



# Associations of Problematic Smartphone Use with Perceived Family Well-being in Chinese Adults: The FAMILY Project

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## Background & study objective

- Problematic smartphone use (PSU) is an emerging but understudied public health challenge.
- Emerging research has suggested PSU as a psychopathological disorder resembling behavioural addiction and is linked to health problems including anxiety and depression [1].
- Very little is known about the impact of PSU on family functioning or family relationship quality, which influence individual and family health.
- We examined the association of PSU with perceived family well-being Chinese general adults in Hong Kong, where population smartphone penetration is amongst the highest globally (85.6% in 2016).

## Methods

### Study design

- **Hong Kong Family Health and Information Trend Survey (HK-FHITS)**
  - A regular, territory-wide, population-based, cross-sectional telephone survey under the FAMILY project ([www.family.org.hk/en](http://www.family.org.hk/en)).
  - Administered by a Public Opinion Programme, the University of Hong Kong, a reputable local survey agency.
  - Random sampling by a 2-stage probability-based procedure.
  - Eligibility criteria: Cantonese-speaking Hong Kong residents aged 18 years or above.

### Measures

#### Exposure

- Assessed by Smartphone Addiction Scale-Short version (SAS-SV) [2].
- Validated in Chinese with satisfactory psychometric properties [3].
- Ten 6-point Likert, negatively-worded items, summed to give an overall score ranging from 10 to 60
  - Higher score indicates PSU
  - Cutoffs of 31+ (male) and 33+ (female) define high risk of PSU

#### Outcome

- Assessed by perceived family well-being scale, developed based on 2 local qualitative studies on family well-being under the FAMILY project [4,5]
- Three items measuring family harmony/ health/ happiness (3H's) on a scale of 0 to 10
  - Higher total score (0 to 30) denotes favourable family well-being
  - Correlated well with other indicators of family functioning with satisfactory internal and test-retest reliability [6]

### Statistical analyses

- All data were weighted by age, gender and education level distribution of Hong Kong general population.
- Multivariable linear regression was used to compute regression coefficients (b) of perceived family well-being score in relation to SAS-SV score and other sociodemographic factors (Table).

## Results

- A weighted sample of 3195 respondent was analysed.
- Mean (SD) age = 43.2 (15.6) years, 54.8% female.
- Mean (SD) perceived family well-being score = 22.1 (4.6).

**Table. Associations of PSU and other factors with perceived family well-being**

	Crude b (95% CI)	Adjusted b (95% CI) <sup>c</sup>
<b>SAS-SV score (10-60)<sup>a</sup></b>	-0.037 (-0.052, -0.021)***	-0.038 (-0.055, -0.022)***
<b>Female (vs male)</b>	0.65 (0.33, 0.97)***	0.67 (0.33, 1.01)***
<b>Age, year</b>		
18-24	0	0
25-44	0.95 (0.42, 1.49)***	0.31 (-0.30, 0.92)
45-64	0.73 (0.19, 1.28)**	-0.058 (-0.76, 0.65)
65+	1.85 (1.12, 2.57)***	1.59 (0.66, 2.52)**
<b>Marital status</b>		
Married/cohabitated	0	0
Unmarried	-1.32 (-1.66, -0.98)***	-1.31 (-1.76, -0.85)***
Divorced/ separated	-2.72 (-3.73, -1.70)***	-1.66 (-2.72, -0.60)**
Widowed	0.36 (-1.28, 0.55)	-0.15 (-1.16, 0.85)
<b>Highest education level</b>		
Primary or below	0	0
Secondary	-0.021 (-0.52, 0.48)	0.49 (-0.080, 1.05)
Tertiary or above	0.28 (-0.24, 0.81)	0.58 (-0.077, 1.25)
<b>Monthly household income (HKD)<sup>b</sup></b>		
≤ \$9999	0	0
\$10000-19999	0.18 (-0.48, 0.83)	0.50 (-0.17, 1.17)
\$20000-29999	1.11 (0.48, 1.74)**	1.36 (0.71, 2.01)***
\$30000-39999	1.02 (0.34, 1.71)**	1.29 (0.58, 2.00)***
≥ \$40000	2.00 (1.39, 2.60)***	2.19 (1.53, 2.85)***

<sup>a</sup> Higher score indicates PSU

<sup>b</sup> HKD7.8 ≈ USD1

<sup>c</sup> Adjusted for other variables in the table

\* $P < .05$ ; \*\* $P < .01$ ; \*\*\* $P < .001$

- Proportion of respondents with high risk of PSU = 30.5% (95% confidence interval [CI] 29.1% to 32.0%).
- Sensitivity analysis shows that high risk of PSU was associated with poor perceived family well-being ( $b = -0.66$ ; 95% CI -1.00 to -0.32) after adjusting for sociodemographic factors.

## Discussion & conclusion

- This study found that PSU was associated with poor perceived family well-being in Chinese adults in the general population.
- Results remained robust after controlling for sociodemographic factors and were corroborated by a sensitivity analysis.
- Overuse of smartphone (e.g. internet gaming) may reduce quality time spent with other family members, leading to poor perceived family well-being.
- Strengths
  - Large and population-representative sample
- Limitations
  - Cross-sectional, self-reported data
  - Uncertain applicability of the findings in other populations
- Further studies on other factors and adverse health and other effects of PSU on individual and families are warranted.

**Keywords:** smartphone addiction, family, population study

**Conflict of interest:** None declared

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