



**Older adults' perceptions of ICT-based surveillance:
The Ageing in Data (AiD) cross-national study**

**A Descriptive Report
by Galit Nimrod**

BACKGROUND

Surveillance society refers to a socio-political environment characterized by pervasive and systematic monitoring of individuals through advanced technological means, encompassing both physical and digital realms. This phenomenon entails the extensive collection, analysis, and utilization of personal data for various purposes, including social control, security, and commercial interests.

Contrary to the perception that older populations may be less affected due to a presumed less use of Information and Communication Technology (ICT), they are also subject to the implications of surveillance as advancements in ubiquitous technologies increasingly permeate all demographic strata, raising concerns related to privacy, autonomy, and societal consequences for older adults.

Most previous research on older adults and surveillance focused on monitoring devices used at individuals' homes and eldercare facilities and ignored their use of ICT. Moreover, studies on individuals' perceptions of ICT-based surveillance ignored older ICT users. In addition, most previous explorations applied qualitative methods.

**The Ageing in Data (AiD) study is the first quantitative study to explore
older adults' perceptions of ICT-based surveillance in a multi-national context.**

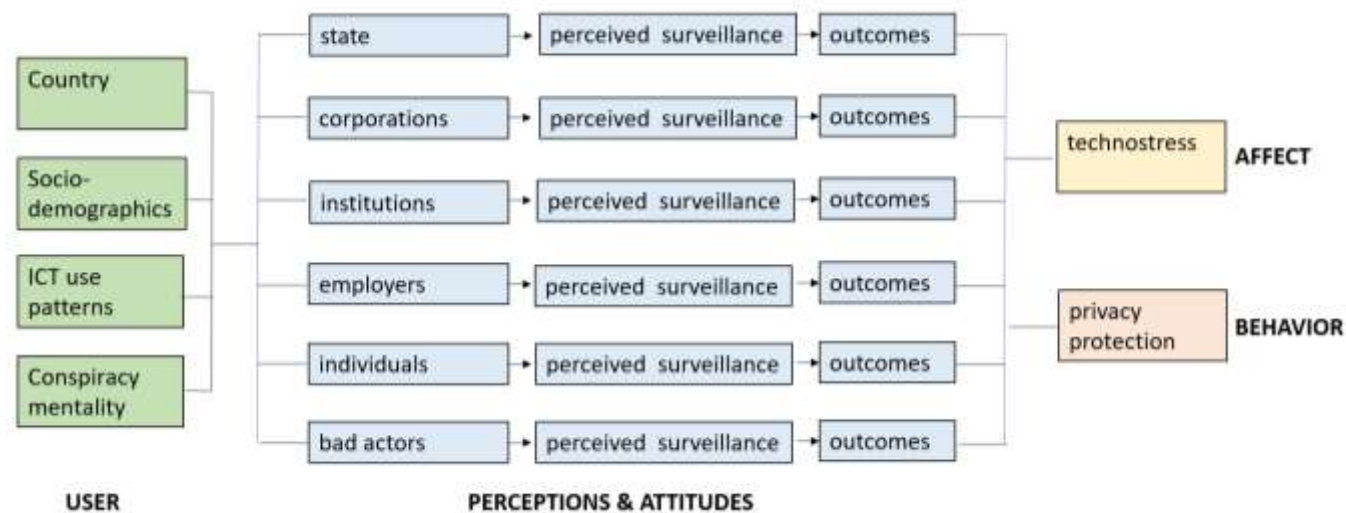
Applying Marciano's (2019) theoretical framework that distinguishes between surveillance agents, subjects, and contexts, the study aimed at answering the following questions:

1. To what extent do older people feel they are being followed while using ICT?
2. Who, in their opinion, is following them?
3. How do they perceive the outcomes of surveillance?
4. To what extent are their perceptions associated with experiencing technostress (a common *result* of ICT use)?
5. To what extent are their perceptions associated with privacy protection behavior?

THE RESEARCH MODEL

Consistent with the study's questions, the research model included four parts:

1. **USER** – The older ICT users' country, socio-demographics, ICT use patterns, and conspiracy mentality (a tendency to interpret events through a conspiratorial lens).
2. **PERCEPTIONS AND ATTITUDES** – The extent to which older ICT users feel they are being surveilled by various agents (state, corporations, institutions, employers, individuals, and bad actors/criminals) and the perceived outcomes (positive-negative) of each such ICT-based surveillance.
3. **AFFECT** - The extent to which older ICT users feel technostress.
4. **BEHAVIOR** – Privacy protection acts applied by older ICT users.



METHODS

The study was based on online surveys with ICT users aged 60 and over from six countries (Austria, Canada, Israel, Romania, Spain, and The Netherlands). Data were collected between November 23 and December 20, 2023, by a commercial firm that operates online panels in all countries. With a little over 500 participants per country, the final sample consisted of 3,030 participants. To reach this sample size, the firm contacted 5,734 individuals. The firm reached out to study participants via email, and quotas were instituted to ensure that half of the sample in each country is 70 years old and over. The survey websites were closed once quotas were filled.

The questionnaire (see Appendix A) included mainly closed-ended questions based on existing scales exploring the following topics:

1. ICT use – devices, frequency, purpose
2. Perceived surveillance (Segijn et al., 2020)
3. Perceived agents – state, corporations, institutions, employers, individuals, bad actors (Marciano, 2019)
4. Attitudes re surveillance outcomes – positive & negative (Zhang et al., 2022)
5. Technostress (Nimrod, 2018)
6. Online privacy behavior (Buchanan et al., 2007; Rainie et al., 2013)
7. Conspiracy mentality (Bruder et al., 2013)
8. Socio-demographics

The questionnaire was written in English, and translations into the various languages were performed by the research team. To validate the translations, native English-speaking persons re-translated them into English. This process was repeated until the re-translations were identical to the original English version. The questionnaire was tested and validated in Israel by running a test-retest procedure with 50 respondents in a two-week interval. Then, pilot studies in each country were carried out to ensure understandability.

An informed consent form was presented to the study participants on the first page of the survey. The Institutional Review Boards (IRBs) at Ben-Gurion University of the Negev reviewed and approved the study (approval #589).

THE RESEARCH TEAM*

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AGEING in DATA (AiD)

Aging in Data (AiD) is a research project housed in the ACT Lab at Concordia University in Montreal and funded by the Social Sciences and Humanities Research Council (SSHRC), Canada. It brings together an interdisciplinary network of scholars from ten countries, community-based activists, and organizations. We research how age studies intersect with communications, media studies, and critical data studies, and explore how an era of unprecedented digital data-gathering impacts and governs how we grow old in our communities. Our shared commitment to social justice brings us to articulate an impactful, innovative, multi-methodological, and collaborative agenda with communities of older adults that respond to pressing societal needs.

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Preliminary findings

This report only presents descriptive findings according to the research model:

- 1. Users**
- 2. Perceptions and Attitudes**
- 3. Affect**
- 4. Behavior**

1. USERS

Study participants were evenly split between the six countries (Table 1.1). Participants' ages ranged between 60 and 99 (Mean=68.15, SD=5.80), 57.3% were men, 61.8% had post-secondary education, 70.3% were retired, 35.8% reported average income, and 31.5% reported higher income. Most participants lived with a partner (65.6%) and had children (81.1%) and grandchildren (62.3%). Forty-six percent lived in a big city or the suburb of a big city, and the majority (88.7%) were non-immigrants (for more information, see Table 1.2).

Study participants reported internet use was pretty diverse (Table 1.3). Light users (up to 14 hours a week) comprised 40.8% of the sample, heavy users (more than 28 hours) accounted for 19.9%, and the rest used the internet for 15-28 hours weekly. Most participants used more than one device to access the internet (Mean=2.59, SD=1.08), with the most common devices being smartphones (84.6%) and laptop computers (63.7%). The most frequent uses (Table 1.4) were one-on-one communication (Mean=3.87, SD=0.98) and information seeking (Mean=3.81, SD=0.92). The least common use was recreational (Mean=3.03, SD=1.19).

Lastly, the rate of agreement ("agree" + "strongly agree") with the various items measuring conspiracy mentality ranged from 39.7% to 76.8%, and the mean score was 3.58 (SD=0.74). See Table 1.5.

Table 1.1
Country of residence

Country	N <i>n</i>	%
	3030	
Austria	505	16.7
Canada ¹	506	16.7
Israel	506	16.7
Romania	503	16.6
Spain	505	16.7
The Netherlands	505	16.7

Note. ¹ Of the Canadian sample, 253 completed the English survey, and 253 completed the French version.

Table 1.2
Socio-demographics

Variable <i>Categories</i>	N <i>n</i>	% or <i>Mean (SD)</i>
Gender	3030	
<i>Man</i>	1737	57.3
<i>Woman</i>	1290	42.6
<i>Other</i>	3	0.1
Age (range = 60-99)	3030	68.15 (5.80)
Education	3030	
<i>Elementary school (<12 years)</i>	323	10.7
<i>High school (12 years)</i>	834	27.5
<i>Technical/Certificate (13-14 years)</i>	735	24.3
<i>Bachelor's degree (about 15 years)</i>	711	23.5
<i>Master's degree (16-17 years)</i>	354	11.7
<i>Doctoral degree (18 years or more)</i>	73	2.4
Household income	3030	
<i>A lot below average</i>	328	10.8
<i>Slightly below average</i>	541	17.9
<i>Similar to the average</i>	1085	35.8
<i>Slightly above average</i>	760	25.1
<i>A lot above average</i>	195	6.4
<i>Don't know</i>	121	4.0
Occupational status ¹		
<i>Retired</i>	2130	70.3
<i>Paid employee</i>	569	18.8

<i>Self-employed</i>	180	5.9
<i>Unemployed</i>	108	3.6
<i>Other</i>	90	3.0
Living arrangement ¹		
<i>With a partner</i>	1989	65.6
<i>By oneself/alone</i>	765	25.2
<i>With a family member</i>	338	11.2
<i>Other</i>	36	1.2
Residence area	3030	
<i>Big city</i>	1010	33.3
<i>Suburb of a big city</i>	382	12.6
<i>Medium-sized city</i>	687	22.7
<i>Small-sized city</i>	564	18.6
<i>Rural</i>	387	12.8
Country of birth	3030	
<i>Same as now</i>	2687	88.7
<i>Other</i>	343	11.3
Children	3027	
<i>Yes</i>	2455	81.1
<i>No</i>	572	18.9
Grandchildren	3028	
<i>Yes</i>	1885	62.3
<i>No</i>	1143	37.7
Health status ² (1-5)	3030	2.98 (0.91)

Note. ¹Multiple choice item. ²Higher values represent poorer status.

Table 1.3*Internet use patterns*

Variable <i>Categories</i>	N <i>n</i>	% or <i>M (SD)</i>
Last week internet use	3021	
<i>0-7 hours</i>	505	16.7
<i>8-14 hours</i>	731	24.2
<i>15-21 hours</i>	701	23.2
<i>22-28 hours</i>	480	15.9
<i>More than 28 hours</i>	604	20.0
Device used ¹		
<i>Smartphone</i>	2564	84.6
<i>Desktop computer</i>	1510	49.8
<i>Laptop computer</i>	1929	63.7
<i>Tablet</i>	1274	42.0
<i>Other</i>	577	19.0
Number of devices (<i>1-5</i>)	3027	2.59 (1.08)

Note. ¹Multiple choice item.

Table 1.4*Purpose of internet use*

	Interpersonal one-on-one communication		Interpersonal group communication		Information seeking		Particular tasks or errands		Leisure activities	
	N <i>n</i>	%	N <i>n</i>	%	N <i>n</i>	%	N <i>n</i>	%	N <i>n</i>	%
Total	3016		2999		2998		2981		3012	
<i>Never</i>	128	4.2	495	16.5	86	2.9	158	5.3	428	14.2
<i>Seldom</i>	152	5.0	389	13.0	168	5.6	252	8.5	543	18.0
<i>Sometimes</i>	447	14.8	579	19.3	584	19.5	917	30.8	838	27.8
<i>Often</i>	1536	50.9	1036	34.5	1538	51.3	1403	47.1	931	30.9
<i>Always</i>	753	25.0	500	16.7	622	20.7	251	8.4	272	9.0
Mean (SD)	3.87 (0.98)		3.22 (1.32)		3.81 (0.92)		3.45 (0.95)		3.03 (1.19)	

Table 1.5
Conspiracy mentality

	N	%
	<i>n</i>	
Many very important things happen in the world, which the public is never informed about	3011	
<i>Strongly disagree</i>	65	2.2
<i>Disagree</i>	164	5.4
<i>Neither agree nor disagree</i>	524	17.4
<i>Agree</i>	1544	51.3
<i>Strongly agree</i>	714	23.7
Mean (SD)	3.89	(0.90)
Politicians usually do not tell us the true motives for their decisions	3017	
<i>Strongly disagree</i>	49	1.6
<i>Disagree</i>	152	5.0
<i>Neither agree nor disagree</i>	494	16.4
<i>Agree</i>	1543	51.1
<i>Strongly agree</i>	779	25.8
Mean (SD)	3.94	(0.88)
Government agencies closely monitor all citizens	3011	
<i>Strongly disagree</i>	175	5.8
<i>Disagree</i>	544	18.1
<i>Neither agree nor disagree</i>	1096	36.4
<i>Agree</i>	965	32.0
<i>Strongly agree</i>	231	7.7
Mean (SD)	3.18	(1.00)
Events which superficially seem to lack a connection are often the result of secret activities	3017	
<i>Strongly disagree</i>	140	4.6
<i>Disagree</i>	340	11.3
<i>Neither agree nor disagree</i>	1193	39.5
<i>Agree</i>	1076	35.7
<i>Strongly agree</i>	268	8.9

Mean (SD)	3.33 (0.95)
There are secret organizations that greatly influence political decisions	3017
<i>Strongly disagree</i>	151 5.0
<i>Disagree</i>	289 9.6
<i>Neither agree nor disagree</i>	816 27.0
<i>Agree</i>	1277 42.3
<i>Strongly agree</i>	484 16.0
Mean (SD)	3.55 (1.03)

Mean conspiracy mentality score (average of the 5 items, N=2965)	3.58 (0.74)
Scale reliability (<i>Cronbach's Alpha</i>)	0.843

2. PERCEPTIONS AND ATTITUDES

The extent to which study participants felt they were being surveilled varied according to the agents (Table 2.1). The agents believed to be most dominant were commercial corporations and companies (Mean=3.50, SD=0.99) and bad actors or criminals (Mean=3.35, SD=1.06), followed by government agencies and state or local authorities (Mean=3.09, SD=1.09) and social institutions such as nonprofit organizations, religious institutions, political movements, and social clubs (Mean=2.75, SD=1.09). The sense of being surveilled among employees was relatively low (Mean=2.32, SD=1.19), and the feeling of being surveilled by individuals such as family and friends was lowest (Mean=2.04, SD=1.02).

Among those who “somewhat” or “strongly” believed they were surveilled, the attitudes regarding the surveillance influence were more negative than positive (Table 2.2). Naturally, the most negatively perceived agents were bad actors and criminals, as 87.6% thought their surveillance impact was more negative than positive. The rate of those who perceived more negative than positive impact was similar for state and social institutions (59.4% and 62.8%, respectively) and somewhat lower for corporations and companies (52.5%). It was lower for employers (43.6%) and lowest for family and friends (32.0%).

Table 2.1
Surveillance perception

	Commercial corporations and/or companies		Government agencies and state or local authorities		Social institutions		Individual people		Employer		Bad actors or criminals	
	N <i>n</i>	%	N <i>n</i>	%	N <i>n</i>	%	N <i>n</i>	%	N <i>n</i>	%	N <i>n</i>	%
Watching every move	3028		3019		3017		3012		567		3023	
<i>Strongly disbelieve</i>	173	5.7	299	9.9	477	15.8	1226	40.7	202	35.6	230	7.6
<i>Somewhat disbelieve</i>	288	9.5	639	21.2	772	25.6	813	27.0	141	24.9	423	14.0
<i>Neither believe nor disbelieve</i>	594	19.6	791	26.2	883	29.3	574	19.1	103	18.2	776	25.7
<i>Somewhat believe</i>	1261	41.6	949	31.4	689	22.8	329	10.9	86	15.2	1119	37.0
<i>Strongly believe</i>	712	23.5	341	11.3	196	6.5	70	2.3	35	6.2	475	15.7
Mean (SD)	3.68 (1.11)		3.13 (1.17)		2.79 (1.15)		2.07 (1.11)		2.31 (1.27)		3.39 (1.14)	

Check up on you	3008	3011	2994	3007	566	3015
<i>Strongly disbelieve</i>	186 6.2	299 9.9	501 16.7	1266 42.1	185 32.7	231 7.7
<i>Somewhat disbelieve</i>	367 12.2	636 21.1	790 26.4	769 25.6	127 22.4	463 15.4
<i>Neither believe nor disbelieve</i>	742 24.7	767 25,5	875 29,2	579 19.3	99 17.5	836 27.7
<i>Somewhat believe</i>	1177 39.1	987 32.8	647 21,6	332 11.0	118 20.8	1049 34.8
<i>Strongly believe</i>	536 17.8	322 10.7	181 6,0	61 2.0	37 6.5	436 14.5
Mean (SD)	3.50 (1.12)	3.13 (1.16)	2.74 (1.15)	2.05 (1.11)	2.46 (1.31)	3.33 (1.13)
Look over the shoulder	3004	3011	3000	3006	567	3014
<i>Strongly disbelieve</i>	202 6.7	334 11.1	499 16.6	1252 41.7	201 35.4	240 8.0
<i>Somewhat disbelieve</i>	365 12.2	675 22.4	804 26.8	807 26.8	127 22.4	452 15.0
<i>Neither believe nor disbelieve</i>	693 23.1	816 27.1	904 30.1	607 20.2	118 20.8	818 27.1
<i>Somewhat believe</i>	1184 39.4	889 29.5	621 20.7	287 9.5	88 15.5	1076 35.7
<i>Strongly believe</i>	560 18.6	297 9.9	172 5.7	53 1.8	33 5.8	428 14.2
Mean (SD)	3.51 (1.13)	3.05 (1.16)	2.74 (1.15)	2.03 (1.08)	2.34 (1.26)	3.33 (1.13)
Enter your private space	3016	3002	3012	2996	563	3002
<i>Strongly disbelieve</i>	232 7.7	330 11.0	1226 40,7	1286 42.9	226 40.1	215 7.2
<i>Somewhat disbelieve</i>	482 16.0	694 23.1	813 27,0	799 26.7	130 23.1	461 15.4
<i>Neither believe nor disbelieve</i>	862 28.6	815 27.1	574 19,1	573 19.1	116 20.6	798 26.6
<i>Somewhat believe</i>	1033 34.3	843 28.1	329 10.9	279 9.3	68 12.1	1064 35.4
<i>Strongly believe</i>	407 13.5	320 10.7	70 2.3	59 2.0	23 4.1	464 15.5
Mean (SD)	3.30 (1.12)	3.04 (1.17)	3.72 (1.14)	2.01 (1.08)	2.17 (1.20)	3.37 (1.13)
Mean score (SD) (average of the 4 items)	3.50 (0.99)	3.09 (1.09)	2.75 (1.09)	2.04 (1.02)	2.32 (1.19)	3.35 (1.06)
Scale reliability (Cronbach's Alpha)	0.906	0.953	0.964	0.954	0.961	0.956
N	2969	2964	2956	2977	560	2986

Table 2.2
Surveillance influence

	Commercial corporations and/or companies		Government agencies and state or local authorities		Social institutions		Individual people		Employer		Bad actors or criminals	
	N <i>n</i>	%	N <i>n</i>	%	N <i>n</i>	%	N <i>n</i>	%	N <i>n</i>	%	N <i>n</i>	%
	2304		1581		1094		584		179		1853	
Much more positive than negative	21	0.9	23	1.5	10	0.9	42	7.2	5	2.8	12	0.6
More positive than negative	113	4.9	69	4.4	54	4.9	104	17.8	18	10.1	20	1.1
Equally positive or negative	832	36.1	462	29.2	282	25.8	216	37.0	66	36.9	122	6.6
More negative than positive	755	32.8	527	33.3	362	33.1	115	19.7	48	26.8	430	23.2
Much more negative than positive	454	19.7	414	26.1	325	29.7	72	12.3	30	16.8	1193	64.4
Don't know	129	5.6	86	5.4	61	5.6	35	6.0	12	6.7	76	4.1

3. AFFECT

The sample's overall technostress score ranged between 5.33 and 25.00, and the mean score was 15.32 (SD=2.91).

The most significant antecedents to technostress were *Privacy* – a sense that one's personal information is threatened because ICT use can be traced, documented, and exploited by external factors (Mean=3.49, SD=0.79) and *Inclusion* – a sense of inferiority compared with younger users and consequent pressure to make an effort to be included in the contemporary technological environment (Mean=3.27, SD=0.79). These stressors were followed by *Invasion* – the incursion into daily life because of blurred boundaries between public and personal contexts (Mean=3.01, SD=0.84) and *Complexity* – intricacy and constant change rendering ICT use conditions difficult to learn, use, and master (Mean=2.96, SD=0.90). The least prominent stressor was *Overload* – having to cope with more problems than warranted and eventually performing tasks more slowly (Mean=2.60, SD=0.69).

For more information, see Tables 3.1 and 3.2.

Table 3.1*Technostress items – frequencies*

	N	%
	<i>n</i>	
Technologies make me do things slower	3019	
<i>Strongly disagree</i>	450	14.9
<i>Disagree</i>	1127	37.3
<i>Neither agree nor disagree</i>	957	31.7
<i>Agree</i>	403	13.3
<i>Strongly agree</i>	82	2.7
Technologies make me respond more quickly than I would normally do*	3015	
<i>Strongly disagree</i>	211	7.0
<i>Disagree</i>	1362	45.2
<i>Neither agree nor disagree</i>	1010	33.5
<i>Agree</i>	340	11.3
<i>Strongly agree</i>	92	3.1
Technologies create many more problems than I would otherwise experience	3016	
<i>Strongly disagree</i>	354	11.7
<i>Disagree</i>	938	31.1
<i>Neither agree nor disagree</i>	1076	35.7
<i>Agree</i>	516	17.1
<i>Strongly agree</i>	132	4.4
Using technologies blurs boundaries between my out-of-home and my home life	3008	
<i>Strongly disagree</i>	326	10.8
<i>Disagree</i>	697	23.2
<i>Neither agree nor disagree</i>	1190	39.6
<i>Agree</i>	673	22.4
<i>Strongly agree</i>	122	4.1
I feel my personal life is being invaded by technologies	3015	
<i>Strongly disagree</i>	175	5.8
<i>Disagree</i>	591	19.6

<i>Neither agree nor disagree</i>	1021	33.9
<i>Agree</i>	1032	34.2
<i>Strongly agree</i>	196	6.5
I often find technologies too complex to use	3020	
<i>Strongly disagree</i>	243	8.0
<i>Disagree</i>	729	24.1
<i>Neither agree nor disagree</i>	925	30.6
<i>Agree</i>	931	30.8
<i>Strongly agree</i>	192	6.4
I do not know enough about technologies to use them effectively	3015	
<i>Strongly disagree</i>	283	9.4
<i>Disagree</i>	728	24.1
<i>Neither agree nor disagree</i>	902	29.9
<i>Agree</i>	890	29.5
<i>Strongly agree</i>	212	7.0
The constant developments and upgrades in technologies are a burden for me	3017	
<i>Strongly disagree</i>	318	10.5
<i>Disagree</i>	879	29.1
<i>Neither agree nor disagree</i>	987	32.7
<i>Agree</i>	656	21.7
<i>Strongly agree</i>	177	5.9
I feel uncomfortable knowing that my use of technologies can be easily monitored	3016	
<i>Strongly disagree</i>	113	3.7
<i>Disagree</i>	375	12.4
<i>Neither agree nor disagree</i>	839	27.8
<i>Agree</i>	1282	42.5
<i>Strongly agree</i>	407	13.5
It bothers me that the information created by my current technology use could be traced even years from now	3018	
<i>Strongly disagree</i>	131	4.3
<i>Disagree</i>	302	10.0
<i>Neither agree nor disagree</i>	811	26.9

<i>Agree</i>	1278	42.3
<i>Strongly agree</i>	496	16.4
I feel that my use of technologies makes it easier to invade my privacy	3013	
<i>Strongly disagree</i>	103	3.4
<i>Disagree</i>	400	13.3
<i>Neither agree nor disagree</i>	924	30.7
<i>Agree</i>	1330	44.1
<i>Strongly agree</i>	256	8.5
I am better at understanding and using technology than young people	3017	
<i>Strongly disagree</i>	65	2.2
<i>Disagree</i>	337	11.2
<i>Neither agree nor disagree</i>	1015	33.6
<i>Agree</i>	1087	36.0
<i>Strongly agree</i>	513	17.0
I am typically behind younger persons in my family in the technologies I use	3018	
<i>Strongly disagree</i>	232	7.7
<i>Disagree</i>	509	16.9
<i>Neither agree nor disagree</i>	727	24.1
<i>Agree</i>	1196	39.6
<i>Strongly agree</i>	354	11.7
If young people are residents in technology-land, I may be considered an immigrant	3018	
<i>Strongly disagree</i>	292	9.7
<i>Disagree</i>	673	22.3
<i>Neither agree nor disagree</i>	1079	35.8
<i>Agree</i>	803	26.6
<i>Strongly agree</i>	171	5.7

* Statement that was reverse coded.

Table 3.2*Technostress scores – general and per stressor*

Technostress antecedent	N	Item Mean (SD)	Construct Mean (SD)
<i>Overload</i> This technology makes me do things slower This technology makes me respond more quickly than I would normally do* This technology creates many more problems than I would otherwise experience	2996 3119 3015 3016	 2.52 (0.99) 2.58 (0.89) 2.71 (1.02)	2.60 (0.69)
<i>Invasion</i> Using this technology blurs boundaries between my out-of-home and my home life I feel my personal life is being interrupted by this technology	2996 3008 3015	 2.86 (1.02) 3.16 (1.00)	3.01 (0.84)
<i>Complexity</i> I often find the technology too complex to use I do not know enough about this technology to use it effectively The constant developments and upgrades in the technology are a burden for me	2997 3020 3015 3017	 3.03 (1.06) 3.01 (1.09) 2.83 (1.07)	2.96 (0.90)
<i>Privacy</i> I feel uncomfortable that my use of this technology can be easily monitored It bothers me that the information created by my current technology use could be traced even years from now I feel that my use of this technology makes it more easy to invade my privacy	2995 3017 3018 3013	 3.50 (1.00) 3.57 (1.02) 3.41 (0.94)	3.49 (0.79)
<i>Inclusion</i> I am better at understanding and using technology than young people* I am typically behind younger persons in my family in the technology I use If young people are residents in “technology-land,” I may be considered an immigrant	2998 3017 3018 3018	 3.55 (0.97) 3.31 (1.12) 2.96 (1.05)	3.27 (0.79)
<i>Total Technostress score</i> (sum of the five construct scores) Range Mean (SD)	2893		5.33-25.00 15.32 (2.91)
Scale reliability (<i>Cronbach’s Alpha</i>)			0.843

* Statement that was reverse coded.

4. BEHAVIOR

The number of reported online privacy protection actions applied at least “sometimes” ranged between zero and 14, with a mean of 5.22 (SD=3.41).

The most common acts were clearing cookies and browser history (67.6% reported doing so at least sometimes) and blocking messages/emails from someone one did not want to hear from (65.5%). In addition, about half of the sample reported restricting the amount of personal data seen by other people on their social media profiles and using a pop-up window blocker.

The least common actions were using a public computer to browse anonymously (8.2%) and asking someone to remove something posted about one online (12.5%).

For more information, see Table 4.1.

Table 4.1*Online privacy behaviors*

	N	%
	<i>n</i>	
Use a temporary username or email address	3008	
<i>Never</i>	1736	57.7
<i>Seldom</i>	485	16.1
<i>Sometimes</i>	437	14.5
<i>Often</i>	172	5.7
<i>Always</i>	104	3.5
<i>Don't know</i>	74	2.5
% applying at least sometimes		22.7%
Use a fake name or untraceable username	3016	
<i>Never</i>	1846	61.2
<i>Seldom</i>	467	15.5
<i>Sometimes</i>	417	13.8
<i>Often</i>	148	4.9
<i>Always</i>	78	2.6
<i>Don't know</i>	60	2.0
% applying at least sometimes		20.3%
Give inaccurate or misleading information about yourself	3015	
<i>Never</i>	1740	57.7
<i>Seldom</i>	581	19.3
<i>Sometimes</i>	438	14.5
<i>Often</i>	114	3.8
<i>Always</i>	60	2.0
<i>Don't know</i>	82	2.7
% applying at least sometimes		20.3%
Set your browser to disable or turn off cookies	3013	
<i>Never</i>	942	31.3
<i>Seldom</i>	544	18.1

<i>Sometimes</i>	719	23.9
<i>Often</i>	390	12.9
<i>Always</i>	237	7.9
<i>Don't know</i>	181	6.0
% applying at least sometimes		44.7%
Clear cookies and browser history	3008	
<i>Never</i>	422	14.0
<i>Seldom</i>	472	15.7
<i>Sometimes</i>	775	25.8
<i>Often</i>	721	24.0
<i>Always</i>	535	17.8
<i>Don't know</i>	83	2.8
% applying at least sometimes		67.6%
Use services that allow you to browse the web anonymously, such as a proxy server, Tor software, or a virtual personal network (VPN)	3015	
<i>Never</i>	1697	56.3
<i>Seldom</i>	390	12.9
<i>Sometimes</i>	412	13.7
<i>Often</i>	211	7.0
<i>Always</i>	123	4.1
<i>Don't know</i>	182	6.0
% applying at least sometimes		24.8%
Encrypt your communications (or make sure that the communication is encrypted by the app)	3015	
<i>Never</i>	1320	43.8
<i>Seldom</i>	411	13.6
<i>Sometimes</i>	460	15.3
<i>Often</i>	340	11.3
<i>Always</i>	192	6.4
<i>Don't know</i>	292	9.7
% applying at least sometimes		33.0%
Decide not to use a website because they ask for your real name	3011	

<i>Never</i>	858	28.5
<i>Seldom</i>	628	20.9
<i>Sometimes</i>	841	27.9
<i>Often</i>	333	11.1
<i>Always</i>	234	7.8
<i>Don't know</i>	117	3.9
% applying at least sometimes		46.8%
Delete or edit something you posted in the past	3010	
<i>Never</i>	1024	34.0
<i>Seldom</i>	679	22.6
<i>Sometimes</i>	765	25.4
<i>Often</i>	289	9.6
<i>Always</i>	156	5.2
<i>Don't know</i>	97	3.2
% applying at least sometimes		40.2%
Ask someone to remove something that was posted about you online	3012	
<i>Never</i>	2034	67.5
<i>Seldom</i>	463	15.4
<i>Sometimes</i>	256	8.5
<i>Often</i>	66	2.2
<i>Always</i>	55	1.8
<i>Don't know</i>	138	4.6
% applying at least sometimes		12.5%
Use a public computer to browse anonymously	3009	
<i>Never</i>	2396	79.6
<i>Seldom</i>	315	10.5
<i>Sometimes</i>	147	4.9
<i>Often</i>	62	2.1
<i>Always</i>	37	1.2
<i>Don't know</i>	52	1.7
% applying at least sometimes		8.2%
Use a pop-up window blocker	3008	

<i>Never</i>	882	29.3
<i>Seldom</i>	447	14.9
<i>Sometimes</i>	603	20.0
<i>Often</i>	410	13.5
<i>Always</i>	448	14.9
<i>Don't know</i>	218	7.2
% applying at least sometimes		48.4%
Block messages/emails from someone you do not want to hear from	3013	
<i>Never</i>	423	14.0
<i>Seldom</i>	564	18.7
<i>Sometimes</i>	977	32.4
<i>Often</i>	457	15.2
<i>Always</i>	538	17.9
<i>Don't know</i>	54	1.8
% applying at least sometimes		65.5%
Restrict the amount of personal data seen by other people on your social media profiles	3017	
<i>Never</i>	455	15.1
<i>Seldom</i>	366	12.1
<i>Sometimes</i>	680	22.5
<i>Often</i>	647	21.4
<i>Always</i>	738	24.5
<i>Don't know</i>	131	4.3
% applying at least sometimes		48.3%
	2846	
Number of privacy protection acts applied at least sometimes (0-14)	5.22	(3.41)

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APPENDIX A – THE QUESTIONNAIRE

Dear participant,

We invite you to participate in our research by completing the following survey. The aim of this survey, funded by the Social Sciences and Humanities Research Council of Canada, is to better understand how individuals aged 60 and over experience the digital world. Accordingly, the questions included in this survey focus on your use of digital devices and apps as well as your feelings while you use the internet.

We kindly ask you to take the time to complete this 15-minute survey to the best of your ability. Participation in this study is voluntary. You are not obliged to answer any of the questions, however, in doing so you will greatly assist us to better understand internet use among older people. If you find a question that is irrelevant or inconvenient to you, please skip it and respond to the rest of the questions. The data collected is fully anonymous and will be used solely for academic purposes.

If you have any questions about this study or about your rights as a research participant, please contact [xxx, email].

To proceed, please confirm that you agree to participate in this study by checking the box:

The following questions focus on your general internet usage patterns.

1. Please indicate the devices you use to access the internet (check all that apply).

- a. Smartphone
- b. Tablet
- c. Desktop computer
- d. Laptop computer
- e. Other (e.g., smart TV, smartwatch, voice assistant such as Alexa)

How often did you use the internet for the following purposes in the last week?

List of purposes:	never	seldom	sometimes	often	every time I use the internet
2. Interpersonal one-on-one communication, through email, WhatsApp, social media (e.g., private messages on Facebook), video call/voice services (e.g., Skype, Zoom) etc.	1	2	3	4	5
3. Interpersonal group communication, through email lists, WhatsApp groups, social media (e.g., Facebook), video conference services (e.g., Skype, Zoom) etc.	1	2	3	4	5
4. Information seeking (e.g., news, consumption, health issues, finance etc.).	1	2	3	4	5
5. Performing particular tasks or errands (e.g., paying bills, purchasing goods or services, filling forms, banking, scheduling appointments etc).	1	2	3	4	5
6. Leisure activities (e.g., games, watching movies, listening to music etc).	1	2	3	4	5

7. **How many hours did you spend using the internet in the last week?**

- a. 0-7 hours.
- b. 8-14 hours.
- c. 15-21 hours.
- d. 22-28 hours.
- e. More than 28 hours.

Next, we would like to know about your privacy experiences on the internet.

To what extent do you believe that on the internet, **commercial corporations and/or companies** (e.g., retailers, department stores, technology companies) are:

	Strongly disbelieve	Somewhat disbelieve	Neither believe nor disbelieve	Somewhat believe	Strongly believe
8. Watching your every move	1	2	3	4	5
9. Checking up on you	1	2	3	4	5
10. Looking over your shoulder	1	2	3	4	5
11. Entering your private space	1	2	3	4	5

[Present Q11 only if marked at least “4” or “5” in Q7 or Q8 or Q9 or Q10]

12. How do you evaluate the effects of these actions by **commercial corporations and/or companies** on you?

- a – Much more positive than negative
- b – More positive than negative
- c – Equally positive and negative
- d – More negative than positive
- e – Much more negative than positive
- f – I don't know

To what extent do you believe that on the internet, **government agencies and state/local authorities** are:

	Strongly disbelieve	Somewhat disbelieve	Neither believe nor disbelieve	Somewhat believe	Strongly believe
13. Watching your every move	1	2	3	4	5
14. Checking up on you	1	2	3	4	5
15. Looking over your shoulder	1	2	3	4	5
16. Entering your private space	1	2	3	4	5

[Present Q16 only if marked at least “4” or “5” in Q12 or Q13 or Q14 or Q15]

17. How do you evaluate the effects of these actions by **government agencies and state/local authorities** on you?

- a – Much more positive than negative
- b – More positive than negative
- c – Equally positive and negative
- d – More negative than positive
- e – Much more negative than positive
- f – I don't know

To what extent do you believe that on the internet, **social institutions (e.g., nonprofit organizations, religious institutions, political movements, social clubs)** are:

	Strongly disbelieve	Somewhat disbelieve	Neither believe nor disbelieve	Somewhat believe	Strongly believe
18. Watching your every move	1	2	3	4	5
19. Checking up on you	1	2	3	4	5
20. Looking over your shoulder	1	2	3	4	5

21. Entering your private space	1	2	3	4	5
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[Present Q21 only if marked at least “4” or “5” in Q17 or Q18 or Q19 or Q20]

22. How do you evaluate the effect of these actions by **social institutions** on you?

- a – Much more positive than negative
- b – More positive than negative
- c – Equally positive and negative
- d – More negative than positive
- e – Much more negative than positive
- f – I don’t know

To what extent do you believe that on the internet, **individual people (e.g., family members such as your children and siblings, close friends)** are:

	Strongly disbelieve	Somewhat disbelieve	Neither believe nor disbelieve	Somewhat believe	Strongly believe
23. Watching your every move	1	2	3	4	5
24. Checking up on you	1	2	3	4	5
25. Looking over your shoulder	1	2	3	4	5
26. Entering your private space	1	2	3	4	5

[Present Q26 only if marked at least “4” or “5” in Q22 or Q23 or Q24 or Q25]

27. How do you evaluate the effect of these actions by **individual people** on you?

- a – Much more positive than negative
- b – More positive than negative

- c – Equally positive and negative
- d – More negative than positive
- e – Much more negative than positive
- f – I don't know

28. What is your employment status (check all that apply)?

- a. Paid employee
- b. Self-employed person
- c. Unemployed (temporarily or permanently)
- d. Retired
- e. Other (housework, voluntary work)

[Present Q28-31 only if marked “a” in Q27]

To what extent do you believe that on the internet **your employer** is:

	Strongly disbelieve	Somewhat disbelieve	Neither believe nor disbelieve	Somewhat believe	Strongly believe
29. Watching your every move	1	2	3	4	5
30. Checking up on you	1	2	3	4	5
31. Looking over your shoulder	1	2	3	4	5
32. Entering your private space	1	2	3	4	5

[Present Q32 only if marked at least “4” or “5” in Q28 or Q29 or Q30 or Q31]

33. How do you evaluate the effect of these actions by your employer on you?

- a – Much more positive than negative

- b – More positive than negative
- c – Equally positive and negative
- d – More negative than positive
- e – Much more negative than positive
- f – I don't know

To what extent do you believe that on the internet **bad actors** (entities involved in defrauding, stealing information etc.) are:

	Strongly disbelieve	Somewhat disbelieve	Neither believe nor disbelieve	Somewhat believe	Strongly believe
34. Watching your every move	1	2	3	4	5
35. Checking up on you	1	2	3	4	5
36. Looking over your shoulder	1	2	3	4	5
37. Entering your private space	1	2	3	4	5

[Present Q37 only if marked at least “4” or “5” in Q33 or Q34 or Q35 or Q36]

38. How do you evaluate the effect of these actions by **bad actors** on you?

- a – Much more positive than negative
- b – More positive than negative
- c – Equally positive and negative
- d – More negative than positive
- e – Much more negative than positive
- f – I don't know

In the following statements, the term “technologies” refers to any device with which you access the internet. Please indicate the extent to which you agree with these statements.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
39. Technologies make me do things more slowly	1	2	3	4	5
40. Technologies make me respond more quickly than I would normally do	1	2	3	4	5
41. Technologies create many more problems than I would otherwise experience	1	2	3	4	5
42. Using technologies blurs boundaries between my out-of-home and my home life	1	2	3	4	5
43. I feel my personal life is being invaded by technologies	1	2	3	4	5
44. I often find technologies too complex to use	1	2	3	4	5
45. I do not know enough about technologies to use them effectively	1	2	3	4	5
46. The constant developments and upgrades in technologies are a burden for me	1	2	3	4	5
47. I feel uncomfortable knowing that my use of technologies can be easily monitored	1	2	3	4	5
48. It bothers me that the information created by my current technology use could be traced even years from now	1	2	3	4	5
49. I feel that my use of technologies makes it easier to invade my privacy	1	2	3	4	5
50. I am better at understanding and using technology than young people	1	2	3	4	5
51. I am typically behind younger persons in my family in the technologies I use	1	2	3	4	5
52. If young people are residents in “technology-land”, I may be considered an immigrant	1	2	3	4	5

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
53. Many very important things happen in the world, which the public is never informed about	1	2	3	4	5
54. Politicians usually do not tell us the true motives for their decisions	1	2	3	4	5
55. Government agencies closely monitor all citizens	1	2	3	4	5
56. Events which superficially seem to lack a connection are often the result of secret activities	1	2	3	4	5
57. There are secret organizations that greatly influence political decisions	1	2	3	4	5

While using the Internet, how often do you do the following things?

	never	seldom	sometimes	often	always	I don't know
58. Use a temporary username or email address	1	2	3	4	5	
59. Use a fake name or untraceable username	1	2	3	4	5	
60. Give inaccurate or misleading information about yourself	1	2	3	4	5	
61. Set your browser to disable or turn off cookies	1	2	3	4	5	
62. Clear cookies and browser history	1	2	3	4	5	
63. Use services that allow you to browse the web anonymously, such as a proxy server, Tor software, or a virtual personal network	1	2	3	4	5	
64. Encrypt your communications (or make sure that the communication is encrypted by the app)	1	2	3	4	5	
65. Decide not to use a website because they ask for your real name	1	2	3	4	5	
66. Delete or edit something you posted in the past	1	2	3	4	5	

67. Ask someone to remove something that was posted about you online	1	2	3	4	5	
68. Use a public computer to browse anonymously	1	2	3	4	5	
69. Use a pop-up window blocker	1	2	3	4	5	
70. Block messages/emails from someone you do not want to hear from	1	2	3	4	5	
71. Restrict the amount of personal data seen by other people in your social media profiles	1	2	3	4	5	

Lastly, we would like to ask some information about you.

72. What is your age?

73. What is your gender identity?

- a. Male
- b. Female
- c. Other

74. How would you describe your living arrangement? (check all that apply)

- a. I live by myself
- b. I live with a partner (including married and unmarried couples)
- c. I live with a family member(s)
- d. I live with a caregiver
- e. Other_____

75. Do you have children?

- a. Yes
- b. No

76. Do you have grandchildren?

- a. Yes
- b. No

77. What is the highest level of education you completed?

- a. Elementary school (less than 12 years)
- b. High school (about 12 years)
- c. Technical school/certificate (about 13-14 years)
- d. Bachelor's degree (about 15 years)
- e. Master's degree (about 16-17 years)
- f. Doctoral degree (18 years or more)

78. How would you describe the monthly income of your household?

- a. A lot below average
- b. Slightly below average
- c. Similar to the average
- d. Slightly above average
- e. A lot above average
- f. I don't know

79. Which of the following best describes the area where you live?

- a. A big city
- b. The suburbs of a big city
- c. A medium-sized city
- d. A town or small city
- e. A village, a farm or home in the countryside

80. How would you describe your current health status?

- a. Excellent
- b. Very good
- c. Good
- d. Fair
- e. Poor

81. Were you born in [Country]?

- a. Yes
- b. No