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A cross-sectional study on smartphone uses among pregnant women attending childbirth classes in the Metropolitan Area of Palermo, Italy: The Stop-Phone study

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Abstract

Background. *Prevalence of mobile device addiction has increased over the years; both women and men have assimilated the mobile phone as a central component of their personal existence: integrating it into their lifestyle or becoming so dependent on it that life without it has become unimaginable. Smartphones generate radio-frequency electromagnetic fields. While short-term exposure in adults was considered quite safe, effects of long-term exposure or exposure during pregnancy on fetuses or during breastfeeding on newborns are not well studied yet. The objective of the present study was to investigate the prevalence and usage characteristics of smartphones among a sample of pregnant women, and promote the correct and conscious use of the smartphone.*

Methods*. A cross-sectional study was conducted, with a questionnaire administered during childbirth classes and - after the questionnaire administration - an educational intervention focused on promoting the correct and conscious use of smartphones was carried out by psychologists and psychotherapists.*

Results*. The findings of our study suggest that a significant number of the participants suffered addiction to mobile phone usage, but were not aware of it. More than two third of the sample (67.2%) have not changed*

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their smartphone use habits since the beginning of their pregnancy and even more significant data shows that almost all future moms (98.3%) never speak with their doctor about smartphone use during pregnancy.
Conclusions. *Data collected suggest a lack of attention to the proposed topic, especially in relation to pregnancy. It seems necessary to sensitize future mothers on this topic. The promotion of a more conscious and controlled use of electronic devices can help reduce the radiation to which the unborn child may be exposed, but has a fundamental role even after birth, to ensure an adequate psychomotor and relational development of the child and do not affect, due to uncontrolled use of smartphones, the mother-child relationship.*

Introduction

The use of smartphones is a growing phenomenon all over the world (1). Many people, especially young, use their smartphones for several activities such as shopping, studying, searching for information, gaming and communicating with other people (2).

The recent COronaVIrus Disease 19 (COVID-19) pandemic has had a very strong impact on our lives; it has greatly changed our habits, amplified this phenomenon and foreshadowed the dawn of a new digital transition, now involving even those who until now had remained on the sidelines (3, 4). In addition to information and entertainment, digital devices have ensured the continuity of many activities, public and private: from emotional and social relationships to e-commerce, from smart working to distance education (5).

More than 50 million people in Italy access the Internet every day and 41 million are active on social media (6). Time spent online stands at about six hours a day, at least two of which on social networks (6).

Smartphones generate Radio.Frequency Electromagnetic Fields (RF-EMF), that have been classified by the International Agency for Research on Cancer (IARC) as Group 2B carcinogens, as possibly carcinogenic to humans (agents for which there is limited evidence of carcinogenicity in humans and insufficient evidence of carcinogenicity in laboratory animals) (7, 8).

Because of this concern, several studies have been conducted to evaluate real effects that RF-EMF may have on health (9-11). But while short-term exposure in adults has been considered quite safe, effects of long-term exposure, on infants, during breastfeeding, or on fetuses during pregnancy are not well studied yet; in fact, spontaneous abortions have been included among the endpoints that the World Helth Organisation (WHO) has recommended for further investigation as a potential health effect (12-14).

Certainly, an excessive smartphone use can lead to headaches, impaired memory and concentration, fatigue, sleep disturbances, as well as effects on mental health such as anxiety, stress and depression too (2, 15, 16).

Smartphone misuse raises concern not only about physical/medical consequences that might be involved but also about the psychological and social ones.

Nomophobia (No- MObile PHone PhOBIA) described as a condition characterized by the presence of feelings of discomfort, anxiety, nervousness or distress arising from no longer staying in virtual contact through one's cell phone, is a phenomenon that is assuming worrying proportions, worldwide (17, 18).

It was observed that more women than men consider cell phone as central element of their lives, becoming so dependent on it that a life without it is unimaginable (19).

The aim of this study was to investigate, in a sample of pregnant women, attending childbirth classes in the Metropolitan Area

of Palermo, the prevalence of smartphone addiction, describing characteristics of their usage and promoting their correct use by increasing information and training on the physical/medical and psychological consequences that can be determined by the misuse of mobile devices.

Materials and Methods

"Stop-Phone" is a project carried out by the Local Health Authority (LHA) of Palermo in collaboration with Vivi Sano Onlus and the Department of Health Promotion, Maternal and Infant Care, Internal Medicine and Excellence Specialties "G. D'Alessandro" and the Post-Graduate Medical School in Hygiene, Preventive Medicine and Public Health of the University of Palermo.

The Stop-Phone project aims to promote health education activities on the correct and conscious use of smartphones in the populations at risk, such as pregnant women, school aged children (first grade secondary school), parents of school aged children (nursery/kindergarten, primary school), teachers of school aged children (nursery/kindergarten, primary school, first grade secondary school).

The project is also part of the regional plan of prevention that provides for the implementation of interventions to promote the proper use of cell phones as part of the macro-objective of reducing environmental exposures potentially harmful to health.

The target population of the present study is represented by pregnant women attending childbirth classes of the three major Hospitals for number of births in the Palermo's Province.

Palermo's Metropolitan Area (formerly: Province) represents the most populous area of Sicily (the fourth Region by population in Italy) and one of the most populous Province for demographic density, with 1,214,987 inhabitants and an average of 10,000 yearly births in the last 10 years (20).

Data collection

Women were recruited during childbirth courses organized at three General Hospitals of the Palermo Metropolitan area ("Civico Di Cristina-Benfratelli" Hospital, "Buccheri La Ferla Fatebenefratelli" Hospital and Palermo University Hospital).

The childbirth classes were face-to-face from January 2019 to the beginning of March 2020, and later, due to the COVID-19 pandemic, the courses were offered on an online platforms (Skype ®, Microsoft Skype Division, Luxembourg, Luxembourg; Microsoft Teams ®, Microsoft, Washington, DC, USA; Zoom ®, Zoom Video Communications Inc., San Jose, CA, USA) since the month of April 2020 until the end of the project (December 2021.

A cross sectional survey was conducted to evaluate prevalence and usage characteristics of smartphones among a sample of pregnant women.

To this purpose, the Stop-Phone Project research team has produced and validated a self-administered anonymous questionnaire proposed to pregnant women in order to investigate their smartphone use habits.

After the questionnaire administration, an educational intervention - focused on promoting the correct and conscious use of smartphones - was carried out by psychologists and psychotherapists during the childbirth classes.

Childbirth classes usually took place bimonthly and had an average attendance of 15–20 couples per course. To all participants, initially, information that explained the goals of the study and the processing of personal data, according to Italian privacy laws, were provided.

If the pregnant woman agreed to participate in the study, the informed consent form was collected, and the questionnaire was administered.

The questionnaire has been administered through an online form created on the Google ® Forms (Google, Menlo Park, CA,

USA) platforms, which allowed completion of the questionnaire both during live childbirth classes or web-based ones held during the COVID-19 pandemic.

All data, once the questionnaires were completed, were automatically recorded on an Excel file 1997-2003 protected by password and accessible only by the Working Group, in order to further ensure privacy.

After administration, standardized training interventions were carried out by psychologists and psychotherapists aimed at promoting the correct and conscious use of the smartphone both during pregnancy and especially in the postpartum period, explaining how in the first months of life the use of smartphones could affect the relationship between mother and child.

The study was approved by the Palermo Ethical Committee no. 1 of the University Hospital of Palermo in the third session of March 2019.

Questionnaire Structure

The reliability and validity of the questionnaire were evaluated in a preliminary pilot testing study conducted on 30 pregnant women. In this study, Cronbach's alpha was calculated and corresponded to 0.89, with an adequate reliability of the test.

The questionnaire consists of an introductory part that aims to explain the purpose of the study as well as the method of treatment, conservation and protection of personal data and the person responsible for their treatment.

The questionnaire included 42 items, divided into three major sections as follows:

1. Demographic and educational section, including age, level of education, family composition, trimester of pregnancy;

2. Habits of smartphone use section. This section was further divided in two subsections:

2.1 General habit of smartphone uses, like starting age of smartphone/tablet use, reason for most frequent smartphone use, usual distance from the smartphone during use etc.

2.1 Habits of smartphone use during pregnancy: for instance, habit of placing the smartphone directly on the abdomen, change in smartphone use since the beginning of pregnancy., etc

3. Smartphone usage addiction score was calculated using a Likert scale consisting of 20 items, related to smartphone use, that required answers from zero (which corresponded to never) up to three (which corresponded to frequently). A score equals to 0 corresponds to absence of addiction, from 0 to 20 corresponds to a mild grade of smartphone addiction, from 21 to 40 to a moderate grade, and from 41 to 60 to a severe grade of addiction (Appendix A).

Statistical analysis

Quantitative variables were normally distributed and summarized as means with their standard deviations. Absolute and relative frequencies were calculated for qualitative variables.

The data obtained were uploaded to a database in Microsoft Excel format (which were also automatically generated by the Google ® Modules online questionnaire administration system).

A database was created with EpiInfo 3.5.4 (Centers for Disease Control and Prevention, Atlanta, GA, USA) and all the data were analyzed using the statistical software package Stata/MP 14.1 (StataCorp LP, College Station, TX, USA).

Results

The total number of participants was 237, with a response rate of 94.3%, as can be seen in Table 1. In order to assess sample representativeness, taking into account that smartphone prevalence in Italy among adults is about 93%, the requested sample size was 174 (with a confidence interval of 99% and

a desired precision of 5%) (21). Most of our sample (60%) consisted of pregnant women 26-35 years old, followed by women older than 35 years (34%) and younger than 25 years of age (6%). The large majority of participants (87%; n=205) were in their third trimester of pregnancy, 9.0% (n=21) in their second trimester and 4.0 (n=10) in their first trimester of pregnancy (Table 1).

Table 1 also shows some socio-demographic characteristics of the population under study; 2 (1%) say they are living alone, 191 (81%) are part of a two-member family, 36 (15%) have a family composed by three members and 8 (3%) have a family of more than four people. With regard to educational level, 64% (n=151) of women have an undergraduate degree or postgraduate degree followed by 36% (n=86) who have a High/Middle school diploma or less (Table 1).

Table 1 - Pregnancy and socio-demographic characteristics of the study participants (n=237).

	n (%)
Age classes	
- ≤ 25	14 (6)
- 26 - 34	143 (60)
- ≥ 35	80 (34)
Family members	
- 1	2 (1)
- 2	191 (81)
- 3	36 (15)
- 4 or more	8 (3)
Highest level of education reached	
- High/middle school diploma or less	86 (36)
- Graduation/postgraduate	151 (64)
Number of smartphones/tablets at home/among family members	
- 1	8 (3.4)
- 2	131 (55.3)
- 3	74 (31.2)
- 4 or more	24 (10.1)
Trimester of gestation	
- 1st trimester	10 (4)
- 2nd trimester	21 (9)
- 3rd trimester	205 (87)

Regard to the number of devices, like smartphones or tablets, 131 women (55.3%) reported to own two devices, 74 (31.2%) three, 24 (10.1%) four or more and 8 (3.4%) only one device (Table 1).

Table 2 reports data about the habits of smartphone usage during lifetime. About the age of start using smartphone or tablet, 64% (n=151) women interviewed responded that they started using smartphones approximately when they were 15-25 years old, 20% (n=47) started when they were under 15 years old, 16% (n=39) before 26 years of age. Most of our sample (57%) use smartphone 1 – 3 hours during the day, (34%) using smartphone for more than three hours a day, and 9% less than one hour (Table 2).

The most common reason for smartphone uses are internet browsing and social network use (47%), followed by calls or texts (36%), work (10%) and other activities (7%) (Table 2).

As it can be seen in table 2, the average number of calls made during the day is of 3-5 for the 47% of the sample, from 0 to 2 calls for the 33%, more than 6 calls a day for the 20%.

Afterward, 67.1% of women interviewed leave their phones around the house during the day, 23.2% on the table, and 9.7% in their bag, in pants or shirt pocket.

Only 36% of pregnant women interviewed pay attention to the distance from the screen, while 64% do not and 51% usually use their smartphones at a distance less than 20 cm, 35% at a distance of 20-30 cm and only 14% use them at a distance greater than 30 cm. Despite this, 56% say they do not have a visual disorder that has been diagnosed by a physician, while 44% say they do.

Most of the respondents (64%) use the phone before going to sleep. Moreover, a large majority of the sample (78%) does not have difficulty falling asleep after using a smartphone, 9% do and 10% sometimes. During the night, 44% of pregnant women

Table 2 - Attitudes, habits and characteristics of smartphone use during lifetime (n=237).

	n (%)
Starting age of smartphone/tablet use	
- ≤ 14	47 (20)
- 15 - 25	151 (64)
- ≥ 26	39 (16)
Hours of smartphone use during the day	
- <1 hour	21 (9)
- 1-3 hour	134 (57)
- >3 hour	80 (34)
Reason for most frequent smartphone use	
- Browse the Internet / Social network	111 (47)
- Call / Texting	85 (36)
- Work	24 (10)
- Other	17 (7)
Number of calls daily	
- 0-2	78 (33)
- 3-5	112 (47)
- >6	46 (20)
Where smartphone is kept during the day	
- Bag/ Trouser pocket/ Shirt pocket	23 (9.7)
- On the table	55 (23.2)
- Around the house	159 (67.1)
Attention to the distance from the screen	
- Yes	83 (36)
- No	150 (64)
Usual distance from the smartphone during use	
- < 20 cm	120 (51)
- 20 - 30 cm	83 (35)
- > 30 cm	33 (14)
Visual disturbance diagnosed by doctor	
- Yes	105 (44)
- No	132 (56)
Smartphone use before falling asleep	
- Yes	150 (64)
- No	29 (12)
- Sometimes	57 (24)
Difficulty to falling asleep after using the smartphone	
- Yes	21 (9)
- No	183 (78)
- Sometimes	30 (13)
Overnight phone mode	
- On with silent mode	99 (42)
- On with ringtone or vibration	105 (44)
- Flight mode/Off	33 (14)
Usual distance from the smartphone during night	
- < 50 cm	132 (56)
- 50 – 100 cm	70 (29)
- > 1 m	35 (15)

keep the smartphone switched on with ringtone or vibration, 42% on in silent mode, and only 14% in flight mode or switched off.

Furthermore, during the night, the smartphone is generally kept quite close, in fact 56% of pregnant women keep the smartphone switched on at a distance less than 50 cm, 29% at 50-100 cm, 15% keep it at a distance greater than one meter.

Table 3 show data collected about habits of smartphone using during pregnancy. A small part of the sample habitually places the smartphone on the abdomen frequently (17.9%) and another 39.3% sometimes. In case of placing smartphones on the abdomen, 78.3% of pregnant women do not use anything to avoid direct contact of the device and only 21.6% responded that they use something to prevent direct contact with the abdomen. Moreover, we observed that 63% (n=149) of our sample have not changed their smartphone use habits since the beginning of their pregnancy, 25% instead pay attention to the distance of the device from their body, 9% limit their smartphone use, and 3% pay attention to the phone mode.

Lastly, 98.3% (n=233) never speak with medical doctor (general practitioner or gynecologist) about smartphone use during pregnancy and only 4 talked to their doctor, who did not recommend limiting smartphone use during pregnancy.

Finally, regarding the abuse-dependence score, Figure 1 shows a moderate degree of abuse-dependence for 22 (9.3%) of the respondents, mild abuse-dependance score for 212 (89.8%) of pregnant women interviewed, severe for no one, and only 2 (0.8%) women result not addicted on smartphone.

Discussion

The present cross-sectional study was designed to investigate the use of smartphones among pregnant women attending childbirth preparation classes in Palermo and province, in order to analyze the prevalence and

Table 3 - Attitudes, habits and characteristics of smartphone use during pregnancy (n=237).

	n (%)
Habit of placing the smartphone on the abdomen	
- Yes	31 (17.9)
- No	74 (42.8)
- Sometimes	68 (39.3)
Prevent direct contact with the abdomen through anything (tablet, holder pillow)	
- Yes	21 (21.6)
- No	76 (78.3)
Change in smartphone use since the beginning of pregnancy	
- Yes, I limit the usage	21 (9)
- Yes, pay attention to the distance of device from the body	59 (25)
- Yes, pay attention of phone mode	8 (3)
- No, I have not changed my habits	149 (63)
Speaking with doctor about smartphone use during pregnancy	
- Yes, recommended to limit use	0
- Yes, not recommended to limit use	4 (1.7)
- No	233 (98.3)

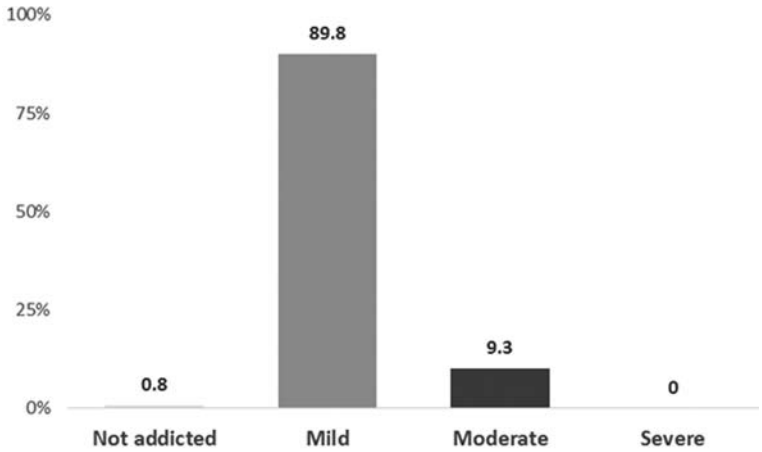

Figure 1 - Results of abuse-dependence score among pregnant women interviewed (n=297)

characteristics of the phenomenon and simultaneously increase empowerment of the potential health risks associated with their use.

Mobile phones are widespread throughout the world, today they represent such a "smart" portable gadget that take care of almost all our daily needs. Functions that are normally handled by the general population, nowadays are quite totally managed by this interactive "butler".

A study conducted by Augner et al. in 2012, examined an association between over usage or dysfunctional usage of cell phones and psychological health (22). The authors indicated that low emotional stability, chronic stress, and depression have a correlation with phone usage.

Another research conducted by Boumosleh et al. investigated whether anxiety and depression independently contributed to smartphone addiction (23).

Their cross-sectional study found that depression and anxiety were also a positive predictor of smartphone addiction.

Compared with other subpopulations, pregnant and postpartum women have a potential increased risk of developing excessive Internet use and addiction, probably due to longer hours being at home, and less outdoor and physical activities owing to restricted mobility. Additionally, psychiatric comorbidities (anxiety and depression) are common in pregnant and postpartum women, which could also increase the likelihood of Internet addiction among this population (24, 25).

Indeed, the findings of our study suggest that a significant number of the participants had addiction to mobile phone usage, but were not aware on it, as mobile phones have become an integral part of their life.

The picture that emerges from the studies conducted so far on the health impact of these mobile devices is rather contradictory. There is limited information on the association between mobile phone use and reproductive outcomes, e.g., spontaneous abortions, birth weight, and congenital malformation (26). As suggested by the results of our work, more than one potential bad habit was highlighted: more than half of the mothers interviewed (57%) places the smartphone on the abdomen and 78% of them do not use anything to avoid direct contact of the device with the belly. Moreover, we observe that 67.2% of our sample have not changed their smartphone use habits since the beginning of their pregnancy. Until further studies will clarify more properly this phenomeon,

it is improbable to exclude any connection between the object of discussion and health outcomes. Thus, for what reported so far, it is essential promoting a more conscious use of these devices.

This study does not pretend to demonize the use of tablets or mobile phones; indeed, we are aware that productive and healthy use of smartphones can be useful and positive; compulsive use, on the other hand, can interfere with relational, emotional and professional life, and, in the case of mothers-to-be, the fragile mother-child relationship.

Widening the focus of the study through a broader view, it can be considered that Stop-Phone project has shown how, through health promotion activities, people are sensitive to these issues and are ready to question and change their habits.

Moreover, studies conducted in Europe confirmed the key role of Healthcare Workers (HCWs) and of childbirth classes in modifying knowledge, personal convictions, and choices among the general population (27, 28).

For this reason, it is essential that all HCWs perform health promotion, and it is not acceptable, as shown in our results, that pregnant women never explore this topic with their doctors during pregnancy.

It might be mentioned that this study has some limitations that deserve further research in the future. Firstly, due to the limited number of participants, a possible lack of representativeness should be considered and it should be taken into account that the enrollment process was not supervised by the researchers. Nevertheless, all pregnant women that attended childbirth classes participated to the study (>90%) and the Hospitals involved in our research accounted for more than 40% of birth in the Palermo's Province.

Secondly the survey could suffer from a selection bias, whereas pregnant women that participate to childbirth classes have a higher educational level in comparison with general population (about 60% with undergraduate or postgraduate degree vs 35% of 18-45 years old Sicilian women) (20). In addition, another limitation might be not having performed analyses that pose a comparison between the pre-pandemic and post-pandemic periods.

Conclusions

In conclusion, in this cross-sectional study, we explored the maternal intention and behavior of mobile phone use during pregnancy.

The authors did not find specific studies on the subject investigated, this might suggest a lack of attention to the proposed topic, especially in relation to pregnancy.

It might be useful to permanently include educational interventions by teams of trained health care providers, during childbirth classes, in order to raise awareness about smartphone use during pregnancy and also to inform them about other preventive strategies (such as maternal immunization).

The promotion of a more conscious and controlled use of electronic devices can help reduce the radiation to which the unborn child may be exposed, but has a fundamental role even after birth, to ensure an adequate psychomotor and relational development of the child and do not affect, due to uncontrolled use of smartphones, the mother-child relationship and relational development of the child and do not affect, due to uncontrolled use of smartphones, the mother-child relationship.

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Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Palermo Ethical Committee 1 of the University Hospital of Palermo in the session no.3 of March 2019.
Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.
Data Availability Statement: Data available on request due to privacy restrictions.
Conflicts of Interest: The authors declare no conflict of interest.

Riassunto

Studio trasversale sull'uso degli smartphone tra le donne in gravidanza che frequentano i corsi pre parto nell'area metropolitana di Palermo (Italia): Progetto Stop-Phone

Background. La prevalenza della dipendenza da dispositivi mobili è aumentata nel corso degli anni; la popolazione generale ha assimilato il telefono cellulare come componente centrale della propria esistenza personale, integrandolo nel proprio stile di vita o diventandone talmente dipendente da rendere inimmaginabile una vita senza di esso. Gli smartphone generano campi elettromagnetici a radiofrequenza e mentre l'esposizione a breve termine negli adulti è stata considerata abbastanza sicura, gli effetti dell'esposizione a lungo termine o dell'esposizione durante la gravidanza sui feti o durante l'allattamento sui neonati non sono ancora chiari. Obiettivo del presente studio è stato quello di indagare la prevalenza e le caratteristiche di utilizzo degli smartphone in un campione di donne in gravidanza promuovendone un uso corretto e consapevole.

Metodi. È stato condotto uno studio trasversale, con un questionario somministrato durante corsi pre-parto e, dopo la somministrazione del questionario, un intervento educativo incentrato sulla promozione di un uso corretto e consapevole degli smartphone da parte di psicologi e psicoterapeuti.

Risultati. I risultati dello studio suggeriscono che un numero significativo di partecipanti aveva una dipendenza dall'uso del cellulare, ma non ne era consapevole. Il 67,2% del nostro campione non ha cambiato le proprie abitudini di utilizzo dello smartphone dall'inizio della gravidanza e dati ancora più significativi mostrano che quasi tutte le future mamme (98,3%) non hanno mai parlato con il proprio medico dell'uso dello smartphone durante la gravidanza.

Conclusioni. I dati raccolti suggeriscono una scarsa attenzione al tema proposto, soprattutto in relazione alla gravidanza. Appare necessario sensibilizzare le future mamme sull'argomento. La promozione di un uso più consapevole e controllato dei dispositivi elettronici può contribuire a ridurre le radiazioni a cui può essere esposto il nascituro, ma ha un ruolo fondamentale anche dopo la nascita, per garantire un adeguato sviluppo psicomotorio e relazionale del bambino e non inficiare, a causa di un uso incontrollato degli smartphone, il rapporto madre-figlio.

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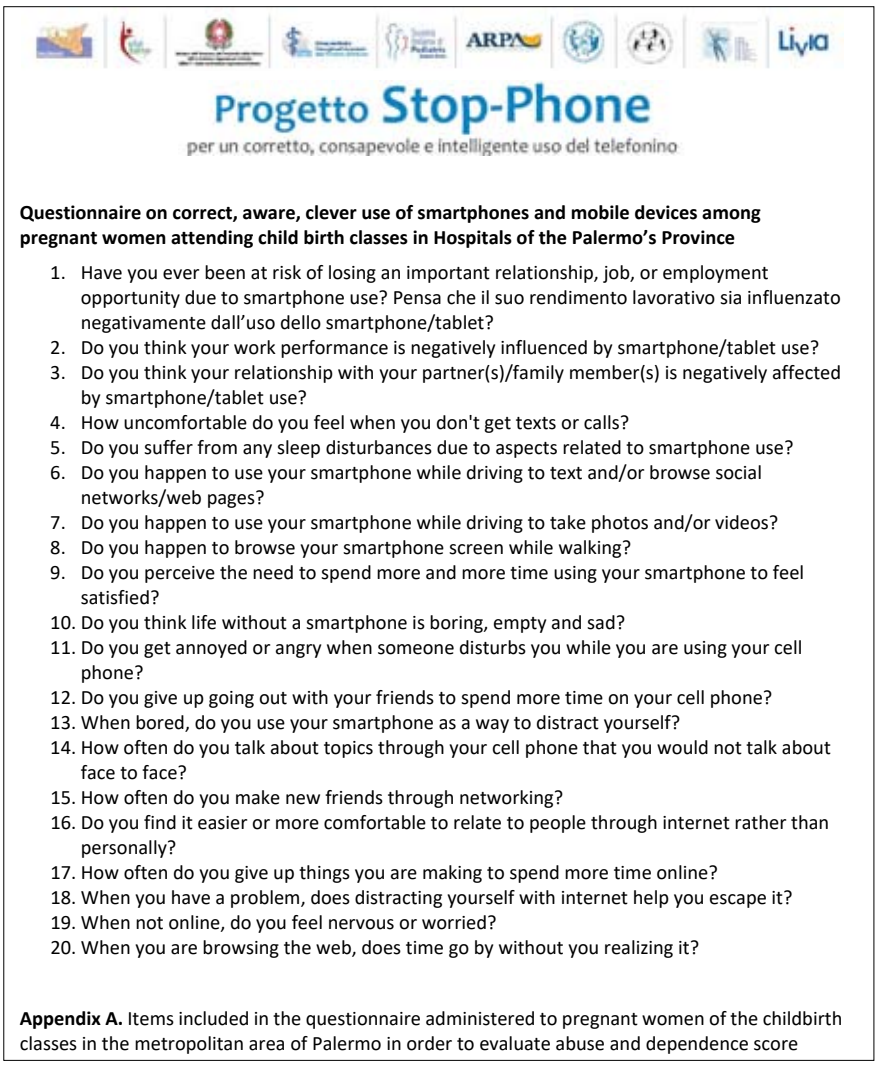
Appedix A. Items included in the questionnaire administered to pregnant women of the childbirth classes in the metropolitan area of Palermo in order to evaluate abuse and dependence score



Progetto Stop-Phone

per un corretto, consapevole e intelligente uso del telefonino

Questionnaire on correct, aware, clever use of smartphones and mobile devices among pregnant women attending child birth classes in Hospitals of the Palermo's Province

1. Have you ever been at risk of losing an important relationship, job, or employment opportunity due to smartphone use? Pensa che il suo rendimento lavorativo sia influenzato negativamente dall'uso dello smartphone/tablet?
2. Do you think your work performance is negatively influenced by smartphone/tablet use?
3. Do you think your relationship with your partner(s)/family member(s) is negatively affected by smartphone/tablet use?
4. How uncomfortable do you feel when you don't get texts or calls?
5. Do you suffer from any sleep disturbances due to aspects related to smartphone use?
6. Do you happen to use your smartphone while driving to text and/or browse social networks/web pages?
7. Do you happen to use your smartphone while driving to take photos and/or videos?
8. Do you happen to browse your smartphone screen while walking?
9. Do you perceive the need to spend more and more time using your smartphone to feel satisfied?
10. Do you think life without a smartphone is boring, empty and sad?
11. Do you get annoyed or angry when someone disturbs you while you are using your cell phone?
12. Do you give up going out with your friends to spend more time on your cell phone?
13. When bored, do you use your smartphone as a way to distract yourself?
14. How often do you talk about topics through your cell phone that you would not talk about face to face?
15. How often do you make new friends through networking?
16. Do you find it easier or more comfortable to relate to people through internet rather than personally?
17. How often do you give up things you are making to spend more time online?
18. When you have a problem, does distracting yourself with internet help you escape it?
19. When not online, do you feel nervous or worried?
20. When you are browsing the web, does time go by without you realizing it?

Appendix A. Items included in the questionnaire administered to pregnant women of the childbirth classes in the metropolitan area of Palermo in order to evaluate abuse and dependence score

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