

Patient Preferences With Regard to Care Structures for Cervical or Vulvar Dysplasia in Certified Dysplasia Clinics in Germany

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Abstract. *Background/Aim:* The aim of this study was to evaluate patient preferences regarding cervical dysplasia clinics. Specifically, preferences in terms of diagnostic and therapeutic pathways as well as logistical and structural aspects were addressed to recognize unmet needs and improve existing structures of cervical dysplasia care. *Patients and Methods:* This questionnaire-based study was conducted between June and December 2022 at an academic medical center in Southwestern Germany. A total of 226 patients who had an appointment at the certified dysplasia clinic were included. *Results:* The vast majority of patients (74.8%) preferred counseling at the certified dysplasia clinic in the case of an abnormal finding of the cervix or labia. A prompt appointment (within a maximum of 4 weeks), a timely notification about test results (within a maximum of 2 weeks), a travel time <60 minutes and seeing the same doctor during follow-up appointments were recognized as important aspects. While about half of the patients (53.5%) were indifferent to the sex of the gynecologist, almost all of the remaining patients stated they would prefer to be seen by a female doctor (44.3% female doctor vs. 2.2% male doctor). *Conclusion:* Most women expect very timely appointments

and result notifications. Moreover, they favor short travel times and continuity of care. The identified patient preferences should be considered to increase patient satisfaction and quality of care when developing and optimizing management at specialized dysplasia clinics.

Almost 50 years after the introduction of an annual opportunistic cytology screening for cervical cancer in Germany, a nationwide organized screening program was implemented in January 2020. According to the age-dependent screening algorithm, women ≥ 35 years should be screened by human papilloma virus (HPV) testing combined with cytology every 3 years. Importantly, women with negative cytology (Pap I) and a repeatedly positive HPV test (confirmed in re-screening 12 months after the original test) should now be referred for colposcopy within 3 months (1). As a result, the need for appointments at dysplasia clinics for clarification colposcopy has increased significantly over the past 2 years, since this new group of HPV-positive patients is of considerable size and competes for appointments with patients regularly referred because of suspicious clinical and cytological findings. On the one hand, hospital-based outpatient dysplasia clinics are generally available for these examinations (2, 3). On the other hand, there are more and more primary gynecologists in private practices who offer a colposcopy examination to address this increasing demand.

Both the consideration of patient views and the concept of shared decision-making have gained increasing significance in diagnostics and therapy in recent decades and will be the central element of modern and individualized patient-centered medicine (4-7). Data from numerous studies underline the importance of patient preferences to determine individual diagnostic and therapeutic approaches, enhance compliance and leave patients more satisfied with healthcare-associated decisions across all fields of medicine. For example, in recent years, women's desire to participate in

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decisions related to their own pregnancy and delivery has become much more prominent (4-6). Moreover, choice of anticancer and chemotherapy regimens have changed fundamentally, with the involvement of patients and following the recognition that patient preferences and shared decision-making contribute significantly to successful therapeutic pathways (8, 9). The importance of the sex of the gynecologist providing care has also changed over time and plays a crucial role for some women (10).

The aim of this study was to evaluate patient preferences regarding cervical dysplasia clinics. Specifically, preferences in terms of diagnostic and therapeutic pathways, as well as logistical and structural aspects, were addressed in this questionnaire-based survey to recognize unmet needs and improve existing structures of cervical dysplasia care.

Patients and Methods

After approval by the Ethics Committee II of Heidelberg University, Medical Faculty Mannheim (2022-610) and obtaining informed consent, a 28-item survey was distributed to 226 patients who had an appointment in the certified dysplasia clinic at the Department of Gynecology and Obstetrics of the University Medical Centre Mannheim, Germany, between June and December 2022. Participants received a self-administered questionnaire on sociodemographic factors such as age, weight, relationship status, number of children, reason for appointment, HPV vaccination status and previous surgery on the *cervix uteri*. Moreover, the questionnaire contained 14 questions on preferences regarding treatment at a certified dysplasia clinic, such as logistics, waiting time, notification of findings, appointment allocation, equipment, treatment by the same doctor, preferred sex of the physician and level of information regarding HPV. The only exclusion criterion was a relevant language barrier precluding a patient from understanding and completing the questionnaire, resulting in a response rate >95%.

Statistical analysis. For qualitative factors, absolute and relative frequencies are given. For quantitative variables (e.g., age), the mean value and standard deviation were reported. For discrete variables (e.g., *gravida* or *para*), the median and range are presented. In order to compare two or three groups regarding a qualitative factor, Fisher's exact test was used. For comparing two mean values (e.g., regarding age) two-sample *t*-test was performed. Spearman's correlation coefficient was calculated to quantify the strength of the association between two quantitative variables. In general, the result of a statistical test was considered as significant for values of $p < 0.05$. For all statistical calculations, SAS software, release 9.4 (SAS Institute, Cary, NC, USA) was used.

Results

In total, 226 women participated in our study. The mean age of the included women was 47.7 ± 13.2 years. Half of the participants (50.9%) reported that it was their first visit to the dysplasia clinic, the other half (49.1%) stated that they had visited at least once before. Within the group of women with repeated visits, the majority (53.2%) reported one or two previous visits, however, a

Table I. Patient characteristics (n=226).

Characteristic		Value
Age, years	Mean±SD	47.7±13.2
BMI, kg/m ²	Mean±SD	25.4±6.3
Gravida, n	Median (range)	2 (0-10)
Para, n	Median (range)	1 (0-7)
Marital status, n (%)	Single	29 (12.8%)
	Married	102 (45.1%)
	Domestic partnership	50 (22.1%)
	Divorced	30 (13.3%)
	Widowed	15 (6.6%)
Currently working, n (%)	Yes	161 (71.2%)
	No	65 (28.8%)
First visit to a dysplasia clinic, n (%)	Yes	115 (50.9%)
	No	111 (49.1%)
	1-2 Previous visits	59 (53.2%)
	3-9 Previous visits	43 (38.7%)
	>10 Previous visits	9 (8.1%)
Reason for visit, n (%)	Abnormal Pap smear	78 (34.5%)
	Vulvar disease	43 (19.0%)
	Positive HPV test	54 (23.9%)
	Positive HPV test and suspicious Pap smear	51 (23.6%)
	Previous cervical surgery, n (%)	Yes
	No	187 (82.7%)
Sexual partners in the previous 5 years, n	<3	196 (86.7%)
	4-10	26 (11.5%)
	>10	4 (1.8%)
HPV vaccination status	Vaccinated	29 (12.8%)
	Not vaccinated	180 (79.7%)
	Unknown	17 (7.5%)
HPV test performed in the past	Yes	146 (64.6%)
	No	35 (15.5%)
	I do not know	45 (19.9%)

minority of the women (8.1%) had attended the dysplasia clinic 10 times or more. According to the patients, the most frequent reason for an appointment was an abnormal Pap smear (34.5%), followed by a positive HPV test alone (23.9%), the combination of a positive HPV test and an abnormal Pap smear (23.6%) and the occurrence of vulvar disease (19.0%). Further demographic, medical and obstetrical characteristics are shown in Table I.

The results of the questionnaire concerning patient preferences with regard to care structures are listed in Table II. When asked whether they would prefer their primary gynecologist to perform a colposcopy, 42.9% of the women stated that they were indifferent, 33.2% reported that they would prefer this and 23.9% that they would not. Regarding the preference of having the primary gynecologist perform the respective outpatient surgery, only 17.7% wished to be treated by their gynecologist, while the majority of the participants (52.6%) would rather have surgery at a dysplasia clinic. The vast majority of respondents (74.8%) stated that in the case of an abnormal Pap smear or condition affecting the labia, they would prefer to receive counseling at a certified dysplasia clinic, only 9.7% of the women favored consulting their primary gynecologist.

Getting a prompt appointment was important to 87.6% of the patients, with more than half of the women (53.5%) preferring their

Table II. Patient preferences with regard to care structures (n=226).

Item	Response	Frequency n (%)
Primary gynecologist preferred to perform colposcopy?	Yes	75 (33.2%)
	Indifferent	97 (42.9%)
	No	54 (23.9%)
Primary gynecologist preferred to perform outpatient surgery due to precancerous lesion?	Yes	40 (17.7%)
	Indifferent	67 (29.7%)
	No (dysplasia clinic preferred)	119 (52.6%)
In case of abnormal Pap smear or condition affecting the labia, counseling at certified dysplasia clinic preferred?	Yes	169 (74.8%)
	Indifferent	35 (15.5%)
	No (gynecological practice preferred)	22 (9.7%)
Importance of prompt appointment at dysplasia clinic in the case of abnormal Pap smear/condition affecting the labia?	Important	198 (87.6%)
	Indifferent	28 (12.4%)
	Not important	0 (0%)
Preferred appointment date?	Within 14 days	121 (53.5%)
	Within 4 weeks	80 (35.4%)
	Within 3 months	25 (11.1%)
Travel time (one-way) acceptable for an appointment at a certified dysplasia clinic?	<30 Minutes	107 (47.4%)
	30-60 Minutes	94 (41.6%)
	>60 Minutes	25 (11.1%)
Preferred sex of gynecologist at dysplasia clinic?	Female	100 (44.3%)
	Male	5 (2.2%)
	No preference	121 (53.5%)
Importance of treatment by the same doctor at dysplasia clinic?	Important	170 (75.2%)
	Indifferent	44 (19.5%)
	Unimportant	12 (5.3%)
Importance of opportunity to watch colposcopy on a screen?	Important	97 (42.9%)
	Indifferent	102 (45.1%)
	Explicitly not desired	27 (12.0%)
Expectation of notification about test results	Within 1 week	137 (60.6%)
	Within 2 weeks	85 (37.6%)
	Within 4 weeks	4 (1.8%)
Preferred communication channel for test result notification? (multiple answers possible)	Telephone call	153 (67.7%)
	Email/web portal	57 (25.2%)
	Letter	33 (14.6%)
	Separate appointment at the clinic	26 (11.5%)
Feeling sufficiently informed about HPV?	Yes	115 (50.9%)
	No	111 (49.1%)
Source of information about HPV? (multiple answers possible)	Gynecologist	137 (60.6%)
	Dysplasia clinic	42 (18.6%)
	Internet/media	115 (50.9%)
	None	28 (12.4%)

HPV: Human papillomavirus; SD: standard deviation.

appointment to be scheduled within 14 days. Concerning the importance of a prompt appointment, participants who would request timely scheduling were significantly younger compared to those who were indifferent towards the date of the appointment (46.8±12.6 years vs. 53.9±15.8 years, $p=0.0307$). Regarding the one-way travel time, 47.4% indicated that they were only willing to accept a travel time <30 minutes; 41.6% of the patients responded that 30-60 minutes would be a tolerable time interval and only 11.1% would accept a travel time >60 minutes. There was a weak, yet significant negative correlation between the patients' age and the accepted travel time (Spearman's correlation coefficient, $\rho=-0.146$, $p=0.0285$). A narrow majority of the patients (53.5%) had no preference regarding the sex of the gynecologist, a female physician was favored by 44.3%, and a male physician by only 2.2% of the respondents.

Women who preferred treatment by a female physician were significantly older than those who were indifferent or preferred a male physician (49.9±14.5 years vs. 45.9±11.9 years, $p=0.0257$). Three-quarters of patients (75.2%) reported that it was important to them to see the same physician in the case of multiple appointments, 19.5% stated they were indifferent, and only 5.3% responded that continuity regarding the care provider was not important to them. Concerning the opportunity to watch the colposcopic examination on a screen, participant responses were divided relatively evenly between "important" (42.9%) and "indifferent" (45.1%), the remaining minority of women (12.0%) stated that they would prefer not to be able to see the colposcopy on screen.

Timewise, 60.6% of the patients indicated they would expect to be notified about the test results within 1 week, 37.6% within 2

Table III. Ranking of importance of various logistical and structural aspects. The percentages refer to the columns.

Aspect	Ranking					Mean±SD
	1st	2nd	3rd	4th	5th	
Prompt appointment	109 (48.2%)	63 (27.9%)	38 (16.8%)	11 (4.9%)	5 (2.2%)	1.8±1.0
Prompt notification of test results	52 (23.0%)	83 (36.7%)	54 (23.9%)	32 (14.2%)	5 (2.2%)	2.4±1.1
Short on-site waiting time	27 (11.9%)	44 (19.5%)	61 (27.0%)	78 (34.5%)	16 (7.1%)	3.1±1.1
Modern equipment/facilities	34 (15.0%)	29 (12.8%)	57 (25.2%)	75 (33.2%)	31 (13.7%)	3.2±1.3
Good parking facilities or public transportation access	4 (1.8%)	7 (3.1%)	16 (7.1%)	30 (13.3%)	169 (74.8%)	4.6±0.9

SD: Standard deviation.

weeks and only 1.8% within 4 weeks. There was no significant correlation between the patient’s age and the expected time interval until notification about test results (Spearman’s correlation coefficient $\rho = -0.018$, $p = 0.7863$). The preferred way of communication of the test results was *via* telephone call (67.7%), followed by email/web portal (25.2%), letter (14.6%) and separate appointment at the clinic (11.5%).

The final questions addressed the patients’ level of information about HPV. While half of the women (50.9%) responded they felt sufficiently informed about HPV, the other half (49.1%) stated they did not. Information was most frequently obtained from the primary gynecologist (60.6%) or the internet/media (50.9%), and, to a lesser extent, from the dysplasia clinic (18.6%). Only a minority of respondents (12.4%) stated they did not search for information by themselves.

The greatest importance was attributed to a prompt appointment (1st rank 48.2%, 2nd rank 27.9%, average rank 1.8±1.0), while good parking facilities/accessibility by public transportation was rated as least important (1st rank 1.8%, 2nd rank 3.1%, average rank 4.6±0.9). A prompt notification of test results, a short waiting time on site and modern equipment/facilities were ranked of medium importance (average ranks 2.4±1.1, 3.1±1.1 and 3.2±1.3) (see Table III).

Women who preferred to receive treatment at a certified dysplasia clinic desired a prompt appointment significantly more often ($p = 0.0010$), but were also willing to accept longer travel times significantly more often ($p = 0.0066$). There was no significant association between the preference for receiving treatment at a certified dysplasia clinic and the expected interval until receiving the test result ($p = 0.4790$). No significant association was found between the preference for receiving treatment at a certified dysplasia clinic and the importance of the opportunity to watch the colposcopic examination on a screen ($p = 0.4395$) (see Figure 1).

Discussion

We aimed to elicit patient preferences regarding structural and logistical aspects of their management at dysplasia clinics in Germany. Overall, a prompt appointment (within 4 weeks) and quick notification about the test results (within a maximum of 2 weeks), as well as a travel time <60 minutes, were identified as relevant factors. The large majority of patients preferred counseling at a certified

institution in the case of suspicious findings and seeing the same doctor at follow-up appointments.

Since 2014, in Germany there has been a uniform certification system for dysplasia clinics jointly operated by the German Cancer Society (Deutsche Krebsgesellschaft e. V.), the Working Group for Gynecological Oncology (Arbeitsgemeinschaft Gynäkologische Onkologie e. V.), the Working Group on Cervical Pathology and Colposcopy (Arbeitsgemeinschaft Zervixpathologie & Kolposkopie) and the German Society for Gynecology and Obstetrics (Deutsche Gesellschaft für Gynäkologie und Geburtshilfe e. V.). Depending on the fulfillment of various certification requirements (case numbers, medical expertise, scientific reputation, complexity of the auditing process, interdisciplinary cooperation), a distinction is made between dysplasia units and dysplasia consultations (2). As of December 31, 2021, there were 39 certified dysplasia units and 247 dysplasia consultations in Germany (11). According to the German S3-guideline on the prevention of cervical cancer issued by the German Society for Gynecology and Obstetrics and the German Cancer Society, diagnostic colposcopies for further clarification of abnormal cytological findings must be carried out at a dysplasia unit or dysplasia consultation, certified as mentioned above, and should be performed within 3 months (12). In line with the certification requirements, dysplasia units should see patients with severe findings (suspected malignancy or Pap IVb or pregnant women with Pap IVa and worse) within four weeks (13). Furthermore, women with negative cytology but a repeatedly positive HPV test in re-screening after 12 months should be referred for colposcopy within 3 months (1). These recommendations have resulted in an increasing demand for prompt appointments at certified institutions. Consistent with the recommendations above, the great majority of our respondents (74.8%) preferred to receive counseling at a dysplasia clinic in the case of an abnormal Pap smear or condition affecting the vulva. Only 9.7% of the women stated they would rather consult their primary gynecologist, whilst 15.5% indicated they were indifferent to this issue.

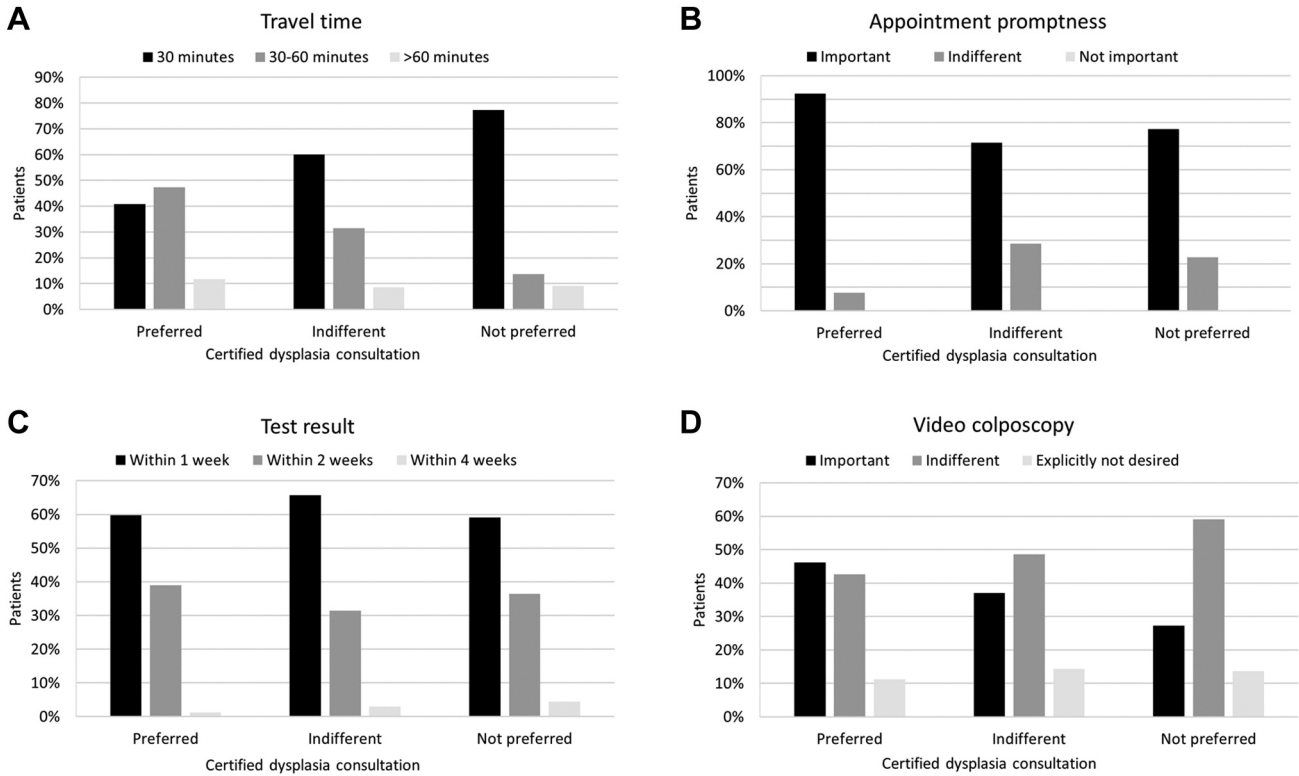


Figure 1. Association between the preference for receiving treatment at a certified dysplasia consultation and acceptable travel time ($p=0.0066$) (A), importance of a prompt appointment ($p=0.0010$) (B), the expected waiting period to receive the test result ($p=0.4790$) (C) and the importance of watching the colposcopic examination on a screen ($p=0.4395$) (D).

According to the answers of the women surveyed within our study, appointments should take place even sooner than the recommendations specify. Only 11.1% of the women preferred an appointment within the time interval recommended by the S3 guideline, *i.e.*, 3 months, the remainder requested an appointment within 4 weeks (35.4%) or even 14 days (53.5%). It is worth noting that a prompt appointment was ranked of highest importance of all considered logistical and structural aspects by the largest proportion of respondents (48.2%). Our findings are in line with an Australian study addressing the waiting time for a colposcopic examination which reported a discrepancy between the actual and preferred waiting time. For example, while 73% of the patients stated that they would expect an appointment within 1 to 4 weeks, only 47% of the patients were seen within that time interval. As many as 38% had to wait for more than 8 weeks until their colposcopy but only 4% believed they should wait that long (14). Women who preferred treatment at a dysplasia clinic requested a prompt appointment significantly more often ($p=0.0010$), possibly as an expression of the perceived seriousness of the abnormal findings needing further clarification. Consistent with this, 43% of the patients with an abnormal smear result in a

British study were moderately or very worried that their condition could worsen during the time waiting for the colposcopy appointment (15). Following a prompt appointment, a short on-site waiting time was on average rated as the second most important structural aspect in our study. According to a Dutch study, women who subjectively experienced the waiting time as short had significantly lower anxiety scores compared to those who perceived the waiting time as long (16). Therefore, to increase patient satisfaction and minimize feelings of anxiety and distress, a prompt appointment allocation and a short on-site waiting time seem to be beneficial.

Even though the numbers of dysplasia units and dysplasia consultations in Germany have almost doubled during the past 5 years (from 23 units in 2016 to 39 in 2021 and from 140 consultations in 2016 to 247 in 2021), a visual analysis of their geographical distribution reveals substantial urban-rural disparities (17, 18). In our study, only 11.1% of the women were willing to accept travel times >60 minutes. Almost half of the women (47.4%) even desired a travel time <30 minutes. As one may expect, there was a significant correlation between the travel time deemed acceptable and the preference of receiving treatment at a certified dysplasia

clinic ($p=0.0066$). While such short travel times can be ensured for those living in urban agglomerations, women from more sparsely populated rural regions (especially in Northern and North-Eastern Germany) face longer travel times more often. A recently published study described a significant inverse correlation between provider density and incidence of cervical cancer, proportion of women diagnosed with advanced-stage disease and cervical cancer-related mortality (19). Furthermore, it has been observed that women residing in rural areas face both significantly longer travel times and travel distances to all services for cervical cancer prevention (screening, colposcopy/biopsy and excisional precancer treatment procedures) (20). To obtain better health outcomes, improving geographic accessibility to facilities providing cervical cancer screening and subsequent diagnostic procedures pose a future challenge in this regard.

Three-quarters of those who were surveyed (75.2%) indicated that it was important to them to be seen by the same doctor at every visit. Most previous studies exploring continuity of care have been conducted within the field of general medicine (21-23). In this regard, 78.8% of patients consulting a doctor at a general practice either in the UK or USA reported that it was important or very important to them to see the same doctor every time they had a health problem. This proportion is very similar to that observed within our study; however, a direct comparison should only be made with caution due to the different study populations. Importantly, treatment by a patient's regular doctor and trust in that doctor were found to be the strongest predictors of patient satisfaction (23). Turner *et al.* applied a discrete choice model to assess the relative importance of several aspects of primary care consultation (the type of professional consulted, relational continuity, informational continuity and access). In the case of a problem causing uncertainty or when needing a routine check-up, the surveyed patients preferred to wait longer in order to see a medical practitioner familiar to them. When experiencing minor or familiar symptoms, patients tended to prefer quick access at the cost of continuity. Importantly, patients seemed to consider informational continuity (*i.e.*, information about the patient's full medical history being available) as more relevant than relational continuity (defined as an ongoing therapeutic relationship between a patient and a provider). However, the authors of this study themselves expressed doubts as to the independence of these two attributes, as a familiar provider will almost certainly have access to a patient's medical history (21). Those findings suggest that besides scheduling follow-up appointments with the same doctor whenever possible, in the case of changing personnel, a thorough review of the medical records prior to seeing a patient, as well as accurate and high-quality documentation of their medical history and examination findings (ideally with the

aid of drawings/photographs), might contribute to patient satisfaction and increase quality of care.

Regarding the sex of the treating physician, slightly more than half of our patients (53.5%) had no preference, while 44.3% preferred a female and the remaining 2.2% a male gynecologist. Interestingly, our values are hardly distinguishable from the observations by Makam *et al.* investigating patient preferences in the UK, where 52% of the women had no preference concerning the gynecologist's sex, 44% favored a female and 4% a male gynecologist (24) – despite slightly different study populations (patients of the entire spectrum of gynecology/obstetric conditions *versus* only patients with dysplasia in our study). Generally however, prior publications exploring patient preferences regarding the gynecologist's sex reported divergent results, which may at least be partially explained by cultural and societal differences between the countries in which the studies were conducted. While a strong preference for female gynecologists was found particularly in Middle-Eastern countries (25-28), the majority of patients (even up to 90%) in studies from Western countries did not articulate a preference (10, 24, 29, 30). It has to be kept in mind that rather than the physician's sex, qualities such as experience, knowledge and ability are clearly much more relevant to women when selecting a gynecologist (29).

In our collective, 42.9% of the patients stated that it was important to them to watch the colposcopic procedure on a screen; 45.1% of those surveyed were indifferent, while 12.1% did not want the exam projected on screen. There was no significant association between the preference for treatment at a dysplasia clinic and the importance of video colposcopy availability. Previous studies on the impact and relevance of video colposcopy produced mixed results. While Walsh *et al.* found that the use of video colposcopy significantly reduced anxiety and pain (31), Hilal *et al.* showed that the use of video colposcopy did not reduce anxiety, pain during the examination, or general unpleasantness (32). The level of satisfaction was not different between the video and no-video group in both studies (31, 32). Interestingly, women in the video colposcopy group rated the importance of the video for their understanding of cervical disease as very high (32) and nearly all women reported a greater understanding of their condition and greater knowledge about colposcopy as a result of watching the video (31). In the study by Hilal *et al.*, watching the video neither caused nor did it reduce anxiety or discomfort (32). Contrary to these findings, Tahseen *et al.* reported that 18% of the patients felt watching their colposcopic examination on a screen increased their worry. On the other hand, 58% of the patients found video colposcopy helpful or very helpful in reducing their anxiety. The higher the anxiety level regarding colposcopy was, the lower the helpfulness of the video display was perceived (33). As personal preferences and benefit regarding video colposcopy

seem to be heterogenous, an individual approach taking into account the patient's wishes and ideas can be recommended.

Receiving a prompt notification about the test results was rated as the most or second-most important structural aspect by 59.7% of the patients included in our study. Virtually all women (98.2%) expected to be informed within a maximum of 2 weeks, 60.6% even within a week. When asked to suggest measures to reduce anxiety associated with colposcopy as part of a study by Tahseen *et al.*, the interviewed women frequently recommended an earlier notification about results and a timely colposcopy appointment (33). Considering that due to the routine processing time in a pathology laboratory, it can usually take several days until written pathology reports are available, prioritizing notifying patients as soon as possible seems advisable.

Telephone (67.7%), followed by email/online portal (25.2%) were indicated as the preferred ways of communication within our study population, while letter (14.6%) and a separate appointment at the clinic (11.5%) only played a minor role. Our results are in good agreement with findings reported in 2013 by Shultz *et al.*, in whose study notification by telephone was also the preferred communication channel – regardless of the emotional impact of the test performed (bone densitometry, herpes testing or cancer testing) and the result of the test (normal or abnormal). Interestingly, in the case of a normal finding, notification by letter was the second-most preferred medium for all tests and, in the case of an abnormal finding, an office visit. Across all test modalities, unsecured email and text message were rated as most unacceptable regardless of the result, notification *via* a secured online portal was placed in the lower midrange. There was a trend towards greater acceptance of electronic notification methods in younger patients (34). The comparatively higher preference for email/online portal in our study might be explained by the fact that patients with dysplasia are frequently rather young and that there has been a shift towards digital communication and online delivery of healthcare services since the publication of Shultz *et al.*'s study in 2013 – a trend further accelerated recently due to the Covid-19 pandemic. In a Swedish study, health-related quality of life and anxiety did not differ between women who were informed about an abnormal Pap test result either by telephone or by letter. Yet those notified *via* phone call expressed more satisfaction with the manner they were informed, were more aware of HPV and contacted healthcare services less often compared to those who received a written notification (35). Due to a different legislation, which mandates the immediate electronic availability of almost all test results, clinical notes and medication lists to patients upon their request, the vast majority of studies focusing on the impact and acceptance of online patient portals were conducted in the USA (36-39). Interestingly, nearly all respondents (including those who received abnormal results)

preferred immediate access to their results through a portal. Only 7.5% of the included patients reported that reviewing results before they were contacted by a healthcare practitioner increased worry (although increased worry was more common among patients who were notified about abnormal results than among those whose results were normal) (36). However, there is evidence that an online delivery of serious test results such as cancer or Alzheimer's is considerably less accepted (37) and that patients who received an abnormal result were more likely to experience negative emotions (39). Viewing laboratory results online on the other hand, largely caused positive emotional reactions (38). In light of these results, offering the option of accessing at least normal or low-impact test results *via* an online portal might represent a valuable addition, especially in times of limited financial and human resources.

Only half of the surveyed patients (50.9%) felt sufficiently informed about HPV, with the main sources of information being their primary gynecologist (60.6%) and internet/media (50.9%). Generally, there is a significant, albeit variable, gap of knowledge about HPV-related topics, including HPV vaccination, transmission routes and prevention strategies, as revealed by numerous studies across the world. Among others, higher education, employment and regular screening attendance were identified as factors associated with higher knowledge (40-44). As half of the patients from our study expressed feeling insufficiently informed about HPV, effective and targeted strategies to enhance HPV knowledge seem to be advisable. Utilizing the appointment at the dysplasia clinic to strengthen knowledge about HPV (for example, with the aid of an information leaflet or educational video) might constitute an easy-to-implement and low-threshold approach.

Study limitations. Finally, some potential limitations need to be considered. A weakness of our study is that we did not collect information on the severity of the condition leading to the appointment at our dysplasia clinic. It is conceivable that patients with a more severe finding or symptom request a prompter appointment or are willing to accept a longer travel time. Due to the single-center design, namely a certified dysplasia consultation at an urban university hospital with good accessibility by public transportation, the findings of this study only depict the preferences of a certain population and generalizability might be reduced.

Conclusion

This study evaluated patient preferences with regard to structural and logistical aspects of dysplasia clinics. Continuity of care, short travel times and, most pronounced, quick appointments and timely notification of results represent relevant factors. Consideration of the identified patient preferences might minimize psychological distress

due to abnormal findings needing further clarification and increase patient satisfaction and quality of care.

Conflicts of Interest

The Authors have no conflicts of interest to declare that are relevant to the content of this article.

Authors' Contributions

Project development: Marc Sütterlin and Saskia Spaich. Material preparation: Laura Berger and Saskia Spaich. Data collection: Laura Berger, Saskia Spaich and Elke Cramer. Data analysis: Christel Weiß. Article writing: Laura Berger. Article editing: Elke Cramer, Christel Weiß, Marc Sütterlin and Saskia Spaich. Supervision: Marc Sütterlin and Saskia Spaich.

Data Availability

The datasets generated and analyzed the current study are available from the corresponding author on reasonable request.

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