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# Do community pharmacies unnecessarily recommend oral emergency contraception? A nationwide mystery caller investigation in Germany

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## Background



**29 %**

of all pregnancies  
in Germany are  
unintended

[Knittel/Olejniczak 2023]



Significant burden:  
physically,  
emotionally, socially

[Herd et al. 2016,  
Matyanga/Dzingirai 2018,  
Yazdkhasti et al. 2015]



WHO recommends  
the use of an  
emergency contra-  
ceptive (EC)

[WHO 2021]

since  
**2015**

EC available without  
prescription  
over-the-counter (OTC)  
in Community  
Pharmacies [AMVV 2024]

## Background



- German Federal Chamber of Pharmacists developed recommendations for actions and counselling for pharmacists regarding EC [BAK 2021]
- A survey conducted in 2018 showed that nearly half of pharmacists dispensed EC even if the need was questionable [Said et al. 2019]

The primary aim of the study was to ascertain whether essential questions are asked by pharmacy staff and what the corresponding recommendation behaviour is for a scenario that does not include a recommendation of oral EC as an “appropriate outcome” (AO). Secondly, the potential influence of various independent variables on the AO was assessed.





# Methods



## Design



- Cross-sectional study
  - Simulated Patient Methodology (SPM) in the form of mystery calls
  - Mystery Caller (MCs): 8 female master's students from Germany (aged 21 to 24 years)
  - MCs contacted community pharmacies (CP) in a covert participant observation
- 
- Predefined scenario
  - Simulation of a realistic conversation situation
  - Assessment via standardized form



# Methods

## Scenario and assessment

- Standardized scenario designed according to the recommendations/checklist of the German Federal Chamber of Pharmacists [BAK 2021]
- EC is demanded by the MC for herself
- Forgotten combined oral contraceptive pill (<12 h ago) + sexual intercourse
  - No EC indicated [BAK 2021]
  - Recommendation to take the regular combined pill immediately and continuing to take it [BAK 2021]

"Hello, this is [surname MC] speaking. I'm not sure if I need the morning-after pill. Could you please advise me?"





# Methods



## Sample size

- Determination of the population using the German Federal Register of Pharmacies
  - All 17,583 CPs were stratified proportionally by federal state
  - Standard margin of error (e) of 0.05
  - Conventional 95 % confidence level
  - Assumed proportion (P) of 0.5 for the characteristic of interest in the population



**minimum required sample size (n): 376 CPs**

- **Data collection:** from 15th July to 22nd August 2024





# Methods



## Data Collection

- 8 MCs were assigned to 47 calls each (n = 376 CPs)
- 40 pretests conducted + workshop to refine approach



- Sampling on different days of the week & times of the day
- Time frame: 12:00 PM to 6:00 PM



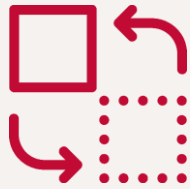
- Calls with suppressed number
  - If unreachable: up to 3 call attempts in 5-minute intervals
- After 3 failed attempts, CP got randomly redrawn from same stratum



- Use of a second observer for quality assurance



# Results



**23 replaced  
CPs**

- CP not reachable after 3 attempts (n = 10)
- Permanent closure of CP (n = 7)
- Unscheduled scenario process (n = 2)
- Closure of CP at call time (n = 2)
- Asked for callback outside planned time window (n = 1)
- Duplication of a CP in the sample (n = 1)



**Call completion  
rate**

100 % (n = 376)



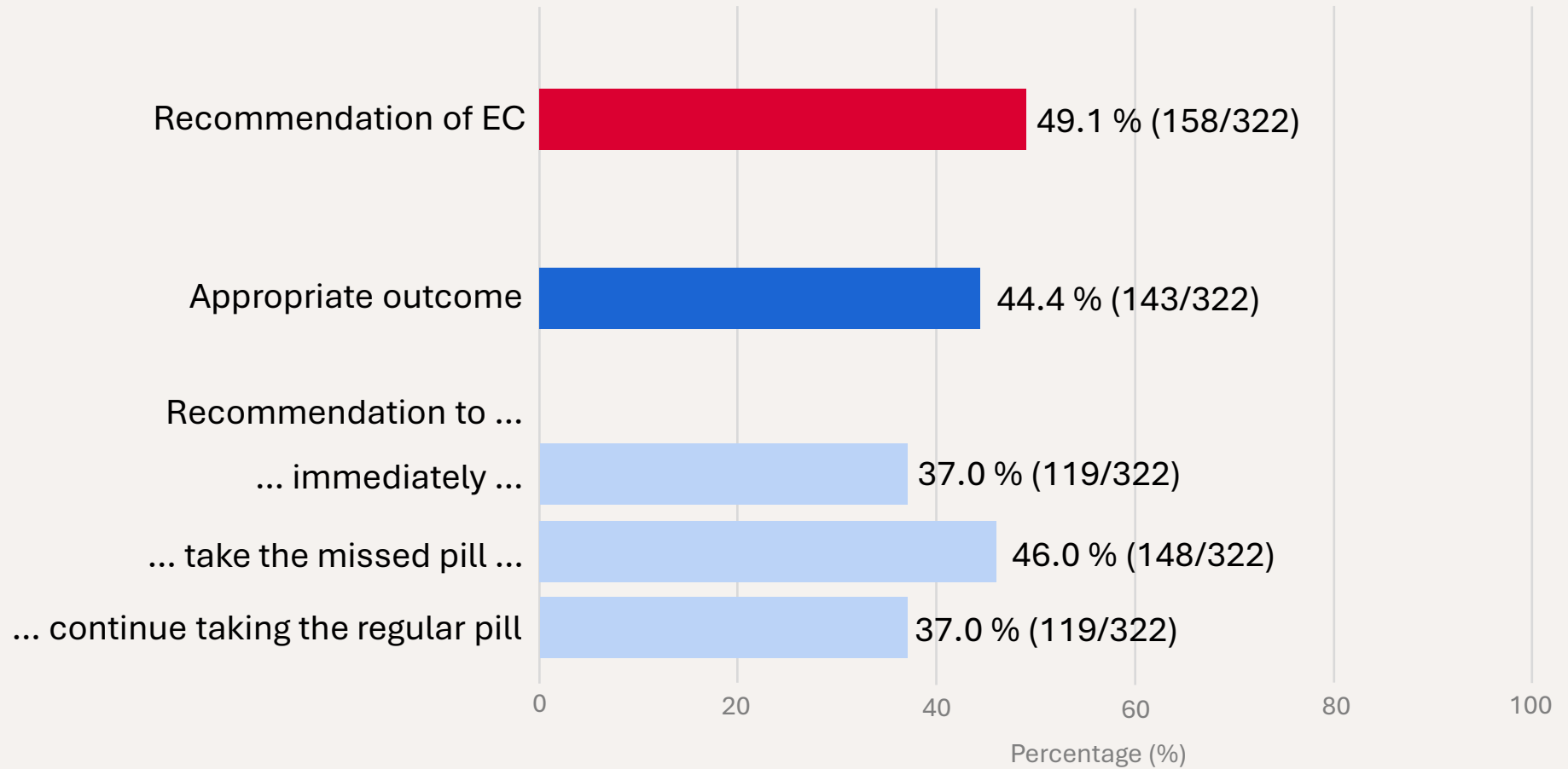
**Exit**

14.4 % (54/376) → not all items on assessment form completed for all CPs

# Results

Figure 1: Share of specific outcomes

Note: Multiple choices possible



# Results



Possible Influencing Factors	n (%) Total 322 (100)	n (%) Appropriate outcome 143 (44.4)	n (%) Inappropriate outcome 179 (55.6)	COR (95% CI)	p-Value	AOR (95% CI)	p-Value
<b>MC themselves</b>							
1	41 (100)	9 (22.0)	32 (78.0)	1		1	
2	40 (100)	19 (47.5)	21 (52.5)	3.22 (1.23–8.45)	.018	9.88 (2.00–48.77)	.005*
3	44 (100)	17 (38.6)	27 (61.4)	2.24 (0.86–5.83)	.099	6.31 (1.33–29.93)	.020*
4	38 (100)	28 (73.7)	10 (26.3)	9.96 (3.54–27.99)	<.001	24.19 (3.85–151.89)	<.001*
5	40 (100)	24 (60.0)	16 (40.0)	5.33 (2.02–14.11)	<.001	9.87 (2.15–45.40)	.003*
6	40 (100)	19 (47.5)	21 (52.5)	3.22 (1.23–8.45)	.018	1.90 (0.42–8.51)	.403
7	40 (100)	13 (32.5)	27 (67.5)	1.71 (0.64–4.62)	.288	1.51 (0.33–6.89)	.598
8	39 (100)	14 (35.9)	25 (64.1)	1.99 (0.74–5.35)	.172	2.51 (0.52–12.10)	.252
<b>Call attempts</b>							
1. attempt	281 (100)	121 (43.1)	160 (56.9)	1		1	
2. attempt	35 (100)	19 (54.3)	16 (45.7)	1.57 (0.78–3.18)	.210	2.03 (0.65–6.30)	.221
3. attempt	6 (100)	3 (50.0)	3 (50.0)	1.32 (0.26–6.67)	.735	0.78 (0.02–30.48)	.895
<b>Time of call</b>							
12:00 pm–03:00 pm	150 (100)	70 (46.7)	80 (53.3)	1			
03:01 pm–06:00 pm	172 (100)	73 (42.4)	99 (57.6)	0.84 (0.54–1.31)	.447		
<b>Forwarding to other staff members</b>							
No	200 (100)	81 (40.5)	119 (59.5)	1		1	
Yes	122 (100)	62 (50.8)	60 (49.2)	1.52 (0.97–2.39)	.071	1.98 (0.84–4.70)	.121
<b>Call placed on hold</b>							
None	231 (100)	103 (44.6)	128 (55.4)	1		1	
≤ 1:00 min	65 (100)	23 (35.4)	42 (64.6)	0.68 (0.39–1.20)	.186	1.18 (0.40–3.54)	.763
> 1:00 min	26 (100)	17 (65.4)	9 (34.6)	2.35 (1.01–5.48)	.049	1.15 (0.29–4.64)	.845

**Table 1:** Possible influencing factors on the appropriate outcome

Abbreviations: COR=Crude Odds Ratio, AOR=Adjusted Odds Ratio; \*Significant at  $p < 0.05$ .



# Results



## Table continuation

Possible Influencing Factors	n (%) Total 322 (100)	n (%) Appropriate outcome 143 (44.4)	n (%) Inappropriate outcome 179 (55.6)	COR (95% CI)	p-Value	AOR (95% CI)	p-Value
<b>Background noise in the pharmacy</b>							
No	306 (100)	134 (43.8)	172 (56.2)	1			
Yes	16 (100)	9 (56.2)	7 (43.8)	1.65 (0.60–4.55)	.333		
<b>Gender of the pharmacy staff</b>							
Female	259 (100)	117 (45.2)	142 (54.8)	1			
Male	63 (100)	26 (41.3)	37 (58.7)	0.85 (0.49–1.49)	.576		
<b>Pharmacy location</b>							
Rural	107 (100)	46 (43.0)	61 (57.0)	1			
Urban	215 (100)	97 (45.1)	118 (54.9)	1.09 (0.68–1.74)	.718		
<b>Purchasing power</b>							
≤ 25.500 €	53 (100)	27 (50.9)	26 (49.1)	1			
25.501 €–29.500 €	191 (100)	82 (42.9)	109 (57.1)	0.72 (0.39–1.33)	.300		
≥ 29.501 €	78 (100)	34 (43.6)	44 (56.4)	0.74 (0.37–1.50)	.408		
<b>Call duration</b>							
≤ 1:30 min	35 (100)	4 (11.4)	31 (88.6)	1		1	
1:31–3:00 min	131 (100)	42 (32.1)	89 (67.9)	3.66 (1.21–11.03)	.021	1.39 (0.33–5.90)	.655
> 3:00 min	156 (100)	97 (62.2)	59 (37.8)	12.74 (4.28–37.91)	<.001	1.53 (0.34–6.89)	.577
<b>Questioning Score<sup>a</sup></b>	2.0 (1.0–3.0)	3.0 (3.0–4.0)	1.0 (0.0–2.0)	4.63 (3.43–6.26)	<.001	5.32 (3.66–7.74)	<.001*

**Table 1:** Possible influencing factors on the appropriate outcome

<sup>a</sup> Median (Interquartile range; IQR); Abbreviations: COR=Crude Odds Ratio, AOR=Adjusted Odds Ratio; \*Significant at  $p < 0.05$ .

# Discussion

## Appropriate outcome



Nearly 6 out of 10 women  
are given the wrong advice

- AO (no recommendation of EC) only in 44.4 % of cases
  - Problem due to financial burden [BMG 2021] and side effects [BMG 2021, Haeger et al. 2018]
  - German citizens have strong conviction in CPs [DAZ 2024]
- Reasons for bad counselling remain unclear → research required

# Discussion

## Appropriate outcome

- German studies identified:
  - Insecurity [Said et al. 2019],
  - Concerns that customers could feel patronized [Berger et al. 2005] or discomfited [Seiberth et al. 2022] during counselling
  - Customers shortage of interest and time and insufficient information about the customers [Schumacher et al. 2019, Seiberth et al. 2020, Seiberth et al. 2022]



# Discussion

## Interventions for improvement

- Training of the CP staff [Gastelurrutia et al. 2013, Al Aqeel et al. 2018, Seiberth et al. 2020]
- Sensitization in dealing with affected women [Barrense-Dias et al. 2022]
- Integration in vocational training/pharmacy studies [Langer et al. 2016, Seiberth et al. 2020]
- Explicit recommendation to use the checklist [Haag et al. 2019, Langer et al. 2020]
- Clarification of the BAK-guideline that personal counselling can be provided over telephone [Lungfiel et al. 2023]
- Improvement of accessibility of the CPs [Lungfiel et al. 2023]



# Discussion

## Influencing Factors

- Regression analysis showed a significant correlation between AO and some of the MCs
  - Surnames and voices are the only possible factors at play
- Questioning score had a significant influence on the outcome  
[Collins et al. 2017, Langer et al. 2020]
  - Irrelevant questions were frequently asked
  - Even with all the relevant questions asked (n = 79), the AO was not always achieved (n = 10)



# Discussion

## Strengths and limitations

### STRENGTHS

- World-wide first MC-investigation on unnecessary recommendation of EC by CPs
- SPM = "gold standard"
  - Avoidance of Hawthorne effect and selection bias  
[Shah et al. 2007, Collins et al. 2021, Kunow/Langer 2024]
- Training of the MCs and standardisation of MCs responses
  - Avoidance of bias [Collins et al. 2021]
- Use of a second observer
  - Avoidance of recall bias [Kunow et al. 2021]

### LIMITATIONS

- Exit in 54 cases
  - Minimum sample size was not reached



# Conclusion



Results indicate a lack of advice



Consistent use and explicit recommendation of the BAK checklist for consultations should be considered in the relevant guidelines



Appropriate training for pharmacy staff as another improvement measure



Further research needs to be conducted regarding the influence of the MCs' voice



# Thank You For Your Attention



Contact us:



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