Knowledge about umbilical cord blood banking among Greek citizens

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Background. Umbilical cord blood supplies in Greece are not sufficient to meet the high transfusion needs. This study was designed to determine Greeks' opinion about umbilical cord blood, identify the reasons for the lack of motivation to donate umbilical cord blood and allow experts to establish better recruitment campaigns to enrich the donor pool.

Materials and methods. The attitudes and knowledge about umbilical cord blood of randomly selected Greek citizens (n=1,019) were assessed by means of a standardised anonymous questionnaire. The results were analysed using the χ^2 test and Spearman's correlation coefficient.

Results. Forty-eight percent of respondents knew about umbilical cord blood and had full knowledge about what storage/donation offers. Media (35%) and doctors (25%) were the main source of information. The information from the state was considered either inadequate or non-existent by 85% of the responders. Ninety-five percent of the people questioned would like further information regarding umbilical cord blood transplantation and umbilical cord blood storage/donation. Six percent of the respondents who had children and were in favour of umbilical cord blood transplantation, had stored/donated UCB. With regards to future decisions, 84% of the sample would store/donate umbilical cord blood, of whom 57% would keep the umbilical cord blood in a private bank.

Discussion. It was concluded that Greek citizens receive information about umbilical cord blood from both the state and advertising campaigns by the Ministry of Health and Social Solidarity. A kind of cooperation between all hospitals and public umbilical cord blood banks would be advisable in order to facilitate access to umbilical cord blood donations.

Keywords: umbilical cord blood, umbilical cord blood banking, attitude, knowledge, information.

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Introduction

Umbilical cord blood (UCB) is an unlimited alternative source of haematopoietic stem and progenitor cells, comparable to bone marrow and peripheral mobilised blood, which can cure children and adults for malignant and non-malignant diseases[1-7], such as leukaemias[8-10], lymphomas[11-13], metabolic disorders[6,8,11], immunodeficiency states[10,13,14], tumours[13], haemoglobinopathies[8,9,15], genetic defects[13] and bone marrow failure syndromes[15-17].

The first UCB transplantation (UCBT) was successfully performed in 1988 in Paris by Eliane Gluckman, in a patient with Fanconi's anaemia[16,18]. Since then more than 400,000 UCB units have been collected worldwide[12,18,19] and 20,000 UCBT have already been performed[20,21].

There are three types of UCB banks: public, private and hybrid. In public banks the UCB is stored without charge and is available for any recipient who needs an allogeneic transplant[22]. There are currently approximately 44 public banks all over the world and they are connected to the World Marrow Donor Association (WMDA). Private banks, in contrast, charge for UCB collection and storage in order to cover the maintenance costs. The collected and stored UCB is available for the child that donated it and also for his or her family, although research has shown that the probability that a child uses its own blood is extremely low, ranging from 1 in 1,000 to 1 in 200,000[23]. Hybrid cord blood banks have recently been funded in several countries in an effort to reduce costs for UCB storage, because of the limited funding for public UCB banks. Hybrid banks are a new model that combines allogeneic UCB donation and autologous cell storage.

Several studies have been conducted worldwide in order to investigate and discuss peoples' knowledge about and attitudes towards cord blood and the advantages that it offers[20,24-27], but no such study has yet been performed

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in Greece. A recently published study by Screnci *et al.* reported that Italian blood donors and pregnant women express large support for voluntary UCB donation[20]. Indeed, more than half of pregnant women would choose to donate cord blood simply through altruism. Moreover, in this study the cost associated with private banking was the reason for not choosing private conservation of UCB[20]. A Swiss study published in 2003 found that the vast majority of women who donated cord blood would donate UCB again. More than two-thirds of women had been informed by health care professionals[24]. In another survey-based study conducted in the same country in 2010 among UCB donors, the results showed that the main reasons for donating to public banks were the high costs of private banking and altruism[27].

A study conducted in 2010 in five European countries, France, Germany, Italy, Spain and England, exploring pregnant women's awareness of cord blood banking and their attitude regarding it, found that the majority of pregnant women donated cord blood to public banks for therapeutic or scientific purposes. Moreover, a high proportion of those who did not donate UCB to public banks reflected the populations' concern that health care authorities were unprepared to cope with the demands for UCBT. The study showed that women's knowledge about UCB is poor. The majority of women had been informed by mass media, including the internet[25].

The purpose of the present study was to record and analyse the attitude and knowledge that Greek citizens, with high reproductive capacity, have about UCB storage/donation and UCBT, since there had been no similar study in this country. The data obtained from this study provide insight into UCB donation in Greece and give additional information about the knowledge of Greek citizens regarding UCB storage and use.

Materials and methods

The purpose of this standardised survey-based study, conducted between February and October of 2011, was to record and analyse the quality of information that Greek citizens, with high reproductive capacity (aged 18-42), have, as well as their attitudes towards UCB storage/donation and UCBT. For this purpose, an anonymous, standardised, multiple choice questionnaire (see supplementary data) was developed and, after obtaining informed consent, was completed by randomly selected Greek adult citizens, with the only restriction that they were of high reproductive capacity. For this reason the ages of the surveyed individuals (n=1,019) ranged from 18 to 42 years, (n=1,019), since according to a Eurostat report the vast majority of new parents (i.e. first-time parents) are in this age range[28]. The research participants filled in the questionnaire in the presence of the researcher, who provided all necessary explanations to the participants, both prior to and during completion of the questionnaire. Any clarification provided was purely on the interpretation of the questions and no direction was given to the participants regarding the responses. The response rate was 100%, since no subjects refused to participate in the study or complete the questionnnaire. The questionnaires were distributed in various cities in Greece, including Athens, Thessaloniki, Patra, Chalkida, and Kalampaka, and in the islands of Syros and Crete. The study and the questionnaire were approved by the research board of the Department of Medical Laboratories, of the Faculty of Health and Caring Professions at the Technological and Educational Institute (T.E.I) of Athens. All the participants completed the questionnaire anonymously after giving their informed consent.

The questionnaire contained 13 items about different aspects of UCB and UCBT. The questionnaire started with four general questions about the sex, age, educational level and employment status of the respondents. The remaining questions were specific and related to knowledge about UCB and the donation process. In these questions, a rating scale was applied between 0 and 4 (from nothing to very much), while some questions contained multiple choice and/or coded short answers (see supplementary material). Efforts were made to include questions that covered the whole spectrum of knowledge about UCB donation/storage, so that reliable conclusions could be drawn. The validity of the questionnaire was determined by a panel of eight specialists in haematology, transplantation and public health. All the aspects of the specific subjects were covered by a range of questions that were constructed to be easily understood by all participants.

The data from all the returned questionnaires were entered and analysed in EXCEL, MATLAB SPSS (SPSS, Statistical Package for Social Sciences) version 19.0. Both descriptive and inferential statistics were computed. The level of statistical significance was set at $p<0.05$ (χ^2 test and Spearman's correlation coefficient).

Results

Characteristics of the participants

All of the 1,019 questionnaires were completed, giving a response rate of 100%. The majority of the respondents were females (524 out of 1,019; 51.4%), aged between 18 and 22 (245 out of 1,019; 24%) and had a university degree (699 out of 1,017; 68.7%). Finally, regarding employment status, the most frequent category was private sector employees (376 out of 1,016; 37%). The descriptive results are presented in detail in Table I.

Knowledge and attitudes about umbilical cord blood storage

Table II summarises data on the individuals who knew about UCBT and what the UCB storage offers and information on whether they were positive about

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Table I - Descriptive characteristics of the sample population.

Variables	Frequencies
Sex	
Male	495 (48.6%)
Female	524 (51.4%)
Age	
18-22	245 (24%)
23-27	197 (19.3%)
28-32	197 (19.3%)
33-37	185 (18.2%)
38-42	195 (19.1%)
Educational level	
Primary school	8 (0.8%)
High school	310 (30.5%)
University	699 (68.7%)
Employment status	
Public-sector employee	137 (13.5%)
Private-sector employee	376 (37%)
Self-employed	163 (16%)
Unemployed	75 (7.4%)
Student	266 (26.1%)
Children	
0	723 (71.2%)
≥1	292 (28.8%)

UCB donation/storage (correlates: sex, age, educational level and employment status). According to the results of the present study, 60% (n=611) of the respondents (n=1,019) were aware of UCBT, while 54.2% (n=552) knew what the storage offered. It is worth mentioning that only 48.2% (n=491) answered positively to both questions (see questions 5 and 6 of the questionnaire in Appendix 1), having full knowledge about UCB and UCBT. Of these, 88.6% (n=435) were positive about UCB storage (P<0.001).

Of the 1,019 respondents, 28.8% (n=292) were parents. Their viewpoint on UCB issues differed substantially from that of the individuals who did not have children: 83.2% of (n=243) parents were aware of UCBT, while only 50.8% of those who were not parents (366 out of 720) responded positively to the same question (P<0.001). Additionally, 233 (79.8%) parents knew about UCB storage and 239 out of 275 (86.9%) parents were positive about UCB storage, while only 36 out of 275 (13.1%) were negative. However, only 61 out of the 239 (25.5%) parents positive about UCB had actually stored/donated UCB; of these 61 patients 29.5% (n=18) had stored/donated UCB in a public bank and the other 70.5% (n=43) in a private bank.

Finally, 58% (11 out of 19) of the respondents who chose a public bank cited altruism as the main motivation, while 31.6% (6 out of 19) reported that the lower cost, compared to those of private banks, was the reason driving their decision. Private banks, on the other hand, were chosen for their putatively better storage conditions (14 out of 45; 31.1%) and for the child's future insurance (10 out of 45; 22.2%).

Information quality

Table III summarises Greek citizens' opinions about the quality of information received from the state and medical health care professionals (clinicians, nurses, midwives, etc.), and reports whether they would like additional information on UCB and UCBT or not. In Table III, answers for the first two questions correspond to values 0 and 1, while answers for the third question correspond to values 3 and 4. According to the results, 539 out of 856 (63%) and 337 out of 625 (54%) respondents declared that the information from

Table II - Knowledge and attitude about umbilical cord blood storage/donation.

Correlates		Knowledge of UBCT			Knowledge of UCB storage			Positive about UCB storage		
		tc	%	p	tc	%	p	tc	%	p
Sex	Female	360	58.9	<0.001	328	59.4	<0.001	419	55.6	<0.001
	Male	251	41.1		224	40.6		335	44.4	
Educational level	University	403	66							
	High school	201	33	0.040			0.118*			0.394*
	Primary school	7	1							
Employment status	Public-sector employee	109	17.8		92	16.7				
	Private-sector employee	225	36.8		218	39.5				
	Self-employed	109	17.9	<0.001	95	17.2	<0.001			0.360*
	Unemployed	45	7.4		42	7.6				
	Student	123	20.1		105	19				
Age	18-22	114	18.7		95	17.2		187	24.8	
	23-27	95	15.5		83	15		147	19.5	
	28-32	100	16.4	0.001	93	16.9	<0.001	130	17.2	0.033
	33-37	144	23.5		138	25		134	17.8	
	38-41	158	25.9		143	25.9		156	20.7	
	Total	611	60		552	54.2		754	74	

tc: total counted number of individuals; *value not statistically significant (P>0.05); n=1,019 number of individuals.

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Table III - Information quality.

Correlates		Information from the state (0-1)			Information from doctors and hospital (0-1)			Desire for additional information (3-4)		
		tc	%	p	tc	%	p	tc	%	p
Sex	Female	426	49.8	<0.001	286	45.8	<0.001	479	55.6	<0.001
	Male	430	50.2		339	54.2		383	44.4	
Educational level	University				419	67				
	High school			0.205*	200	32	<0.001			0.983*
	Primary school									
Employment status	Public-sector employee	107	12.5		74	11.8		122	14.1	
	Private-sector employee	330	38.6		250	40		317	36.8	
	Self-employed	145	16.9	<0.001	103	16.5	0.004	140	16.2	0.018
	Unemployed	59	6.9		44	7.1		55	6.4	
	Student	215	25.1		154	24.6		228	26.5	
Age	18-22	205	24		148	23.7		204	23.7	
	23-27	161	18.8		127	20.3		169	19.6	
	28-32	174	20.3	0.001	133	21.3	0.012	152	17.6	0.002
	33-37	159	18.6		104	16.6		162	18.8	
	38-41	157	18.3		113	18.1		175	20.3	
	Total	856	84		625	61		862	85	

tc: total counted number of individuals; *value not statistically significant (p>0.05); n=1,019 number of individuals.

the state and health care professionals, respectively, was inadequate, a finding that justifies the lack of the knowledge about UCB. Interestingly, parents' main source of information on UCB storage (110 of the 231 parents who answered the specific question, i.e. 47.6%) and on the possibility of UCBT (104 of the 241 parents who answered the specific question, i.e. 43.2%) came from clinicians and/or other health care professionals (Spearman's correlation p=0.039 and p=0.040, respectively). In contrast, the main source of information about the same issues for those respondents who were not parents was found to be the mass media: 39% and 37.3% for information on UCB storage and the possibility of UCBT, respectively (Spearman's correlation, p=0.039 and p=0.040, respectively).

Future attitudes

Table IV summarises the intentions of respondents, who answered positively to the question about future storage, concerning their choice between public and private banks. It was found that 43.5% (347 out of 797) of males and 56.5% (450 out of 797) of females were willing to store UCB in the future (Spearman's correlation p=0.030). From those who were in favour of future UCB storage, 56% (n=446) would probably choose a private bank and 42.9% (n=342) would probably choose a public bank. Female research participants were more willing than males to choose a public cord bank, while men were more likely to choose a private cord bank (Spearman's correlation p=0.035).

Additionally, a public cord bank was found to be preferred by the majority of parents (i.e. 53%; 124 out of 234) for future UCB storage while 47% (n=110) preferred a private cord bank (p<0.001). In contrast, among the participants who were not parents but who were in favour of future storage of UCB, 60.6% (335 out of 553) preferred the idea of storage in a private cord bank, whereas a public bank was preferred by 39.4% (p<0.001).

Finally, answering a question about what they would do if there were hybrid banks, 637 (63%) respondents would use them, whereas 305 (30%) would not.

Discussion

The purposes of this standardised survey-based study were to record and analyse the quality of information that a sample of the Greek population, with high reproductive capacity, had received and to determine these subjects' opinions on UCB storage/donation and UCBT. The surveyed individuals were aged between 18 and 42 years old because the vast majority of new parents (i.e. first time parents) are within this age range.

During the statistical process, data from parents were separated out and then compared with those from parents in other countries. This approach was necessary because of the lack of research on randomised population samples. Indeed, with regards to Greece, up to the day this report was written, this study was one of the first, if not the first, to try to collect information on a variety of viewpoints in a randomised sample of the population.

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Table IV - Future attitudes concerning storage of UCB.

Correlates		Positive about future storage			Bank for the future *Private Bank*		*Public Bank*		
		tc	%	p	tc	%	tc	%	p
Sex	Female	451	56.5	<0.001					0.065*
	Male	347	43.5						
Educational level	University			0.199*					0.352*
	High school								
	Primary school								
Employment status	Public-sector employee	116	14.5		43	9.4	71	20.9	
	Private-sector employee	290	36.3		162	35.4	123	36.2	
	Self-employed	122	15.3	0.003	78	17	47	13.8	<0.001
	Unemployed	52	6.5		30	6.5	24	7	
	Student	218	27.4		145	31.7	75	22.1	
Age	18-22	202	25.3		146	31.9	58	17.1	
	23-27	157	19.7		80	17.5	79	23.2	
	28-32	137	17.2	0.038	89	19.4	47	13.8	<0.001
	33-37	149	18.7		69	15.1	76	22.4	
	38-41	153	19.1		74	16.1	80	23.5	
	Total	798	78.3		458	44.9	340	33.3	

tc: total counted number of individuals; *value not statistically significant (p>0.05); n=1,019 number of individuals.

The individuals were asked whether or not they were in favour of UCB storage: of the 1,019 respondents, the majority (74%) answered positively, which is quite encouraging since 34% of these people did not know absolutely anything about UCBT. They were given the opportunity to hear, to be interested in and motivated not only through research, but also through different sites and organizations, which they visited in order to be fully informed.

Respondents aged between 18 and 27 years old seemed to be less informed about this subject compared to respondents of other ages. This could be because the respondents of this young age group have different priorities and interests, such as studying and looking for occupation, rather than starting a family and having children. In Greece the average age of marriage for women is 29 years and the average age of first birth is 31 years[28]. Out of the 1,015 respondents, 292 (28.8%) were parents, of whom 81.5% (n=238) knew about UCBT from cord blood.

In a survey conducted in the United Kingdom, all 62 participants were aware of the potential value of cord blood for transplantation[26], while in an Italian survey[20], 89% of blood donors and 93% of pregnant women had some general knowledge about UCB, while 82% of blood donors and 95% of pregnant women were aware of the possibility of donating UCB.

The main source of information for 45.5% of Greeks was the media, with an additional source being medical health care professionals for 36.6% of the sample. Among the parents who had stored the UCB, 55.1% had been informed by medical health care professionals about UCBT and 72.9% about UCB storage. Information about UCB storage and UCBT had been gained from the media in 18.9% and 16.9% of cases, respectively, and from printed material (e.g., newspapers, magazines) in 17.2% and 5% of cases, respectively. These findings are in agreement with results in other European countries, since, as reported by Katz *et al*., only 21% of parents were informed about these issues by midwives or obstetricians[25].

Specifically, information was received from doctors in 24.8% of cases in Germany, 6.7% in France, 22.9% in Spain, 18.9% in the United Kingdom and 21.5% in Italy[25]. In contrast, in Switzerland[24], 60% of the respondents had received information from specialised operators. The most common sources of information in an Italian survey[20] were magazines and newspapers (41%) for blood donors and gynaecologists and obstetricians (42%) for pregnant women. Internet was the source of information for 25% of both blood donors and pregnant women, and was the main source for female blood donors. Only 4.5% of blood donors and 11% of pregnant women consulted the section of the Ministry of Health's website concerning the use of stem cells from UCB[20]. In a survey conducted in Switzerland in 2010, 53.8% of donors had been informed by a medical health care professional and 22% of women had more than one source of information, including family, friends and the media[27].

Despite the demonstrated importance of UCB as well as the reported shortage of donor units, the above evidence strongly suggests that the majority of the general Greek population do not have adequate information about this precious resource. There is only one chance for UCB storage (immediately after childbirth) and the authorities should enhance not only the quality but also the quantity of information available to citizens on this issue. This conclusion is supported by the additional fact that 53% and 31% of the respondents considered

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that the information provided by, respectively, the state and medical health care professionals was insufficient.

For all these reasons, the overwhelming majority (85%) of the overall sample of the population wanted additional information and 91.7% of parents desired further information. The respondents from other countries had a similar viewpoint. Additional information was wanted by 55.1% of Germans, 93.3% of Italians, 52.7% of English people, 89.8% of Spaniards and 82.6% of the French[25]. Rates from the studies were quite encouraging in relation to the lack of knowledge, because it was shown that the respondents were positive about further information on a subject they did not know and preferred not to neglect.

Out of the 292 parents, only 20.9% (n=61) stored UCB, of whom 29.5% declared that they donated the blood and 70.5% stored it privately. The reason given for the latter choice was that the UCB would be stored better. Moreover, private storage was encouraged by doctors or friends or relatives and by the belief that it guarantees the baby's future.

Two publications[24,25] (in which the authors did not mention the percentages of donation) stated that the main reasons for donating UCB were altruism and the low cost of storage compared with that charged by a private bank. In Switzerland, in 69.4% of cases the reasons for donating UCB were the high costs of private banking combined with the altruistic motive of being able to help people in need through UCB storage in a public bank; 16.9% mentioned organizational reasons[27].

Nevertheless, it was impressive that only 61 (25.5%) parents out of 239 who were positive about UCB storage had actually stored blood. The remaining 179 (74.9%) of these respondents either lacked information from the medical health care professionals or they did not trust the banks. In total, 798 (78.3%) respondents were positive with regards to future UCB storage of whom only 56 (7%) had already previously stored UCB. It is worth emphasising that 66.6% of those who stored UCB, and would do so again had chosen a private bank, but in the future they would donate to a public bank.

According to our research, overall 98.3% of the parents who had already stored UCB from a previous pregnancy would store it again in the future. The possibility of future storage was found to be 74.5%, 89.9%, 94.9%, 82.9% and 98% in Germany, France, Spain, England and Italy, respectively[25]. However, in the same research, only 53% of the parents and 40% of the parents who had already stored UCB from a previous pregnancy would choose to donate the USB in the future. In contrast, the majority of the respondents of the rest of the European countries (from 63.2% in Italy[25] to 94.9% in Switzerland[27]) would donate UCB, mentioning that the main reason was altruism and the lower cost of keeping the blood in a public bank than in private storage. In the Italian survey[20] 76% of blood donors would donate, 9% would preserve UCB privately, 15% would choose both options. Altruism was again the main motivation. Fifty-five percent of pregnant women would choose to donate UCB, 6.5% would store it in a private bank and 28.5% would prefer for their UCB to be destroyed[8]. In Switzerland, 94.9% of donors would donate their UCB again while 2.4% would prefer private banking, 0.6% would not donate again and 2.1% did not care[27].

In conclusion, despite the theoretically positive intention of Greek respondents towards UCB storage and donation, most did not proceed to this action. This leads us to the assumption that there is some prejudice, perhaps because of the misleading information that exists in Greece in contrast to private banks.

Moreover, 67.7% of Greeks, in the future, would prefere to store UCB in hybrid banks, if this will be possible. The percentages of respondents of other countries to the same question ranged from 2.4% in Switzerland to 22% in Italy for those who would store in a private bank, while 8.5% would use storage in a hybrid bank. The guidelines offered in Greece do not necessarily help the population to make the best choice.

Conclusion

In conclusion, Greek parents may have a misunderstanding about the importance and intent of donating cord blood to public banks instead of private banks. Even though private banking should be reserved for families in which a relative has an illness that can benefit from UCBT, in Greece the majority of citizens responded that they would choose a private bank for their own child. This is in distinct contrast to other European countries[24-26] whose citizens make the altruistic choice of donating to public banks.

Although we did not include all regions of Greece, the cities in which we conducted our survey (Athens, Thessaloniki, Patra, Chalkida, Kalampaka, Syros and the island of Crete) are representative of the country. After in-depth research in Greece, it has been found that, regardless of the family situation, the information that citizens (including a randomised sample of parents) receive is insufficient and mainly acquired from the media and not medical health care professionals, as it should be. In this case, we wonder about the quality of information and the cause of this poor communication by members of the health care community. We believe that different campaigns regarding UCB storage and uses should be developed through the cooperation of the Ministry of Health and Social Solidarity, the National Blood Donation Centre and the National Transplant Organisation. Last, but not least, we wonder if a kind of

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cooperation between all hospitals (public and private) and public cord blood banks could be achieved, so that the UCB donation is facilitated. It is also indispensable that further research is conducted on this issue in the Greek population in order to draw more reliable conclusions. We recommend that research should be conducted in Greece in order to gain a thorough understanding of the attitudes of Greek people towards UCB storage and banking and, most importantly, to record and understand the thoughts of parents about this issue.

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Authorship

Louiza Z. Karagiorgou and Maria-Nikoletta P. Pantazopoulou performed the research and wrote the manuscript. Nikolaos C. Mainas analysed the data. Apostolos I. Beloukas and Anastasios G. Kriebardis designed and supervised the research study and manuscript's preparation and submission.

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Appendix 1
Questionnaire about umbilical cord blood and stem cell transplantation

Question	Answers
1) Sex	a) Male b) Female
2) Age	a) 18-22 b) 23-27 c) 28-32 d) 33-37 e) 38-42
3) Educational level	a) University b) High school
	c) Primary School d) Did not attend school
4) Employment status	a) Public- sector employee b) Private- sector employee
	c) Self-employed d) Unemployed e) Student
5) Are you aware of the possibility of haematopoietic stem cell transplantation from umbilical cord blood?	a) Yes b) No
5.1) If your answer is Yes, what was your source of information?	a) Medical health care professional b) Mass media
	c) Other- please specify…….....
6) Are you aware of what the umbilical cord blood storage offers?	a) Yes b) No
6.1) If your answer is Yes, what was your source of information?	a) Medical health care professional b) Mass media
	c) Other- please specify…….....
7) Are you in favour of storing umbilical cord blood?	a) Yes b) No
8) Do you consider the information provided by the state on this issue sufficient? (0=no, 4=definitely)	a) 0 b) 1 c) 2 d) 3 e) 4
9) Do you consider the information provided by hospitals and physicians sufficient? (0=no, 4=definitely)	a) 0 b) 1 c) 2 d) 3 e) 4
10) Would you like further information regarding the storage and supply of umbilical cord blood? (0=no, 4=definitely)	a) 0 b) 1 c) 2 d) 3 e) 4
11) Do you have children?	a) Yes b) No
11.1) If you have children, have you stored your child's/children's umbilical cord blood?	a) Yes b) No
11.2) If Yes, which type of bank did you choose to store it in and why?	
1) Donation for storage in a public bank:	a) For altruistic reasons b) For better storage conditions
	c) Suggested by a third person d) For allogeneic transplantation
	e) For research use f) For financial reasons
	g) Other- please specify…….....
2) Storage in a private bank:	a) For better storage conditions b) Suggested by a third person
	c) For private use d) To safeguard the future of my child
	e) Doctor's indication f) Other reason- please specify……
12) In the future, would you consider storing your child's umbilical cord blood?	a) Yes b) No
12.1) If yes, what kind of bank would you choose?	a) Public bank b) Private bank
13) If there were hybrid banks (collaborative public and private banks) in Greece, would you consider donating your child's umbilical cord blood to such a bank?	a) Yes b) No
13.1) If yes, what would your reason be for doing so?	a) Hybrid banks would probably be less expensive and offer better storage conditions than private banks.
	b) Hybrid banks would offer better research use
	c) Hybrid banks would give a feeling of safety regarding the maintenance storage conditions of the units of umbilical cord blood
	d) Hybrid banks would provide more blood units for allogeneic transplantation and the possibility of autologous transplantation

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