Original Research

Pricing of oral emergency contraception by German community pharmacies – a nationwide mystery caller investigation

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Abstract

Background and aims. The "morning after pill" (oral emergency contraception (EC)) with the active ingredients ulipristal acetate (UPA) and levonorgestrel (LNG) may only be dispensed by community pharmacies (CPs) in Germany. Against the background of free pricing for oral EC as an over-the-counter medicine, German CPs bear a great responsibility with regard to pricing as an important criterion for unrestricted access. The aim was to investigate the pricing of oral EC nationwide. To our knowledge, this is the first study of this type in the world.

Methods. The cross-sectional design of the study was based on the simulated patient methodology (SPM) in the form of mystery calls, which is considered the "gold standard". Each of the 392 CPs as a representative random sample was called once by one of six trained mystery callers (MCs). At the beginning of the conversation, the MCs asked about the "morning after pill" without naming a specific oral EC. In the conversation about UPA (scenario-related appropriate outcome due to unprotected sexual intercourse four days ago) or LNG preparations (scenario-related inappropriate outcome), the MCs asked about the price of the respective preparation.

Results. The cheapest quoted prices for UPA preparations could be determined in 293 mystery calls and varied from EUR 17.00 to EUR 43.71 (Δ 157%) with a median of EUR 35.75 (interquartile range [IQR] EUR 6.07). The cheapest quoted prices for LNG preparations could be determined in 32 mystery calls and varied from EUR 13.99 to EUR 26.72 (Δ 91%) with a median of EUR 22.99 (IQR EUR 2.99).

Conclusions. The price of UPA preparations is much higher than that of LNG preparations. High price levels and wide price ranges, especially for UPA preparations, could restrict access to oral EC.

Keywords: community pharmacy services, contraception, costs and cost analysis, patient simulation, mystery calls, cross-sectional studies

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Background and aims

To avoid unwanted pregnancy due to unprotected sexual intercourse (UPSI), the World Health Organization recommends the use of emergency contraception (EC) [1]. In Germany, the best-known EC is the "morning after pill" (oral EC) [2], which is only approved as a single-dose preparation with one of the active ingredients ulipristal acetate (UPA) and levonorgestrel (LNG) [3], respectively. UPA is effective for up to 120 hours after UPSI and therefore has a considerably longer effectiveness compared to LNG (72 hours). In addition, UPA has also been shown to be more effective in the first 24 or 72 hours after UPSI [4,5].

In Germany, oral EC may only be dispensed by community pharmacies (CPs) [6]. Since 2015, both UPA preparations and LNG preparations have been available without a prescription as over-the-counter (OTC) medicines [7]. However, health insurance companies will only reimburse costs up to the age of 22

and only if a prescription is provided [8]. However, since more than 96% of all packages were dispensed without a prescription and thus without reimbursement [9], German CPs bear a great responsibility with regard to pricing as an important criterion for unrestricted access, especially for UPA preparations [10]. In addition, they are free to set the price for oral EC as an OTC medicine [11]. However, price transparency in German CPs is low, primarily due to the absence of mandatory price labeling requirements [12] and the fact that price information is typically communicated only shortly before the medication is dispensed [13]. This makes it particularly interesting to examine the extent of price ranges, which are considered to be a consequence of a lack of price transparency [14,15].

Since both preparations are more effective the sooner they are taken after UPSI [1], there is a very high urgency of need. This leads to inelastic demand [16], so that, according to economic theory, a rather high price level is to be expected [17]. However, the prices for OTC medicines can only be determined in contact with the CP and not otherwise. This raises the question of what pricing the individual CPs have for oral EC as an OTC medicine in Germany. So far, this question has only been investigated for the German capital Berlin [18].

The aim of the present study was therefore to investigate the pricing of oral EC by German CPs nationwide.

Methods

The cross-sectional study was based on the simulated patient methodology (SPM) as a form of covered participatory observation [19], which is referred to as the "gold standard" [20,21] and is already frequently used internationally [22]. Here, a supposedly real customer contacts a CP and simulates participation in a seemingly real service process based on a previously defined scenario in order to collect and analyze corresponding data [23]. Since SPM in the form of on-site visits is associated with considerable time and financial expenditure, especially for large sample sizes [20], the present study was based on SPM in the form of calls ("mystery calls"), which has already been used frequently in the CP setting [e.g.,18,24,25].

This SPM study used a representative random sample of German CPs (n = 392) stratified according to the 16 federal states. Six trained individuals (four women and two men, between 20 and 38 years old) called each CP once as mystery callers (MCs) from August to October 2021. At the beginning of the conversation, the MCs asked about the "morning after pill" without naming a specific oral EC. In the conversation about UPA (scenario-related appropriate outcome due to unprotected sexual intercourse four days ago) or LNG preparations (scenario-related inappropriate outcome), the MCs asked about the price of the respective preparation. Further information on the method can be found in the published study protocol [26].

Results

There were 392 planned mystery calls successfully carried out. In 293 mystery calls, the cheapest quoted price for UPA preparations and in 32 mystery calls, the cheapest quoted price for LNG preparations could be determined (for the spatial distribution of the respective pharmacy locations, see figure 1 and 2).

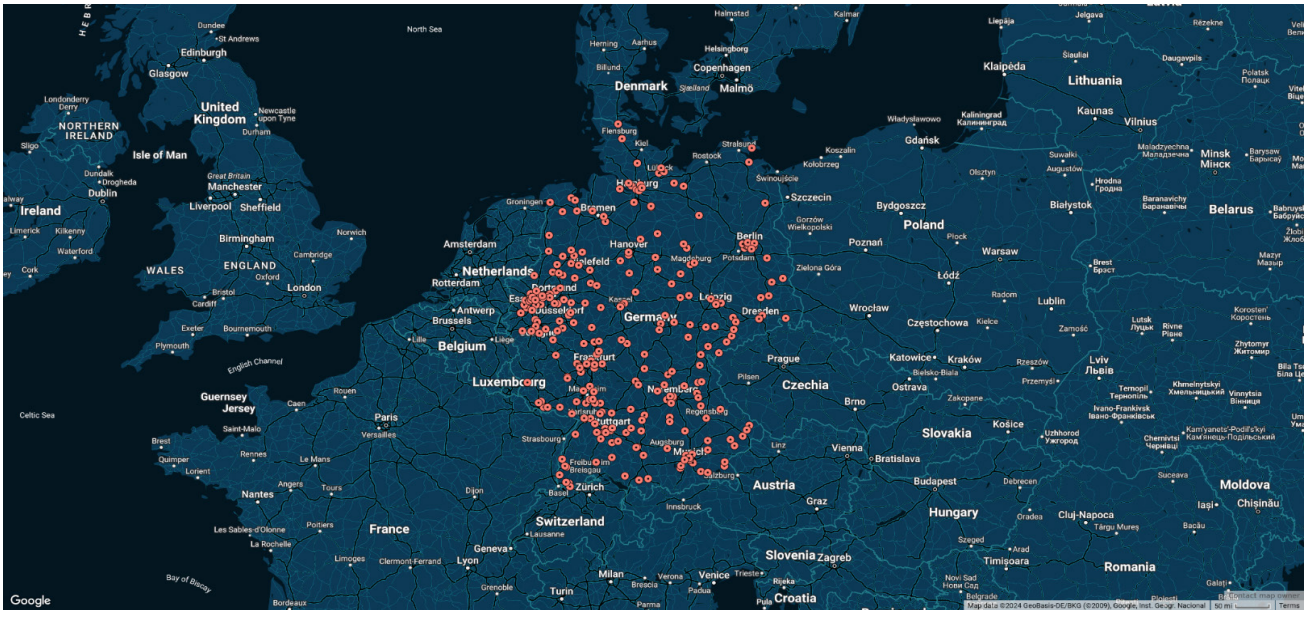

Figure 1. Distribution of pharmacy locations with UPA price information (n = 293).

Figure 2. Distribution of pharmacy locations with LNG price information (n = 32).

The prices for UPA preparations varied from €17.00 to €43.71 (Δ 157%) with a median of €35.75 (interquartile range [IQR] €6.07) and for LNG preparations from €13.99 to €26.72 (Δ 91%) with a median of €22.99 (IQR €2.99). The difference in the median price between UPA preparations and LNG preparations was thus 56%. With regard to UPA preparations, the price range, median and IQR for the individual federal states are shown in figure 3.

Discussion

A (considerably) higher price for UPA preparations in this SPM study is in line with the results of international and national SPM studies. The only German SPM study to date, which was carried out in Berlin, found a price of EUR 35.00 for UPA preparations and EUR 22.00 for LNG preparations with an almost identical difference of 59% [18]. A US SPM study in Hawaii reported a UPA preparation price of USD 50.40, an LNG-original preparation price of USD 49.93 and an LNG-generic preparation price of USD 42.32 (1% and 19% difference, respectively) [24,25]. An Australian SPM study in Sydney found a price of AUD 45.00 for UPA preparations and AUD 20.00 for LNG preparations (125% difference) [27]. A Turkish SPM study in Istanbul reported prices of TRY 84.00 for UPA preparations and TRY 57.00 for LNG preparations (47% difference) [28]. A certain price difference does not seem surprising, as UPA preparations are superior to LNG preparations in terms of effectiveness and window of effect [4,5]. However, it should be questioned whether such a high price difference appears justified.

The authors are aware of comparative cost-effectiveness studies on oral EC that were conducted from the perspective of healthcare payers. For example, Schmid [29] evaluated the cost-effectiveness of UPA preparations compared with LNG preparations for minors in France and concluded that UPA was more cost-effective, despite higher initial costs, because it was more effective in preventing unintended pregnancies. Similarly, Bellows et al. [30] found for the United States that UPA was more cost-effective than LNG because its higher contraceptive efficacy led to greater prevention of unintended pregnancies and lower subsequent medical costs. However, both studies were conducted from institutional perspectives and do not reflect the reality of out-of-pocket payments in OTC settings. In contexts such as Germany, where oral EC must often be purchased by customers without reimbursement, the higher price of UPA preparations may limit access despite its cost-effectiveness from the payer's perspective. Therefore, cost-effectiveness of oral EC from the customer's perspective remains an important gap in the current literature.

In addition, prices for LNG and, in particular, for UPA preparations in this SPM study are considerably higher than the prices for other OTC medicines in Germany. An SPM study in the medium-sized city of Neubrandenburg found that preparations for acute diarrhea cost EUR 2.36 in a medication-based scenario and EUR 5.28 in a symptom-based scenario [31]. An SPM study conducted in the big city of Potsdam reported that preparations for non-chronic tension-type headache cost EUR 3.46 [32]. In addition, an SPM study in the major city

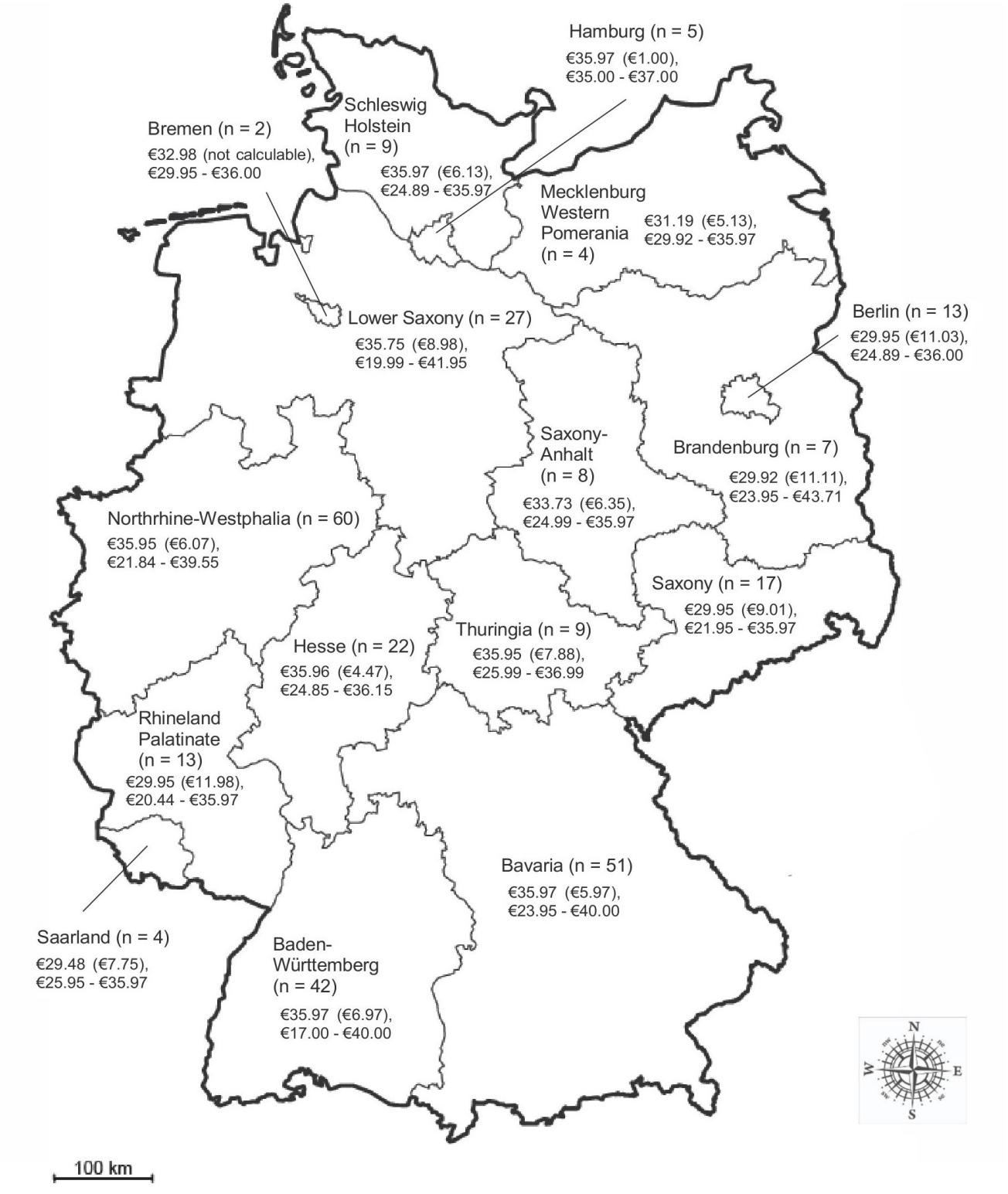

Figure 3. Price of UPA preparations by federal states (n): median price (interquartile range), minimum price - maximum price.

of Munich found that preparations also for non-chronic tension-type headache cost EUR 4.95 [13]. Moreover, an SPM study in the medium-sized cities Neubrandenburg and Schwerin reported a price of EUR 3.24 for nasal sprays for a common cold [33]. The comparatively high price level in the present SPM study was to be expected against the background of such an emergency situation and thus a rather low price elasticity of demand [34]. This can represent a financial burden for customers above a certain price threshold and could restrict customers' access to oral EC.

The price range determined for UPA preparations in this study is largely consistent with the results of the German SPM study in Berlin with a price range from EUR 15.95 to EUR 42.95 (Δ 169%) [18]. In contrast, an SPM study from 10 large cities in five geographic regions across the United States found a considerably wider price range from USD 2.59 to USD 1200.99 (Δ 46.270%) [35]. Despite the relatively small sample size, the price range for LNG preparations was just under half that of the German SPM study conducted in Berlin, which ranged from EUR 10.60 to EUR 32.49 (Δ 207%) [18]. International SPM studies showing smaller, but also wider price ranges. A US SPM study in Rhode Island reported a price range for LNG preparations from USD 39.99 to USD 49.99 (Δ 25%) [36] and a US SPM study in Texas determined a price range from USD 34.00 to USD 50.00 (Δ 47%) [37]. In contrast, other US SPM studies in cities found price ranges for LNG preparations from USD 15.00 to USD 70.00 (Δ 367%) [38], from USD 15.00 to USD 65.00 (Δ 333%) [39] and from USD 24.00 to USD 70.00 (Δ 192%) [40]. In a Brazilian SPM study carried out at three different locations, however, the price range for LNG preparations was from USD 1.25 to USD 5.75 (Δ 360%) [41]. A Congolese SPM study in Kinshasa showed a price range for LNG preparations from USD 0.50 to USD $9.20 (Δ 1.740%) [42].

However, given the considerably higher price level, the price ranges for UPA preparations, and especially for LNG preparations, are relatively smaller than the price ranges for other OTC medicines in Germany. Two SPM studies in the medium-sized city Neubrandenburg found for preparations for acute diarrhoea a price range from EUR 2.36 to EUR 8.49 (Δ 260%) [43] and from EUR 2.28 to EUR 10.98 (Δ 382%) [31], respectively. An SPM study in the big city Potsdam reported a price range from EUR 0.93 to EUR 9.97 (Δ 972%) for preparations for non-chronic tension-type headache [32]. An SPM study in the medium-sized cities Neubrandenburg and Schwerin reported a price range from EUR 1.95 to EUR 6.22 (Δ 219%) for nasal sprays for a common cold [33].

In contrast to price ranges in narrowly defined areas (cities), the price ranges determined in the present SPM study and the associated saving potentials can hardly be used by customers due to the relatively long distances between the CPs investigated. One reason for price ranges is the variation in operating costs among CPs [44], which can be reflected in the prices charged to customers. Additionally, differences in the level of competition—such as a high concentration of CPs in urban areas versus fewer CPs in rural regions—can also lead to price ranges [45]. Furthermore, variations in individual CP pricing strategies, driven by profit maximization motives [46], particularly in situations of market intransparency, may contribute to price ranges. A lack of market transparency leads to information asymmetries between providers and customers, making it difficult for customers to compare prices effectively. As a result, customers are unable to make well-informed purchasing decisions, especially when it comes to OTC medicines, which must be paid out of pocket. This situation impairs health equity, as low-income or less-educated population groups are particularly affected due to their generally limited access to information [47].

The study has strengths, but also limitations. This is the first nationwide study of pricing of oral EC by CPs at the global level [48] using the SPM successfully. As a direct method, the SPM is preferable to the indirect method of the World Health Organization/Health Action International [49] because it can determine the actual prices. However, against the background of the specific use of calls, the results do not include the prices of preparations recommended and actually dispensed on-site. Furthermore, the results could not be differentiated according to medicine status (originals or generics) due to the scenario. The results for LNG preparations should also be viewed with caution due to the, scenario related, small sample size.

The study recommends that measures should be taken to increase price transparency and strengthening price competition in order to reduce the relatively high price levels and wide price ranges of UPA and LNG preparations. One possibility would be to set up a legally binding database with the current prices of the CPs, which already exists in Germany for the fuel prices of petrol stations [50] and works well [51]. To ensure its effectiveness, it is essential to promote the database through targeted advertising campaigns. Future studies should apply an LNG-specific scenario to obtain a sufficient sample size for LNG preparations. The higher price for UPA preparations compared to LNG preparations should be assessed by future studies on comparative cost-effectiveness from the customers' perspective. Last but not least, future nationwide SPM studies on pricing of oral EC should also identify potential influencing factors such as medicine status (originals or generics) and purchasing power in order to make the different prices of the respective pharmacy locations more comparable.

Conclusions

The price of UPA preparations is much higher than that of LNG preparations. Moreover, the price level of oral EC is generally much higher than that of other OTC medicines. In addition, wide price ranges could be determined, especially for UPA preparations. All these factors could make it difficult for customers to access oral EC and, in particular, to UPA preparations.

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