical Aggression, Verbal Aggression, Anger

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Expression, and Hostility. All factors contain three items: hitting another person out of provocation, instigating a fight, and threatening people (Physical Aggression); disagreeing with people, getting into arguments often, and being argumentative in general (Verbal Aggression); "flaring up quickly," "flying off the handle for no good reason," and "having trouble controlling temper" (Anger Expression); "feeling as if they've gotten a raw deal out of life," "thinking that others always get breaks," and "feeling bitter about things" (Hostility) (Bryant & Smith, 2001).

The research project applied BSAS translated and adapted in Hungary by Gerevich and colleagues (Gerevich et al., 2012). In order to test whether and how violence is exacerbated in online SNSs, we included examples in the questionnaire offering solutions for different hypothetical cases occurring online (Kiss, 2017). Seven cases and their answers were attached to the original BSAS, as well as a 5-point Likert scale to each answer. The seven answers range through the following solutions: Verbal Abuse (scolding, sermonize, showdown); Threatening; Spreading Rumor (retort, rejoinder, riposte); Spreading Anonymous Online Rumor; Legitimate (lawful) Aggression (reporting to the authorities, e.g., SNS operator, police, school principal etc.); Indifference (wouldn't do anything); and Physical Abuse (i.e., leaving the SNS and reacting in physical violence in real life as a retort or expression of distaste to what they experienced online) was a given option to each case. The subject has to walk through all answers and indicate how he or she would react on a 5-point scale. This added block onto the original BSAS was named the Kiss Aggression Transformation Scale (KATS) after a colleague co-authoring this paper.

Our hypotheses were: (1) the level and intensity of the aggression tested by the BSAS (Bryant & Smith, 2001; Gerevich et al. 2012) corresponds to the level of violence that the answerer would commit online (measured by the KATS scale) when the described case happened to them; (2) even those who answered with a relatively low level of aggression may allow themselves to be dragged down into deviant online social activities such as intentionally excluding somebody from a group by spreading hostile rumors (perceived online anonymity, online conformity).

Sample Design

The online questionnaire was sent to social work and law school students studying in their first year (freshmen) during the 2016/17 spring and 2017/18 fall semesters in Hungary. The students were reached via email by the dean or the registrar's department of the university. Completing the questionnaire was voluntary, however subjects did not get any incentive in the study. 558 participants filled out the online questionnaire and after cleaning and removing unreliable items, 446 items remained, of which 15.1% were students of social work (n=67), and 84.9% were law school students (n=379). Female participants were overrepresented with 69.2% (n=309). The massive differences can be explained by the numbers: there are much more students studying law than social work, and female students are overrepresented in both majors as well. The majority of the sample (65.7%) was from the 19-25 years old age group, with an overall mean age of 26.08 (SD= 7,93 years; range 18–55). The age distribution was as follows: 18-25 y.o.: 65.7%, 26-35 y.o.: 19.1%, 36-45 y.o.: 10.0%, 46-55 y.o.: 3.9% and 6 (1.3%) missing cases. The sample was weighed by major (distribution of all social work, and law school students in Hungary, based on public databases of the universities).

Results

Higher aggression levels according to the BSAS indicates higher scores according to the KATS as well, except for Indifference and Legitimate Aggression (Table 1). Even online aggression (Online Rumor and Anonymous Online Rumor) is lower at low BSAS scores (Table 1).

Table 1. Bryant-Smith Aggression Scale (BSAS) quartiles and Kiss Aggression Transformation Scale (KATS) Means and SD

BSAS		Verbal abuse (online offline)***	Threatening (online offline)***	Online rumor***	Anonymous rumor**	Legitimate aggression	Indifference	Physcal abuse***
Lower 25%	M and SD	1.58 ±0.69	1.18±0.38	1.34 ±0.54	1.25 ±0.47	3.56 ±0.92	2.24 ±1.02	1.22±0.43
	N	134	134	134	133	134	134	134
Middle 50%	M and SD	1.96 ±0.94	1.37 ±0.58	1.57 ±0.65	1.33 ±0.55	3.72 ±0.78	2.16 ±0.91	1.50 ±0.70
	N	203	203	203	201	203	203	202
Upper 25%	M and SD	2.19 ±1.07	1.58 ±0.77	1.76 ±0.86	1.48 ±0.78	3.57 ±0.81	2.19 ±0.90	1.72 ±0.80
	N	109	109	109	108	109	109	109
Total sample	M and SD	1.90 ±0.94	1.36 ±0.60	1.55 ±0.70	1.34 ±0.60	3.64 ±0.83	2.19 ±0.94	1.47 ±0.68
	N	446	446	446	442	446	446	445
ANOVA	F-stat	14.000***	12.831***	10.873***	4.058*	1.872	0.322	17.842***

$***p < 0.001, * p < 0.05$

Although both student groups have very similar aggression sum scores (social work: M = 22.94, SD = 8.29, law school: M = 23.14, SD = 7.29), there are slight differences between the two majors. Law school students are verbally more aggressive (M = 7.24, SD = 2.60) than students of social work (M = 6.64, SD = 2.40), meanwhile the latter score higher at physical aggression (M = 4.61, SD = 2.76; law school: M = 4.46, SD = 2.03) and anger expression (M = 6.08, SD = 2.64; law school: M = 5.80, SD = 2.67). Verbal aggression is the closest to be statistically significant (p¡0.10). There are no statistically significant differences by major either when it came to online aggression measured by the KATS scale (sum score of online aggression of social work students: M = 1.61, SD = 0.68, of law school students: M = 1.53, SD = 0.56). Nevertheless, the situations listed by the KATS indicated similar predilections by major: social work students produced higher means in (online or offline) verbal abuse (M = 2.03, SD = 1.01), and physical abuse (M = 1.59, SD = 0.76) to law students (verbal abuse: M = 1.88, SD = 0.92; physical abuse: M = 1.45, SD = 0.67), while law school students demonstrated stronger inclination to legitimate aggression (M = 3.66, SD = 0.82) than social work students (M = 3.48, SD = 0.86).

The students had to tell in each case listed in the KATS how they would react when they faced the situations or found themselves in them. Among the seven cases, we have found significant differences by major in five (Table 2). Online threatening and physical abuse scored higher for social work students (meaning social worker students would more likely act in these ways than law students). Legitimate aggression scored higher for law students in general. The only exception was the school bullying case, where social work students would report the case to the teacher / principal at a higher proportion compared to law students. In this case, social work and law students' most likely reaction would be to report the incident to the authorities (police, teacher, principal, or file a lawsuit) (Table 2).

Those who are "active" online scored generally higher at the BSAS scales (Table 3). Table 3 indicates that the longer time the user uses the internet daily, the longer time they spend at online SNSs, where the more friends they have, the higher sum aggression scores they achieve according to the BSAS scales. Internet usage and time spent at SNSs even produced significant differences by Verbal Aggression, the Aggression Sum, and Hostility (Table 3).

Table 2. BKATS Aggression Types and Major

Type of aggression by KATS	Case #1 Teacher rumored online to abuse pupils*	Case #2 Online flaming at workplace*	Case #3 Peer group cyberbullying*	Case #4 Loan repayment debate online*	Case #5 Online threatening neighbor*
Would Threaten Online	Social work: 1.64 ±1.17 Law school: 1.31 ±0.78	Social work: 1.55 ±1.07 Law school: 1.21 ±0.68	NS	NS	NS
Would Physically Abuse	Social work: 2.17 ±1.43 Law school: 1.63 ±1.11	NS	NS	NS	NS
Would Report the Incident (to the police, teacher, principal, or file a law suit a.k.a. Legitimate Aggression)	Social work: 3.95 ±1.33 Law school: 4.33 ±1.12	NS	Social work: 3.95 ±1.37 Law school: 3.49 ±1.58	Social work: 3.64 ±1.44 Law school: 4.05 ±1.34	Social work: 3.89 ±1.32 Law school: 4.41 ±1.05

* $p < 0.05$

Table 3. Online Activity and BSAS Scales

	Aggression Sum	1. Physical Aggression	2. Verbal Aggression	3. Anger Expression	4. Hostility
Internet usage per day					
More than 5 hrs (N=102)	24.69 ±6.95	4.63 ±2.01	7.76 ±2.65	6.08 ±2.95	6.22 ±2.53
3-5 hrs (N=184)	23.58 ±7.77	4.56 ±2.25	7.40 ±2.61	5.98 ±2.72	5.64 ±2.62
1-2 hrs (N=129)	21.73 ±7.08	4.26 ±1.99	6.51 ±2.40	5.58 ±2.44	5.38 ±2.20
Less than 1 hrs (N=30)	20.98 ±7.43	4.49 ±2.64	6.29 ±2.25	5.31 ±2.14	4.89 ±2.58
In sum (N=445)	23.12 ±7.45	4.48 ±2.15	7.15 ±2.58	5.84 ±2.66	5.65 ±2.50
ANOVA F-stat.	0.696**	NS	1.241***	NS	4.154*
Visiting online SNS per day					
More than 5 hrs (N=35)	25.90 ±6.84	4.81 ±2.51	8.24 ±2.72	6.68 ±2.79	6.16 ±2.44
3-5 hrs (N=77)	24.74 ±8.10	4.81 ±2.38	7.70 ±2.57	6.08 ±3.14	6.16 ±2.86
1-2 hrs (N=150)	22.91 ±7.54	4.37 ±1.97	7.05 ±2.69	5.86 ±2.59	5.64 ±2.33
Less than 1 hrs (N=165)	21.94 ±6.85	4.30 ±2.02	6.79 ±2.35	5.58 ±2.48	5.27 ±2.40
In sum (N=428)	23.11 ±7.42	4.46 ±2.12	7.16 ±2.58	5.86 ±2.68	5.63 ±2.49
ANOVA F-stat.	1.417**	NS 1.878**	NS	4.391*	
Number of friends on the most visited SNS					
1000+ (N=55)	25.64 ±8.67	4.96 ±2.61	7.87 ±2.89	6.73 ±3.13	6.07 ±2.53
500-1000 (N=144)	23.09 ±7.19	4.38 ±1.99	7.23 ±2.55	5.82 ±2.55	5.65 ±2.49
200-500 (N=156)	22.81 ±6.90	4.40 ±2.00	7.09 ±2.53	5.76 ±2.60	5.55 ±2.45
1-200 (N=78)	22.43 ±8.00	4.50 ±2.39	6.79 ±2.52	5.56 ±2.63	5.57 ±2.64
In sum (N=433)	23.19 ±7.48	4.49 ±2.61	7.18 ±2.59	5.87 ±2.68	5.65 ±2.51
ANOVA F-stat.	NS	NS	NS	NS	NS

ANOVA: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; NS: Not Significant

Similar characteristics have been identified by the length of daily internet usage according to the KATS aggression scales (Table 4). Spreading Online Rumor, Spreading Anonymous Online Rumor, and Verbal Abuse showed statistically significant differences. The longer the answerer used the internet, the more likely they acted out in any form of online aggression (Online Aggression Sum), the more likely they verbally abused a person (who, according to the cases, "provoked" them; Verbal Abuse offline or online), the more likely they spread Online Rumor or Anonymous Online Rumor. However, the more time the answerer spent online, the less likely they remained indifferent (Indifference) or "beat up" the wrongdoer (Physical Abuse) when witnessing an unlawful act.

Table 4. Internet usage per day and KATS scales

How long do you use Internet a day?		Verbal abuse (online offline)*	Threatening (online offline)	Online rumor***	Anonymous rumor**
More than 5 hours	M and SD	2.15±1.09	1.43 ±0.64	1.68 ±0.83	1.35 ±0.59
	N	102	102	102	102
3-5 hours	M and SD	1.85 ±0.88	1.32 ±0.54	1.53 ±0.63	1.32 ±0.59
	N	184	184	184	181
1-2 hours	M and SD	1.82 ±0.85	1.39 ±0.65	1.51 ±0.66	1.39 ±0.64
	N	129	129	129	128
Less than 1 hour	M and SD	1.75 ±0.9	1.27 ±0.57	1.38 ±0.72	1.25 ±0.45
	N	30	30	30	30
Total	M and SD	1.90 ±0.94	1.36 ±0.60	1.55 ±0.70	1.34 ±0.60
	N	445	445	445	441

ANOVA: * $p < 0.05$

Table 4. Internet usage per day and KATS scales (Continued)

How long do you use Internet a day?		Legitimate aggression	Indifference	Physcal abuse	Online Aggression Sum
More than 5 hours	M and SD	3.65 ±0.80	2.00 ±0.82	1.51 ±0.65	1.65 ±0.64
	N	102	102	102	102
3-5 hours	M and SD	3.70 ±0.78	2.24 ±0.94	1.41 ±0.65	1.50 ±0.54
	N	184	184	183	181
1-2 hours	M and SD	3.59 ±0.88	2.15 ±0.89	1.50 ±0.73	1.53 ±0.59
	N	129	129	129	128
Less than 1 hour	M and SD	3.42 ±1.00	2.68 ±1.29	1.58 ±0.81	1.41 ±0.51
	N	30	30	30	30
Total	M and SD	3.64 ±0.83	2.19 ±0.94	1.47 ±0.68	1.54 ±0.58
	N	445	445	444	441

ANOVA: * $p < 0.05$

We have identified the group of "conform" or "legitimate" users of those who indicated that they would likely act out in ways of legitimate aggression (i.e., they would call the police, report the flaming to the system administrator, etc.). Those who, according to their answers, qualified for the conform users' group (n=68) scored significantly lower at Physical Aggression, Verbal Aggression, and the Aggression Sum, and also lower at Anger and Hostility compared to the others (Table 5). Gender was also significant by types of aggression: female answerers were more likely to "conform" according to both the BSAS scales and the KATS cases, meaning they scored lower in any type of aggressive reaction except for the legitimate one (Table 5 and 6), and gender differences were statistically significant by the KATS cases, except for the options of Indifference (Table 6).

Discussion

We have hypothesized that the social control mechanisms that manage and refine offline human interactions do not fully apply in cyberspace. Our hypothesis did not prove true: Cyberspace did not prove to be a catalyst of social violence, not even in the case of online anonymity. Online SNSs do not operate as catalysts of violent behavior. Our research showed that prevalence and levels of aggression and its manifestation as violence online are not more severe than in offline social relations, regardless of BSAS aggression scores. Personalities with a low level of aggression (low verbal, physical, anger

Table 5. Legitimate Aggression Group, Gender, and BSAS Scales

	Aggression Sum	1. Physical Aggression	2. Verbal Aggression	3. Anger Expression	4. Hostility
Legitimate Aggression Group		Mean and SD			
Legitimate Aggression Group (N=68)	23.41* ±7.49	4.07* ±1.63	6.51* ±2.43	5.39 ±2.54	5.51 ±2.46
Others (N=378)	21.49* ±7.03	4.55* ±2.23	7.26* ±2.59	5.92 ±2.68	5.66 ±2.51
Total (N=446)	23.11 ±7.44	4.48 ±2.15	7.15 ±2.58	5.84 ±2.66	5.64 ±2.50
Gender					
Female (N=309)	23.08 ±7.79	4.35* ±2.11	7.16 ±2.64	6.00 ±2.77	5.58 ±2.51
Male (N=137)	23.18 ±6.61	4.78* ±2.23	7.13 ±2.44	5.49 ±2.36	5.78 ±2.50
Total (N=446)	23.11 ±7.44	4.48 ±2.15	7.15 ±2.58	5.84 ±2.66	5.64 ±2.50

Significance levels of the two sample T-tests: $+p < 0.10$, $*p < 0.05$

Table 6. Gender and KATS

Gender		Verbal abuse (online offline)*	Threatening (online offline)	Online rumor***	Anonymous rumor**
Female	M and SD	1.82 ±0.90	1.27 ±0.52	1.47 ±0.67	1.29 ±0.56
	N	309	309	309	307
Male	M and SD	2.08 ±0.98	1.56 ±0.71	1.73 ±0.73	1.46 ±0.67
	N	137	137	137	135
Total	M and SD	1.90 ±0.94	1.36 ±0.60	1.55 ±0.70	1.34 ±0.60
	N	446	446	446	442
Two samples t-test		-2.702**	-4.185***	-3.525**	-2.552*

ANOVA: $* p < 0.05$, $**p < 0.01$, $***p < 0.001$; NS: Not Significant

Table 6. Gender and KATS (Continued)

Gender		Legitimate aggression	Indifference	Physcal abuse	Online Aggression Sum
Female	M and SD	3.69 ±0.84	2.24 ±0.93	1.38 ±0.58	1.47 ±0.55
	N	309	309	308	307
Male	M and SD	3.52 ±0.80	2.07 ±0.94	1.66 ±0.85	1.70 ±0.61
	N	137	137	137	135
Total	M and SD	3.64 ±0.83	2.19 ±0.94	1.47 ±0.68	1.54 ±0.58
	N	446	446	445	442
Two samples t-test		1.997*	NS	-3.445**	-3.875***

ANOVA: $* p < 0.05$, $**p < 0.01$, $***p < 0.001$; NS: Not Significant

expression, or low-level hostile personalities) are not more willing to engage in more violent activities online either.

Though we have identified some interesting patterns in the sample:

(1) Law students and students of social work bear different aggression characteristics:

  (a) According to BSAS, both student groups scored highest in Verbal Aggression, however social work students were stronger in Anger Expression and Physical Aggression compared to law students. Law students however, showed significantly stronger aggression verbally.

  (b) According to KATS, both law and social work students scored highest in Legitimate Aggression, their most common reaction to cyber deviance was "reporting [the wrongdoer] to the police or the social network operator." However, social work students scored higher for Verbal Aggression and Physical Abuse, and law students scored higher for Legitimate Aggression.

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(2) Gender differences: Female students scored lower on all types of aggression, including verbal, according to both BSAS and KATS. The only exception was legitimate aggression wherein the score of female respondents was higher than their male peers.

(3) Students with impulsive personalities / intensive internet users: We identified a group in the sample – those with impulsive personalities – who were more liable to engage in both offline and online forms of aggression. Their sum aggression score was also higher than those who fell out of the group. This group of answerers who stays screen-bound 5+ hours per day, has more than 1,000 online friends, and engages in more online activities than the others.

We also managed to validate the seven cases that we added to the original Bryant-Smith Aggression Scale: BSAS aggression level corresponds to that of KATS, so the cases can be used to measure different forms of online aggression in the future.

Our research shows that regardless of a person's total aggression score, the prevalence and levels of aggression and its manifestation as violence in the online world are not more severe than in offline social relations.

Law students might be more aware than students of social work that online hostile acts are discrediting. This could result in lower levels of aggression all around, except for legitimized aggression (reporting deviant acts to the authorities).

Students of social work are significantly more prone to break into physical fights than are law students and higher level of aggression can be observed in their online behavior as well. This could be a result of their curricula, which does not place legal consequences above all else. It could derive from the different social constructions the two student groups have: while law students believe more in authority, students of social work may believe more in the power of community.

Our study is consistent with previous research outcomes. The impulsive group tends to be more active online and bears a significantly higher level of aggression (in aggression sum, verbal aggression, and hostility) compared to those who are less active. Research shows that the increased number of online connections (or increased online social network activity) (Agustina, 2015; Choi, 2008) and time spent online bears a higher risk of online social deviance – either as an offender, or as the target (victim) (Leukfeldt & Yar, 2016). It proves Cyber-Routine Activity Theory: the more time spent and activities done online, the more chances people get to engage in antisocial and deviant activities online (Choi, 2008).

It cannot be concluded however, which came first: impulsivity, online aggression, or online hyperactivity. There are studies establishing a link between happiness and the level of online social activity. According to the Danish Happiness Research Institute (HRI) Study (Tromholt et al., 2015) those who did not use Facebook for a while became more satisfied with their lives and felt less envy than the control group who continued usage. According to the HRI study, facing others' contrived social profiles online makes users frustrated and constantly distracted, and thus, it might be a cause of online aggression.

Policy Recommendations

The study reveals why it is necessary to counter cyber aggression cases. Cyber aggression is a separate phenomenon from general aggression. General aggression refers to the types of aggression happening offline in traditional spheres of life. Research showed that there is a link between being

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aggressive offline and aggression's manifestations online. However, what works in real life, does not always work online due to the many distinguishing characteristics of SNSs such as the perceived anonymity, the asyncronicity, the absence of vocal and face-to-face cues, and the minimization of other people's status or authority, as Suler (2004) claims.

The research shows why it is necessary to study the manifestations of cyber aggression in adults. It is argued that the primary platform of socialization is happening still in inner personal circles, that is, family and the close community (Hirschi, 1969). Childhood socialization in various settings (home, school, residence community, peer group) contributes to the development of self-control essential to resistance against aggression in future generations (Gottfredson & Hirschi, 1990). If individuals pursue deviant online social activities, these behavior patterns will be passed on to the younger generation alongside offline behavior patterns (Pabian & Vandebosch, 2015).

The sample of young adults studied is presumably more aware of the rule of law and of the moral judgement of cyber aggression equally as reprehensible as traditional types of aggression. Nevertheless, it is demonstrated that some types of cyber aggression – mainly legitimate and verbal, but sometimes even physical – are present in this sample of higher educated young adults. Not forgetting that learning social norms and norm-conforming behavior starts within the family and has its highest peak in early teens when the peer-group becomes the most important reference, it must be stressed that higher education still has a significant role in establishing control. It can manifest in teaching nonviolent communication and coping strategies. Social work students need to learn how to stand up for victims and rely on the community without being physically aggressive, and law students have to become more aware of the power of the community.

This is especially crucial with law students who might have to work closely with police and local residents in community policing projects which aim to identify and establish peaceful communication, problem solving, and cooperative solutions in grassroots community policing programs.

Side effects of excessive internet usage has to be an object of constant research. Follow-up data collections can predict long-term effects of limitless internet use and might add important findings to future policing and education strategies.

Young adults are encouraged to change their online activities in order to be less subjected and affected by the different forms of cyber aggression (Choi & Lee, 2017). Intensive internet users are recommended to be handled separately from moderate internet users. This "impulsive" group of users who scored higher in verbal aggression and hostility, and bear a higher level of aggression in general, need to be targeted by a policy which specifically dismantles high-risk routine activities online and conditions users to substitute these activities with the kinds that make social network interactions safer.

The study offers a lesson for school-based anti-bullying programs as well. Anti-bullying prevention and intervention initiatives could introduce a module aimed at bystanders on how to transform violence into peaceful communication. Due to early age development, it is recommended that anti-bullying programs target children at early ages. It is equally important however, not to stop when high school ends. According to studies highlighting that not only providing external control, but also strengthening self-control play a major role in the prevention of cyberaggression, it is advisable to provide protection by enhancing self-control development in young adults.

The KATS scale, which was developed to measure the transferability of different types of offline aggression to online aggressive acts, was successfully validated. The scale could be a self-assessment

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tool for SNS users to check the level and types of aggressive behavior they transform online, suggesting the level and types of risk they pose when communicating online in their everyday lives. The risk assessment tool could also be amended with a function suggesting the recommended acts and behaviors determined by the level and type of aggression demonstrated by the answerer, in order to lower the risk of being involved in online aggressive scenarios. Such a tool could be utilized not only by individuals, but also by public institutions educating youth or even for crime prevention purposes.

It is problematic in general to research cyber aggression for methodological reasons. A cross-sectional analysis cannot provide a full picture of how cyber social deviance looks. Longitudinal studies would be needed for a thorough understanding of how attitudes are influenced by personality development (i.e. the aging process), excessive social network usage, and by gathering more experiences in social network communications. The internet is a relatively new tool in the hands of the everyday user, and the culture of SNSs only started to develop some 15 years ago. The long-term effects of online socialization are still not yet measurable, but in order to provide results later, it is time to start research into that now. We propose to repeat our survey in the same cohort of young adults (in the upcoming classes) and possibly tracking those young adults' development in cyber aggression measured within this study. In general, more detailed research is necessary to test whether and how violence transforms in SNSs.

Additionally, research must cover how young adult, middle aged, and elderly populations' aggression manifest online. Thus far, students of K-12 schools have been the main target of cyber aggression (so called cyberbullying) research, interventions, and programs. However, as internet and SNS usage within adult and elderly populations emerge, research must address anger management patterns caused by excessive online socialization in these populations as well.

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