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Healthcare professionals’ attitudes towards termination of pregnancy at viable stage

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7

1 ABSTRACT

2

3 **Introduction:** Upon prenatal diagnosis of congenital malformations, termination of pregnancy
4 (TOP) may be an option, sometimes when the foetus is already viable (late TOP). This study aims
5 to study attitudes towards late TOP of all tertiary healthcare professionals involved in late TOP
6 practice. **Material and methods:** Mail survey among all physicians and paramedical professionals
7 involved in late TOP decision-making in all eight centres with a Neonatal Intensive Care Unit in
8 Flanders, Belgium (N=117). The questionnaire contained general and case-based attitude items.
9 **Results:** Response rate was 79%. Respondents were either physicians (51,1%) or paramedical
10 professionals (49,9%). The composition of professionals involved in late TOP decision-making
11 was very heterogeneous between the eight centres. Late TOP is highly accepted in both lethal
12 foetal conditions (100%) and serious (but not lethal) foetal conditions (95.6%). Where the foetus
13 is healthy, 19.8% of respondents agrees with late TOP for maternal psychological problems and
14 fewer respondents (13.2%) agree with late TOP in case of maternal socio-economic problems
15 ($p=0.002$). Physicians more often prefer foeticide over neonatal palliative care in case of non-
16 lethal foetal conditions compared to paramedical professionals (68.1% vs 53.2%, $p=0.013$).
17 Almost nine out of ten respondents (89.1%) agree that in the event of a serious (non-lethal)
18 neonatal condition, administering drugs with the explicit intention to end neonatal life is
19 acceptable. Behavioural intentions indicate that even in situations with an unclear diagnosis and
20 unpredictable prognosis, 85.6% of professionals would still consider late TOP. **Conclusions:**
21 Healthcare professionals practicing late TOP in Flanders, Belgium have a high degree of tolerance
22 towards late TOP, irrespective of sociodemographic factors, and are in demand of legislative
23 change regarding active life-ending in the foetal and neonatal period. Further research should
24 explore correlation of attitudes to late TOP with actual medical decisions taken in daily clinical
25 practice.

26

27 Key words

28 Termination of pregnancy, abortion, end-of-life decisions, healthcare professionals' attitudes,
29 perinatal death, survey

30

1 **Abbreviations**

2 TOP : termination of pregnancy

3

4 **Key Message**

5 Healthcare professionals involved in pregnancy termination at viable stage demonstrate high

6 acceptance of late termination of pregnancy for serious or lethal foetal conditions. The majority

7 considers terminating neonatal life in serious, non-lethal conditions acceptable and wants Belgian

8 legislative change to facilitate this.

9

1 INTRODUCTION

2

3 Upon prenatal diagnosis of a congenital malformation, parents might formulate the request for
4 giving up the foetus' life by termination of pregnancy (TOP). In some cases this request occurs
5 when the foetus is already viable, i.e. from 22 weeks of gestation onward(1, 2) (late TOP).

6 Belgian legislation on late TOP is broadly formulated (Box 1)(3). The Belgian abortion act
7 does not state a maximum pregnancy duration until which medical pregnancy termination can be
8 performed. There are no transparent data available on the number, the location and the practical
9 organisation of late TOPs. Theoretically, every gynecologist in Belgium is authorized to do TOP
10 at any term.

11 The term 'feticide' in this article is solely used for feticide as a medical procedure prior to
12 TOP, to avoid the possibility of a liveborn infant. To our knowledge, the practice in this
13 (narrowed) context is not legally defined. However, several guidelines mention the practice in late
14 TOP, going from 'to consider' to 'being the gold standard'(4, 5). Feticide prevalence is not
15 routinely recorded in most countries. An exception is made by the UK, where feticide was
16 performed in 65-72% of pregnancies beyond 22 weeks from 2005-2008(6). Sporadic surveys can
17 be found (eg. France 2019(7)). For most countries, including Belgium, prevalence is unknown.

18 In addition to parents' personal, social, religious and cultural perspectives on life and
19 convictions(8, 9), parental decision-making is also influenced by the counselling by involved
20 healthcare professionals. Personal attitudes of healthcare professionals influence the information
21 and advice they give to parents(10-12). When parents request for pregnancy termination, the
22 'mandatory cooperation of a second doctor' can be realized by means of an informal consultation
23 among colleagues, a staff meeting or an ethical committee with involvement of different
24 specialties, depending on the hospital. Personal attitudes of healthcare professionals also
25 influence their point of view in these advisory committees(13-17).

26 Previous studies showed that attitudes of healthcare providers towards TOP are influenced by
27 personal obstetric history(18), professional experience(18-20), religious beliefs(18-20) and
28 professional orientation(20-23), eg. maternal-fetal medicine specialists vs neonatal specialists, or
29 doctors vs nurses. These studies are limited to studying physicians' or nurses' attitudes towards
30 late TOP, or compare only one aspect, such as demographic factors (18-23), the type of end-of life

1 decision (24), or TOP indication (19, 20, 22, 23, 25-27) and usually indicate large differences
2 between study groups. Insight into attitudes of other healthcare professionals involved in late TOP
3 decision-making and counselling, combined with personal influencing factors and a more detailed
4 investigation according to severity or specific case, is lacking. Nevertheless, this is necessary to
5 extensively map healthcare professionals' contributions to the parents' decision and in this way
6 attempt to standardize it. Therefore, this study aims to investigate attitudes towards late TOP
7 among all healthcare professionals involved in late TOP practice in the eight centres for neonatal
8 intensive care in Flanders, Belgium. We address the following research questions:

- 9 - What are the attitudes towards late TOP of physicians and paramedical professionals
10 involved in late TOP?
- 11 - What are the behavioural intentions in specific cases of physicians and paramedical
12 professionals involved in late TOP?

14 MATERIAL AND METHODS

16 We used STROBE guidelines for reporting cross-sectional studies (28).

18 Study design and setting

19 This study was conducted in Flanders, the Dutch-speaking semi-autonomous northern half of
20 Belgium, representing approximately 57% of the total population in Belgium. Currently, no
21 adequate registration of incidence, indication, decision-making process and practice of late TOP is
22 available in Flanders/Belgium. In 2017 the National Evaluation Committee for supervision on the
23 practice of Abortion Law registered 17 108 TOPs in Belgium (data not officially published), but it
24 remains unknown how many of these constitute late TOP. Additionally, previous studies suggest
25 that TOP from 12 weeks gestation onward is severely underreported(29, 30). The regional
26 distribution of late TOP practice in Belgium is also not known.

27 We performed a mail survey among healthcare professionals involved in late TOP
28 decision-making in all eight centres with a tertiary Neonatal Intensive Care Unit in Flanders,
29 Belgium: UZ Gent, AZ, St. Jan Brugge, GZA St. augustinus Antwerpen, UZ Antwerpen, UZ

1 Brussel, UZ Leuven, ZOL Genk and ZNA Middelheim Antwerpen. We focused on these centres
2 because they receive the majority of referrals for serious maternal or foetal problems (Belgium has
3 no certified prenatal diagnosis subspecialisation), and expertise and exposure is assumed to be the
4 highest here.

5 In each centre, a representative (a physician focusing on prenatal diagnosis) was
6 approached to select eligible healthcare professionals according to the criteria described below.

7

8 **Participants**

9 Two groups of healthcare professionals were considered eligible. The first group is involved in
10 counseling, informing and guiding the couple in the late TOP decision-making process. They have
11 personal contact with the couple. The second group are medical professionals involved in the
12 medical decision-making process of the Neonatal Intensive Care Unit centre. These professionals
13 reside in an advisory board or are involved organ specialists. They do not have personal contact
14 with the patients. The representatives identified 169 eligible healthcare professionals in total.

15 This study was preceded by a former study on attitudes towards perinatal end-of-life
16 decisions by all neonatologists and neonatal nurses of these eight Neonatal Intensive Care Unit
17 centres(31). Even though neonatologists and neonatal nurses can be involved in late TOP
18 decision-making through counseling and serving on hospitals' ethics committee, our study
19 population does not contain any neonatologists or neonatal nurses to avoid overburdening them.

20

21 **Data collection**

22 Questionnaires were distributed to eligible healthcare professionals by the representatives, with
23 the invitation to complete and return them to a sworn-in lawyer to guarantee full anonymity in a
24 prepaid envelope. The lawyer, bound by anonymity, checked each questionnaire and eliminated
25 every possible identifying factor. Afterwards, the lawyer handed over the questionnaires to the
26 researchers. Data were collected in between March 1st and April 30th 2018.

27

28 **Questionnaire**

We adapted the questionnaire used in a similar previous study(31) on neonatologists' and neonatal nurses' attitudes towards end-of-life decisions in the neonatal period. In consultation with experts in late TOP and neonatal palliative care at three tertiary centres, we omitted questions not relevant to our study and added new items specifically for late TOP. Subsequently we performed a cognitive testing of the questionnaire among five healthcare professionals involved in late TOP on a daily basis and residing in at least two different centres: a social nurse, a gynaecologist-prenatal diagnosis specialist, a midwife-case manager, a midwife-prenatal diagnosis counsellor and a paediatric cardiologist. Based on their advice, we adapted the questionnaire. The questionnaire (translated from Dutch to English, forward translation) is available as Supporting Information Appendix S1.

The first part of the questionnaire consisted of questions on socio-demographic characteristics (10 questions) and personal experience with late TOP (2 questions). The second part contained items on attitudes towards late TOP (13 items) and attitudes towards (law on) end-of-life decisions in neonates with a serious (ie. non-lethal) health condition (2 items). Respondents indicated whether they agreed or disagreed with these items on a 5-point Likert scale. The third part of the questionnaire examined the behavioural intentions of respondents in two specific, well-defined hypothetical cases. These cases were developed by two experts in prenatal diagnosis. Differences between the two cases are specified in Box 2. Respondents indicated whether they considered the item a good option or not on a 4-point Likert scale.

Statistical analyses

We tested sociodemographic differences using Fisher's Exact Test. We dichotomised the 5-point Likert scale items into agreement ('agree' and 'totally agree'), and neutrality or disagreement ('totally disagree', 'disagree' and 'neutral') and compared the proportion of respondents agreeing between these groups with Fisher's Exact Test. We analysed the answers to different attitude statements within the same respondent group using Friedman's ANOVA and conducted posthoc analyses using a Wilcoxon signed ranks test.

Ethical considerations

This study was approved by the Ethical Committee of Ghent University Hospital on January 15, 2018 (registration number B670201731709). When a completed questionnaire was sent back, this was seen as giving consent to participation in this study.

RESULTS

A total of 169 healthcare professionals were found eligible by the representatives for filling out the questionnaire (Figure 1) Of these, 117 (69.2%) were actually handed out because of longterm absence of the others (maternity leave, longterm illness, etc.). The response rate was 78.6% (92/117).

Socio-demographic and professional characteristics of study participants

Table 1 shows the socio-demographic characteristics, professional activity and professional experience in the last 12 months of the study participants. Half of the respondents were physicians (51.1%). All paramedical professionals and 70.2% of physicians were female. The male respondents (29.8%) were all physicians. Sixty-two percent of respondents indicated a religious life stance (Roman Catholic, Islamic or other) and 38.0% are either humanist or not religious; 16.7% states that their life stance plays a role in their professional decisions and this percentage was comparable in religious and non-religious respondents. About half of the professionals had between 5 and 20 years professional experience.

Attitudes of healthcare professionals towards late TOP

Almost all healthcare professionals (97.8%) agree that late TOP should be discussed in a multidisciplinary setting (Table 2). Eighty-eight percent agrees that late TOP should be discussed with at least 1 doctor and 80.4% agrees that late TOP should be discussed with a neonatologist. A smaller majority (62.6%) agrees that the decision should be discussed with an ethical committee.

Nearly all healthcare professionals (98.9%) disagree that late TOP should be prohibited in all cases. Where the foetus is healthy, 19.8% of health professionals agrees with late TOP for maternal psychological problems and fewer respondents (13.2%, $p=0.002$) agree with late TOP in

case of maternal socio-economic problems. All respondents agree with late TOP in case of a lethal foetal condition, compared to 95.6% in case of a serious (but not lethal) foetal condition ($p=0.06$).

Healthcare professionals with a religious life stance less often agreed with late TOP in the case of maternal socio-economical problems (5.3%) than healthcare professionals with a humanist or atheist life stance (26.5%) ($p=0.004$, data not shown).

Most healthcare professionals prefer foeticide above palliative care, in both lethal foetal conditions (57.8%) as in non-lethal foetal conditions (65.9%) ($p=0.065$). A larger proportion of physicians prefers foeticide over neonatal palliative care in case of a serious non-lethal foetal condition, compared to a lethal foetal condition (68.1% and 53.2% respectively, $p=0.013$). This difference is not present among paramedical professionals. Comparing different foetal conditions, fewer healthcare professionals think that parents should be given the choice between palliative care and foeticide in case of a serious than in a lethal foetal condition (85.9% and 97.8% respectively, $p=0.001$). This difference is greater among physicians (83% and 97.9% respectively, $p=0.011$) than among paramedical professionals (88.9% and 97.8% respectively, $p=0.046$). A majority of respondents (83.3%) agree that the decision between foeticide and palliative care should be discussed with a neonatologist in both lethal (83.3%) and non-lethal serious (84.8%) conditions.

Three-quarters of healthcare professionals agrees that late TOP numbers and indications for late TOP should be registered by the National Evaluation Committee. Of all healthcare professionals, 89.1% (93.6% of physicians) agree that in the event of a serious (non-lethal) neonatal condition, administering drugs with the explicit intention to end neonatal life is acceptable. About the same proportion (87.9%) agrees that Belgian law should be changed to make this possible.

Healthcare professionals' attitudes did not differ according to sex, age, having children, having lost a child, years of experience in their current position, life stance or professional experience on counselling parents or advising on cases (data not shown).

Behavioural intentions in specific cases

In case I (see box 2, spina bifida aperta with a clear diagnosis, predictable clinical evolution and a strong degree of suspicion of mental impairment), healthcare professionals more often consider

pregnancy termination to be a (very) good option than in case II (serious polymalformation with unclear diagnosis and uncertainty about mental impairment) (97.8% v 85.6%, $p=0.002$) (table 3). This difference is found among both paramedical professionals (95.6% v 79.1%; $p=0.02$) and physicians (100% v 91.5%; $p=0.046$). Healthcare professionals more often consider administering drugs with the explicit intention to end neonatal life to be a good option in case I than in case II (53.3% v 31.9%; $p<0.001$). Socio-demographic factors did not influence differences between case I and case II (data not shown).

DISCUSSION

Our main finding is a high acceptance of late TOP among all healthcare professionals involved in late TOP practice in Flanders, Belgium; differences in attitudes regarding acceptability and method of late TOP are mainly related to the severity of the foetal indication, irrespective of socio-demographic factors. Behavioural intentions indicate that even in situations with unclear diagnosis and unpredictable prognosis, a majority of professionals would consider late TOP.

Healthcare professionals involved in late TOP decision-making demonstrate high acceptance of late TOP for serious or lethal fetal conditions. We only found a difference in attitudes towards late TOP between healthcare professionals with and without religious life stances in the case of TOP for maternal socio-economical problems. Other studies usually found larger differences related to more factors, both socio-demographic and professional(16). This finding might have three possible explanations. Firstly, it is possible that only professionals who consider late TOP to be acceptable are professionally involved in late TOP practice. Secondly, Belgian legislation requires the cooperation of a second physician, but does not elaborate on which physicians should be involved which might result in seeking the cooperation of healthcare professionals who are likely to consent. Thirdly, Flemish health professionals may have developed a shared moral framework, due to years of working together in late TOP practice. All but one centres use a multidisciplinary approach, consistent with previous studies(32-34), but an ethical committee is the least preferred option.

Respondents show a higher acceptance of late TOP for foetal malformations than for maternal (psychological and socio-economical) problems, which is consistent with the

literature(15, 25, 32, 33). Although Belgian law specifically states ‘physical and mental health’, healthcare professionals often narrow this down to ‘maternal physical health’. Previous studies found a high acceptance of late TOP for cases with foetal mental impairment(17, 35). To date, ethical acceptance of late TOP has been suggested in the case of 1) certainty of diagnosis and 2) a lethal or seriously cognitively impaired outcome(36, 37). The latter is confirmed by our study, but nevertheless a vast majority of Flemish professionals also consider late TOP a valuable option in the case of unclear mental impairment. This finding is discrepant with other studies(25, 33, 35) and illustrates the broad consensus among Flemish practitioners. Possibly, Flemish healthcare professionals involved in late TOP do not consider the absence of mental impairment as a criterion for physical, emotional and psychological wellbeing.

The majority of respondents believe that the choice between foeticide and neonatal palliative care should be discussed with parents in cases of foetal lethality, although two out of three personally prefer foeticide. This might reflect a perceived more demanding support for the couple in the case of a dying neonate than in the case of a stillborn foetus. In non-lethal foetal conditions, physicians more often prefer foeticide over neonatal palliative care compared to paramedical professionals. Perhaps our finding reflects the possible consequences for physicians in Belgium in the case of a seriously ill neonate who is not dying: actively ending neonatal life is never permitted, not even in a hopeless situation, whereas there are no legal provisions on ending foetal life. This Belgian ‘legal vacuum’ might cause a ‘shift’ towards late TOP, because Flemish physicians might prefer not to take any risks of arriving in a stalemate situation after birth. Paramedical professionals are less confronted with this difficulty. The fact that nine out of ten respondents would consider terminating neonatal life in serious, non-lethal conditions and want Belgian law to be changed to facilitate this, supports this theory.

Respondents’ behavioural intentions in two cases confirm the abovementioned findings and again emphasize discrepancies between professionals’ opinions regarding late TOP and late TOP legislation, which is also found in other studies(13, 31). Our study suggests that healthcare professionals practicing late TOP are in favour of a transparent agreement on active life-ending in both the foetal and neonatal period, consistent with our previous study in neonatologists(31).

A strength of this study is that it maps the attitudes towards late TOP of all healthcare professionals practicing late TOP in tertiary prenatal and neonatal centres, considering all roles in the decision-making process (counselling parents or providing policy advice) and socio-

demographic factors. We obtained a high response rate of 79%. Possible reporting bias was minimized through the anonymization procedure as respondents might be more likely to reveal their true attitudes in this way.

Although we obtained a high response rate of 79% (92/117), a considerable proportion of eligible health care professionals (52/169, 31%) could not be reached because of long-term absence which is a limitation of this study. Consequently, we may have a partial and biased view of the entire target population. Nevertheless, we collected data among over half of the entire target population, which is acceptable in comparison to other survey studies. We do not have any information on non-respondents. For ethical reasons we were not allowed to correlate the findings in this study with professionals' actual behaviour in daily practice.

To avoid any possibility of reidentification of participants we were also not allowed by the Ethical Committee to compare participant characteristics, attitudes and behavioural intentions between the participating centres.

CONCLUSION

All participating healthcare professionals involved in late TOP practice in Flanders, Belgium demonstrated a homogeneous, supportive attitude towards late TOP, even in less clear-cut situations. Acceptance of late TOP for a serious maternal psychological problem in case of a healthy foetus is however lower. Acceptance of late TOP and whether or not foeticide should be discussed or performed is highly dependent on the indication and should therefore be discussed across (para-medical) disciplines. Despite the high degree of freedom in late TOP decision-making, most practitioners share the opinion that the law should be changed in order to facilitate neonatal end-of life decisions in serious conditions. This is a consideration that Belgian legislators should explore. Further research should investigate the correlation of attitudes towards late TOP with actual medical decisions taken in daily clinical practice.

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8 **Supporting Information legend**

9
10 Appendix S1. English version of the questionnaire Attitudes of Professional Caregivers Towards
11 End-Of-Life Decisions During Pregnancy and for Newborn Children (Neonates) -2018.

1 **BOX 1 - Belgian Law**

2 **LAW ON VOLUNTARY PREGNANCY TERMINATION**

3 ART 2 – The pregnant woman is allowed to ask a doctor for pregnancy termination for any reason
4 under the following conditions:

5 1° Pregnancy termination should be done

- 6 a) before 12 postconceptional weeks;
- 7 b) with use of appropriate medical techniques.

8 2° The doctor should

- 9 a) inform the woman of immediate and future medical risks;
- 10 b) inform her of possible alternatives to pregnancy termination;
- 11 c) ascertain the firm will of the woman.

12 3° Unless for an urgent medical reason, **6 days** should pass between first contact and pregnancy
13 termination except in the case of an urgent medical reason or first contact later than 11 1/7
14 postconceptional weeks.

15 4° The woman should give **written consent** on the day of the pregnancy termination.

16 5° After 12 postconceptional weeks, pregnancy can only be terminated

- 17 - when continuing the pregnancy is a serious threat to the health of the woman
- 18 - OR if the child to be born suffers from a very serious condition considered incurable at
19 the time of diagnosis

20 In this case, pregnancy termination should be performed under the same conditions as described in
21 2°-4° and with the written cooperation of a second doctor.

22 **LAW ON ESTABLISHMENT OF COMMITTEE FOR EVALUATION OF LAW**

23 A National Evaluation Committee on practice of abortion law must be established (...).

24 This committee must prepare a bi-annual report on (a) statistical data of the law; (b) a report on
25 the daily practice and evolution of practice of the law; (c) recommendations to diminish the
26 number of abortions.

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BOX 2 – Comparison of two hypothetical clinical cases		
	CASE I: SPINA BIFIDA APERTA	CASE II: POLYMALFORMATION
Final diagnosis	Clear and obvious	Unclear; combination of different, all separately treatable but severe malformations
Clinical evolution	Clear	Unclear as diagnosis is unclear
Mental impairment	Strongly suspected	Unpredictable but possible

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Figure 1. Recruitment flow chart

Table 1. Sociodemographic characteristics, professional experience in last 12 months and professional activity of study participants

	All health care professionals N = 92		Paramedical professionals n = 45		Physicians n = 47		P-VALUE ^c
	n	%	n	%	n	%	
Sex							<0.001
male	14	15.2	0	0.0	14	29.8	
female	78	84.8	45	100	33	70.2	
Age							0.005
<30 years	8	8.7	8	17.8	0	0.0	
30-39 years	28	30.4	12	26.7	16	34.0	
40-49 years	25	27.2	8	17.8	17	36.2	
50 years or older	31	33.7	17	37.8	14	29.8	
Has children							0.64
no	25	27.2	11	24.4	14	29.8	
yes	67	72.8	34	75.6	33	70.2	
Lost a child							0.47
no	70	76.1	36	80.0	34	72.3	
yes	22	23.0	9	20.0	13	27.7	
Years of experience in current position							0.39
<5 years	21	22.8	10	22.2	11	23.4	
5-10 years	14	15.2	7	15.6	7	14.9	
11-20 years	25	27.2	9	20.0	16	34.0	
>20 years	32	34.8	19	42.2	13	27.70	
Religion or philosophy							0.07
Roman Catholic	48	52.2	29	64.4	19	40.4	
Islamic	1	1.1	1	2.2	0	0.0	

Religious, NOS	8	8.7	4	8.9	4	8.5	
Humanist ^b	15	16.3	4	8.9	11	23.4	
Not religious	20	21.7	7	15.6	13	27.7	
Importance of religion or philosophy in daily life							0.60
not important	26	28.6	13	29.5	13	27.7	
not really important	33	36.3	16	36.4	17	36.2	
important	30	33.0	13	29.5	17	36.2	
very important	2	2.2	2	4.5	0	0.0	
Importance of religion or philosophy in professional decisions							>0.999
no	75	83.3	37	84.1	38	82.6	
yes	15	16.7	7	15.9	8	17.4	
Professional experience in last 12 months							
No of couples counseled							0.90
none	15	16.5	8	18.2	7	14.9	
1-4 couples	29	30.8	14	31.8	15	31.9	
5-6 couples	5	5.5	3	6.8	2	4.3	
>6 couples	42	46.2	19	43.2	23	48.9	
No of cases given positive or negative advice on							0.001
none	34	37.0	25	55.6	9	19.1	
<10 cases	31	33.7	14	31.1	17	36.2	
10-30 cases	21	22.8	5	11.1	16	34.0	
> 30 cases	6	6.5	1	2.2	5	10.6	
Professional activity							
Paramedical professionals							NA

Physicians	social nurse	4	4.3	
	midwife	30	32.6	
	genetic counsellor	2	2.2	
	spiritual counsellor	2	2.2	
	psychologist	6	6.5	
	other, NOS	1	1.1	
				NA
	gynaecologist		32	34.8
	paediatrician		6	6.5
	organ specialist		1	1.1
	geneticist		3	3.3
	resident in training paediatrics		1	1.1
	surgeon		2	2.2
	radiologist		1	1.1
	urologist		1	1.1

Abbreviations: NOS: Not Otherwise Specified, NA: not applicable

^a p-values calculated with Fisher's Exact Test for differences in sociodemographic and professional characteristics between physicians and paramedical professionals

^b a person who believes in humanism (= the idea that people do not need a god or religion to satisfy their spiritual and emotional needs)(38)

Table 2. Attitudes of healthcare professionals towards late termination of pregnancy (TOP) and neonatal end-of-life decisions

ATTITUDE STATEMENT	All health care professionals (N = 92)				Paramedical professionals (n = 45)	Physicians (n = 47)	p-value
	Disagree n (%)	Neutral n (%)	Agree n (%)	p-value	Agree n (%)	Agree n (%)	
TOP at viable stage must be discussed				<0.001 ^a			
with at least 1 other physician	6 (6.6)	5 (5.5)	80 (87.9)		38 (86.4)	42 (89.4)	0.75 ^c
with a neonatologist	8 (8.7)	10 (10.9)	74 (80.4)		36 (80.0)	38 (80.9)	>0.99 ^c
in a multidisciplinary setting	0 (0.0)	2 (2.2)	89 (97.8)		44 (97.8)	46 (97.9)	>0.99 ^c
by an ethical committee	19 (20.9)	15 (16.5)	57 (62.6)		30 (66.7)	28 (59.6)	0.52 ^c
TOP at viable stage must be totally prohibited	91 (98.9)	1 (1.1)	0 (0.0)	<0.001 ^a	0 (0.0)	0 (0.0)	NA
If the foetus is healthy, TOP at viable stage is acceptable in case of:				0.002 ^b			
a serious maternal psychological problem	64 (70.3)	9 (9.9)	18 (19.8)		10 (22.2)	8 (17.4)	0.61 ^c
a serious maternal socio-economic problem	72 (79.1)	7 (7.7)	12 (13.2)		7 (15.6)	5 (10.9)	0.55 ^c
If the mother is healthy, TOP at viable stage is acceptable in case of:				0.06 ^b			
a lethal foetal condition	0 (0.0)	0 (0.0)	91 (100)		44 (100)	47 (100)	NA
a serious foetal condition	1 (1.1)	3 (3.3)	87 (95.6)		42 (95.5)	45 (95.7)	>0.99 ^c
Foeticide is to be preferred to palliative care				0.06 ^b	p-value 0.75 ^b	p-value 0.013 ^b	
in the case of a lethal foetal condition	6 (6.7)	32 (35.6)	52 (57.8)		27 (62.8)	25 (53.2)	0.40 ^c

in the case of a serious foetal condition	3 (3.3)	28 (30.8)	60 (65.9)		28 (63.6)	32 (68.1)	0.67 ^c
Foeticide and palliative care should be discussed with parents				0.001 ^b	p-value 0.046 ^b	p-value 0.011 ^b	
in the case of a lethal foetal condition	0 (0.0)	2 (2.2)	89 (97.8)		44 (97.8)	46 (97.9)	>.99 ^c
in the case of a serious foetal condition	10 (10.9)	3 (3.3)	79 (85.9)		40 (88.9)	39 (83.0)	0.55 ^c
Feticide and palliative care should be discussed with a neonatologist				0.89 ^b	p-value 0.86 ^b	p-value >0.99 ^b	
in the case of a lethal foetal condition	8 (8.9)	7 (7.8)	75 (83.3)		36 (81.8)	39 (84.8)	0.78 ^c
in the case of a serious foetal condition	10 (11.0)	3 (3.3)	78 (84.8)		37 (84.1)	41 (87.2)	0.77 ^c
The national evaluation committee should register				>0.99 ^a			
numbers of TOP	7 (7.6)	16 (17.4)	69 (75.0)		34 (75.6)	35 (74.5)	>0.99 ^c
indications for TOP	7 (7.6)	16 (17.4)	69 (75.0)		34 (75.6)	35 (74.5)	>0.99 ^c
For newborn children presenting a serious condition it is, in certain cases, acceptable to actively terminate life							
	6 (6.5)	4 (4.3)	82 (89.1)		38 (84.4)	44 (93.6)	0.19 ^c
The law should be revised so as to allow active termination of life of a newborn child presenting a serious condition in certain cases							
	3 (3.3)	8 (8.8)	80 (87.9)		39 (86.7)	41 (89.1)	0.76 ^c

^a p-values calculated with Friedman's ANOVA to compare answers on all similar statement types within all health care professionals

^b p-values calculated with Wilcoxon signed ranks test to compare answers on two similar statement types within one respondent group (all professionals, paramedical professionals or physicians)

^c p-values calculated with Fisher's Exact test to compare answers on one item between paramedical professionals and physicians

NA: calculation not applicable (outcome variable is constant)

Table 3. Behavioural intentions of healthcare professionals towards prenatal end-of-life decisions in specific cases

BEHAVIOURAL INTENTION	All healthcare professionals (N = 92)			Paramedical professionals (n = 45)	Physicians (n = 47)	p-value ^c
	no or less good option	(very) good option	p-value ^b	(very) good option	(very) good option	
	n (%)	n (%)		n (%)	n (%)	
treatment during pregnancy						
case Ia	65 (70.7)	27 (29.3)		14 (31.1)	13 (27.7)	0.82
case IIa	NA	NA		NA	NA	
termination of pregnancy			0.002	0.02 ^b	0.046 ^b	
case Ia	2 (2.2)	90 (97.8)		43 (95.6)	47 (100)	0.24
case IIa	13 (14.4)	77 (85.6)		34 (79.1)	43 (91.5)	0.13
neonatal life-prolonging treatment			0.59	0.317 ^b	1.000 ^b	
case Ia	65 (72.2)	25 (27.8)		11 (25.0)	14 (29.8)	0.64
case IIa	62 (68.1)	29 (31.9)		14 (31.8)	15 (31.9)	>.99
non-treatment with co-intention to end life						
case Ia	58 (63.0)	34 (37.0)		17 (37.8)	17 (36.2)	>.99
case IIa	NA	NA		NA	NA	
non-treatment with explicit intention to end life						
case Ia	57 (62.0)	35 (38.0)		18 (40.0)	17 (36.2)	0.83
case IIa	NA	NA		NA	NA	
drug administration with co-intention to end life						
case Ia	43 (47.3)	48 (52.7)		22 (48.9)	26 (56.5)	0.53

	case IIa	NA	NA		NA	NA	
drug administration with explicit intention to end life				<0.001	0.002 ^b	0.004 ^b	
	case Ia	43 (46.7)	49 (53.3)		22 (48.9)	27 (57.4)	0.53
	case IIa	62 (68.1)	29 (31.9)		12 (27.3)	17 (36.2)	0.38

NA: questions not applicable for case II according to expert evaluation

acase I : severe spina bifida with clear diagnosis and prognosis; case II : polymalformation with unclear diagnosis and prognosis

^b p-values calculated with Wilcoxon signed ranks test to compare two similar statement types within one respondent group (all professionals, paramedical professionals or physicians)

^c p-values calculated with Fisher's Exact test to compare one item between paramedical professionals and physicians