

Systematic Review: Information Exposure on Family Planning Associated with Contraceptive Use

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ABSTRACT

Background: The use of contraceptive methods by couples of childbearing age can be influenced by the information received on Family Planning (FP). FP information can be received or accessed from various sources or channels such as electronic and printed mass media, promotional media (posters and leaflets), social media, and even face-to-face communication with certain parties who understand FP. Several studies have discussed it. **Objective:** Using a Systematic Literature Review and Meta-Analysis, this study seeks to present logical evidence from the published literature regarding the relationship and effect of information exposure about FP on contraceptive use. **Method:** Literature searches were performed on the Scopus indexing engine and the PubMed database using several keywords such as “FP message”, “FP communications”, and “media exposure and FP”. Studies should have specified criteria, such as they were published between January 2015 and December 2020, and the research locations were either in Indonesia or abroad. **Results:** The search results found 742 studies, and 22 studies were selected. Based on the review process, the relationship and effect of exposure to FP information on contraceptive use could be mapped through communication channels in general, namely mass media exposure about FP information, and specific communication channels, namely exposure to FP information through television, radio, print media, digital communication, and face-to-face communication. **Conclusion:** The use of contraceptive methods, both modern and non-modern, was strongly influenced by FP information received by couples of childbearing age; however, some information channels proved insignificant. Therefore, further researchers can follow up on several recommendations based on this result. Various communication channels in delivering FP messages or information remain a determining factor that must be considered by further researchers, given the rapid development of media such as online media.

Keywords: contraception, FP, information, meta-analysis.

INTRODUCTION

The decision of using contraception to implement birth spacing or to limit births is assumed to be shaped by understanding gained from exposure to or access to information about certain contraceptives (Konkor *et al.*, 2019). Because contraceptive use is a matter that concerns an individual related to health problems, hence sufficient information about Family Planning (FP) is needed by individuals as a basis for understanding it.

FP is an important agenda to minimize unwanted pregnancies, especially in developing countries where the birth rate is still high. Rapid population growth will have implications

on increasing poverty, neglecting health status, decreasing access to education, narrowing job opportunities, and even environmental impacts (Husnah, Masni and Hadju, 2019). Therefore, many developing countries are trying to reduce the rate of population growth by optimizing FP programs (Okigbo *et al.*, 2015; Ajaero *et al.*, 2016; McCarthy *et al.*, 2020).

Several previous studies on the determinants of FP participation tended to focus on demographic and health survey data of particular regions or countries (Demographic Health Survey), such as age, religion, education, marital status, economic status, and place of residence. There were factors of media exposure, information exposure, or media

access that were tested, but previous research tended to measure these factors with “Yes” or “No” answers on accessing media (Ajaero *et al.*, 2016; Dasa *et al.*, 2019; Konkor *et al.*, 2019). Existing studies did not comprehensively measure individual attitudes regarding FP information accessed or received from mass media, social media, printed promotional media, or face-to-face communication. However, previous studies still showed a relationship between media exposure and FP information with the use of FP.

One of the strategies applied in the promotion of the FP program was using mass media to make the public pay attention to the benefits of participating in the program.

The process of communication, information, or messages on FP that are presented to the public has a positive effect on influencing a person's attitudes and behavior. Research evidence has shown that communication could build awareness, increase understanding and ultimately lead to willingness for behavioral change (Ajaero *et al.*, 2016; Dasa *et al.*, 2019; Konkor *et al.*, 2019); not only the information exposure but also the quality of the information should be credible.

Furthermore, the mass media is considered a credible source of information and has the capacity to build attention, increase the level of understanding, and influence individual behavior towards FP (Ajaero *et al.*, 2016; Konkor *et al.*, 2019). The role of the mass media cannot be ignored in the intervention of FP programs. Previous research has found that media could positively influence people's adoption of FP methods thus, so intense exposure to FP campaigns was necessary, but moderate exposure to FP information might also be enough to change attitudes and trigger discussions on contraceptive use.

In addition to using mass media to convey FP messages, face-to-face communication can also be a strategy implemented in building public attention about FP. The results showed that the FP information lecture method, education delivered by religious leaders, medical officers, or FP cadres, were able to influence people's decisions to participate in FP programs (Winarni and Dawam,

2016; Husnah, Masni and Hadju, 2019; Jones *et al.*, 2020). This indicates that face-to-face exposure to FP information is needed to increase contraceptive use.

Several researchers have conducted extensive studies on media exposure and FP information as a determinant of contraceptive use in FP with different study designs and results. Therefore, this study aims to conduct a systematic literature review and meta-analysis to present logical evidence from previous studies or literature that have been published regarding the relationship between exposure to FP information and the use of contraceptive methods. The results of a systematic review and meta-analysis of previous studies or literature are expected to provide an overview of mapping studies on contraceptive use and FP by specifically highlighting media exposure and FP information as well as their effects on contraceptive use.

METHODS

Studies that met the specified inclusion criteria were selected for further review. To be selected, studies should examine or identify factors or interventions that relate to or influence a person's behavior regarding FP. More specifically, the study should contain elements of delivering or accessing FP messages either through mass media, electronic intermediaries, or face-to-face. Studies should be published between January 2015 and December 2020. Studies should be published in reputable Scopus indexed journals, or in the PubMed database. The full manuscript of the study could be accessed and published in English. The exclusion criteria were the direct opposite of the predetermined inclusion criteria.

Systematic literature review and meta-analysis were carried out following the Preferred Reporting Items for Systematic Review and Meta Analysis Flow Diagram (PRISMA) guidelines. This research obtained the required study data from the Scopus indexing engine and the PubMed electronic database. Keyword combinations in the search were applied with Boolean Operators (AND and OR). The search strategy applied included the use of related titles/abstract/keywords: FP message, FP communication, FP information, media exposure and FP, and information exposure and FP. This study

presented a PRISMA flowchart which explained the stages of selecting articles according to PRISMA guidelines (Gahungu, Vahdaninia and Regmi, 2021; Page *et al.*, 2021).

The selected studies were then assessed regarding the title, abstract, and then an assessment of the entire manuscript (Bramer *et al.*, 2018). Duplicated studies were removed from the list at initial screening. The studies that had met the predetermined criteria were set for further review. A total of 22 selected studies were extracted for information regarding the author, year of publication, study method/design, sample, research setting and location, the purpose of FP messages, the channel of delivery or access to FP messages, and core findings of the selected studies for review. Findings from this systematic literature review and meta-analysis were presented using narrative synthesis and were followed by a meta-analysis.

RESULTS AND DISCUSSION

The article search results in the Scopus and PubMed databases found 742 articles that were relevant to the keywords used, and after the article filtering was applied from 2015-2020, thus 357 articles remained. The remaining articles were re-filtered for duplicate articles and remained 342 articles. After screening by title or abstract, 319 articles were excluded. Finally, the remaining 23 articles were read entirely, and based on the predetermined inclusion criteria, 22 articles were selected for further review.

In a span of six years (2015-2020), the most selected research was published in 2020 with a total of seven studies, four studies in 2019, two studies in 2018, three studies in 2017, two studies in 2016, and four studies in 2015. These results showed that the number of studies that discussed exposure to FP messages, which were published in reputable journals, varied each year. The data showed that there was an increase in the number of studies that discussed exposure to FP messages and were published in reputable journals from 2018-2020. Still, in 2021 there were no studies on FP with the specified criteria.

Furthermore, 22 studies used quantitative methods. Of these studies, 16 studies used a cross-sectional study design, one systematic literature

review/meta-analysis, and five studies used an experimental design. None of the studies used qualitative methods. The use of quantitative methods was indeed more suitable because these studies aimed to see the relationship or influence between variables. The majority of studies also still used secondary data, namely the results of surveys conducted by certain institutions in a country (Demographic Health Survey) to determine demographic and health issues, including the use of mass media, use of electronic mobile, and access to FP messages. Therefore, the majority of the results of these studies became representative of the state of the country regarding FP. Three studies whose research settings were based on community or the people of a particular city in a country, and one research whose research setting was based on health facilities. There were studies that also specifically used rural and urban communities as samples.

Regarding the tendency of previous studies to use secondary data from Demographic and Health Surveys conducted by certain institutions in a country, future researchers need to consider using data from primary surveys whose measurement instruments are developed by the researchers so the overview of the condition of the community will be more up-to-date. In addition, the previous studies that were reviewed did not clearly state the theory that was the theoretical basis for their research (Speizer *et al.*, 2018; Husnah, Masni and Hadju, 2019; Jadhav and Weis, 2020). Whereas in FP research which was closely related to aspects of attitude and behavior, it was quite possible for researchers to rely on one particular theory, such as the theory of reasoned action, theory of planned behavior, social cognitive theory, and other theories that focus on changing individual behavior (Grishina, 2018; Yang and Wu, 2019; Ajzen, 2020; Lin, 2020).

Furthermore, studies on contraceptive use and FP were found to be predominantly conducted in African countries (44 countries). Several pieces of research were conducted in Asia (8 countries) and America (3 countries). More specifically, there were 12 studies conducted in Africa, six studies in Asia, two studies in America, and two studies conducted on the three continents.

Research on FP was mainly carried out in Africa because, indeed, the countries in the continent were classified as developing countries whose population growth rates were still not well controlled, so there were many intervention efforts for people to be willing to implement FP programs, one of which was by using contraceptives. There were two studies conducted in Indonesia, one of the categorized developing countries. Indonesia was also a country that sought to maintain the rate of population growth.

The studies selected for the review focused on looking at the factors associated with exposure to FP messages and the use of contraceptive methods in FP. Existing studies also looked at the delivery of FP messages to the community, which in turn had a relationship or influence on the response or behavior of the public regarding FP. Seven studies looked at the specific use of modern contraceptive methods. A total of 10 studies looked at the general use of FP methods. One study looked at the use of FP during the puerperium. Two studies looked at the Unmet Need decisions of couples of childbearing age. One study looked not at the impact of delivering or accessing FP messages but rather the factors that make people access FP messages.

The review results of existing studies also show that the public uses several media to convey or access FP messages. Seven studies tried to look at the factors of television access in the use of FP or contraceptive use. Four studies looked at radio access factors. Five studies looked at the factors of access to print media (magazines, newspapers, flyers, and posters). Five studies looked at the factors of receiving SMS/Instant Messaging related to FP messages. Six studies calculated the factor of face-to-face communication, and one study looked at the factor of receiving e-mail messages for FP. Eight studies did not clearly mention the media used by the public in accessing FP messages. Furthermore, this literature review study also described several findings from previous studies that were reviewed.

Mass Media Exposure Related to FP Messages on the Use of Contraceptive Methods

Several studies selected for review did not specifically mention the types of mass media accessed by the public to

obtain FP information. Three studies showed that mass media exposure to FP messages affected contraceptive use (Osmani *et al.*, 2015; Babalola, Figueroa and Krenn, 2017; Rutaremwa and Kabagenyi, 2018). Furthermore, one study also found that accessing FP messages increased an individual's intention to use contraception, which in turn influenced contraceptive use (Wasswa, Kabagenyi and Atuhaire, 2020), but this study did not specifically measure the specific sources of FP information accessed by the public.

In contrast to previous studies, two studies showed that media exposure to FP messages had no effect on the use of modern contraceptive methods (Jacobs *et al.*, 2017; Ahmed and Seid, 2020). Previous studies had also shown that urban women who were exposed to FP messages tended not to use modern contraceptives (Ahmed and Seid, 2020). Outside the context of mass media, it turned out that one study showed that social media exposure was related to people's decisions to become an Unmet Need or desire not to use FP even though they did not want to get pregnant (Winarni *et al.*, 2019).

Furthermore, there were other findings from the selected studies. Two studies showed that radio and television ownership was associated with modern contraceptive use (Dasa *et al.*, 2019; Packer *et al.*, 2020), because it was assumed that ownership of radio and television allowed people to access FP messages. Two other studies found that living in a village also tended to prevent people from getting access to FP messages from the mass media (Dasa *et al.*, 2019; Konkor *et al.*, 2019).

Television and Radio on the Use of Contraceptive Methods

The results of six studies showed that accessing FP messages through television significantly affected the use of contraceptive methods positively as a form of participation in FP programs (Habibov and Zainiddinov, 2015; Okigbo *et al.*, 2015; Ajaero *et al.*, 2016; Winarni and Dawam, 2016; Speizer *et al.*, 2018; Jadhav and Weis, 2020). However, another study also showed that receiving FP messages via TV did not significantly affect the use of modern contraceptive methods (Jadhav and Weis, 2020).

Furthermore, two studies showed that receiving FP messages via radio had a statistically significant positive effect on

the use of contraceptive methods (Ajaero *et al.*, 2016; Jadhav and Weis, 2020). Specifically, previous studies had also found that receiving FP messages via radio affected the use of modern contraceptive methods (Jadhav and Weis, 2020). In contrast to this, two studies showed that exposure to FP messages via radio did not significantly influence the decision to use both modern and non-modern contraceptives (Habibov and Zainiddinov, 2015; Speizer *et al.*, 2018).

This finding implied that TV and radio still had the potential to be the preferred information channels to obtain information such as information on FP and contraception. Therefore, these two channels of information still need to be taken into account by future researchers when measuring the impact of mass media exposure on behavior change. However, it must be noted that radio and TV may not significantly encourage changes in individual behavior, so there are other things that must be considered as determinants of contraceptive use, such as social, economic, and cultural factors (Ajaero *et al.*, 2016; Konkor *et al.*, 2019).

Print Media on the Use of Contraceptive Methods

There are several print media that serve as channels for FP information and can be accessed by couples of childbearing age, such as newspapers, leaflets, and posters. Two studies showed that there was a significant positive effect between exposure to FP messages through newspapers and contraceptive use (Ajaero *et al.*, 2016; Jadhav and Weis, 2020). The use of modern contraceptives was also influenced by exposure to FP messages through newspapers (Jadhav and Weis, 2020). However, only one study showed that contraceptive use was not significantly positively affected by exposure to FP messages in newspapers (Speizer *et al.*, 2018). Furthermore, one study showed that media leaflets about FP information were able to influence Unmet Need's decision to use contraceptives (Husnah, Masni and Hadju, 2019). Likewise, exposure to FP messages through posters showed that it significantly affected contraceptive use positively (Winarni and Dawam, 2016).

This finding implied that although communication technology had developed into electronic media, information channels in the form of print media could

still be used for information dissemination. Print media was also a medium that was accessed by couples of childbearing age to get information about FP. Furthermore, the difficulty of accessing electronic media also made couples of childbearing age tend to access print media such as newspapers, leaflets, and posters (Konkor *et al.*, 2019). Therefore, information channels from print media also still need to be taken into account by further researchers to understand media exposure in predicting changes in individual behavior.

SMS/Instant Messaging and Email on the Use of Contraceptive Methods

Three studies showed that receiving SMS and Email about FP significantly influenced the use of both modern and non-modern contraceptives (Bocanegra *et al.*, 2017; Jadhav and Weis, 2020; Jones *et al.*, 2020). In contrast to the three studies, other studies showed that SMS or instant messaging did not significantly increase the use of both modern and non-modern contraceptive methods. Receiving SMS about FP did not significantly increase women's use of modern contraceptives (Hu *et al.*, 2020). Furthermore, instant messaging about FP also did not significantly make women accept and use modern contraceptive methods (McCarthy *et al.*, 2020).

Based on the results of this study review, SMS and instant messaging regarding FP messages or information showed varying results; namely, there were significant and insignificant influences on the use of contraceptive methods in FP. The implication is that further researchers still need to investigate and further identify the impact of modern communication channels in the dissemination of FP information, such as via SMS, WhatsApp messages, and email. All three are forms of electronic and digital communication channels that are ideal for remote behavioral intervention. The availability of mobile phones and even smartphones that are growing both in urban and rural areas opens up opportunities for delivering information to the public (Suffoletto, 2016; Carrión-Yaguana, Alwang and Barrera, 2020).

Face-to-face Communication on the Use of Contraceptive Methods

The delivery of FP messages is also carried out face-to-face in several settings such as counseling, events, and two-way communication through figures. Three

studies showed that FP messages conveyed by religious and informal leaders significantly affected the use of both modern and non-modern contraceptive methods positively (Okigbo *et al.*, 2015; Winarni and Dawam, 2016; Speizer *et al.*, 2018). Two other studies showed that FP information education methods increase contraceptive use (Tilahun *et al.*, 2015; Husnah, Masni and Hadju, 2019). Two other studies also showed that information exposure by medical staff or health care providers and FP workers affected contraceptive use (Winarni and Dawam, 2016; Jones *et al.*, 2020). In addition, another previous study found that interpersonal community events could also be an alternative to conveying FP messages and had been shown to have a significant effect on the modern contraceptive use. (Okigbo *et al.*, 2015).

The implication is that the delivery of information to the public is not only through mediated communication channels such as TV, radio, newspapers, SMS, and instant messaging, but also through face-to-face communication channels, both interpersonal and group. Face-to-face communication channels have been identified as a major factor in disseminating information and as an important factor in the effect of health campaigns on actual health behavior (Donné, Jansen and Hoeks, 2017).

Discussion

This study systematically reviewed previous studies that were published on the relationship and effect of exposure to FP information on individual behavior to use contraception in FP. Exposure to information about FP either through mediated or face-to-face communication channels was a concern in this review. The results of this review were based on 22 selected studies published in reputable journals in the period 2015-2020. These studies had tested the determining factors or determinants, especially those related to exposure to FP information on the use of both modern and non-modern contraceptive methods, with varying results. The articles reviewed provided evidence of contraceptive use outcomes by comparing and highlighting factors and predictors found in existing studies. Several factors and predictors were statistically significant and not significant and interesting to discuss.

In several previous studies, exposure to mass media about FP information had been shown to increase contraceptive use (e.g. Babalola, Figueroa and Krenn, 2017; Rutaremwa and Kabagenyi, 2018). This reinforced the assumption that the mass media has an important role in the demographic transition and public health (Rutaremwa and Kabagenyi, 2018; Konkor *et al.*, 2019). Messages in the mass media are widely used to reach large populations through regular use of existing media with a high share of messages and information conveyed (Bakibinga *et al.*, 2016). At the same time, it must be a concern that conveying FP information and messages through the mass media is still quite relevant today. Indeed, several previous studies explain that exposure to FP information in the mass media does not significantly increase the use of contraceptive methods (e.g. Jacobs *et al.*, 2017; Ahmed and Seid, 2020). This may be explained by factors of social, economic, and cultural differences in an area and even a country, which can affect the quality and quantity of information conveyed through different mass media (Ahmed and Seid, 2020).

Mass media is still a powerful communication tool or channel to create awareness about specific health issues and stimulate people's desire to seek more information about specific health issues (Sano *et al.*, 2016; Konkor *et al.*, 2019). Furthermore, exposure to information in various mediated communication channels also cannot be separated from the media attention of individuals. Media attention is the exposure or use of certain types of media such as television, radio, newspapers, print media, the internet, and even social media. Media attention is the tendency of people to consciously put forth cognitive effort for certain types of media messages (Gong *et al.*, 2021).

Specifically, in several studies, exposure to FP information on TV and radio each affected the use of contraceptive methods (Speizer *et al.*, 2018; Jadhav and Weis, 2020). Another study also showed that accessing FP information in newspapers could increase the use of contraceptive methods (Ajaero *et al.*, 2016). Information and messages conveyed through mass media communication channels, both print and electronic, to promote FP programs had proven to be one of the most impactful public health

interventions to prevent unwanted pregnancies (Konkor *et al.*, 2019). Therefore, it is assumed that communication and promotion of FP programs are still relevant to optimizing mass media communication channels such as TV, radio, and newspapers to deliver FP information and messages to the public.

Furthermore, in particular, the strong influence of television is because exposure to information through the media has more benefits, such as images or visualizations, aspects of beauty and attractiveness, reaching a broader target, and can be broadcast repeatedly (Winarni and Dawam, 2016). Evidence showed that watching television could affect a person's attitudes and behavior, one of which was related to fertility behavior (Ajaero *et al.*, 2016; Winarni and Dawam, 2016).

In harmony with television, radio is also still one of the best communication channels in developing countries because radio prices are relatively affordable, and its broadcasts also reach a wider audience (Habibov and Zainiddinov, 2015). Therefore, the aspect of mass media in conveying FP information and contraceptive methods remains a communication channel that further researchers and practitioners must consider in the field related to FP.

However, it is also possible that exposure to FP information in several mediated communication channels such as television, radio, and newspapers does not have an impact on increasing contraceptive use. The results of a review of previous studies also explained this fact (Speizer *et al.*, 2018; Jadhav and Weis, 2020). It could be caused by various factors that actually should also be considered in the intervention of FP programs, such as social, economic, and cultural factors (Ajaero *et al.*, 2016; Konkor *et al.*, 2019). Considering that the decision to use contraception in FP is a personal matter regarding health issues, aspects of individual perceptions and beliefs about contraceptive methods also need to be considered in the communication and promotion of FP (Asare, 2015; Prasanti, 2018), and needs to be reviewed by further researchers in investigating the relationship and its effect on contraceptive use.

Face-to-face communication channels, both interpersonal and group, can also be optimized in the delivery of FP

information and contraceptive methods. Several theories have explained that face-to-face communication channels, especially interpersonal communication, were the main factors in the dissemination of information, such as in the two-step flow theory, innovation diffusion theory, and word-of-mouth communication theory (Donné, Jansen and Hoeks, 2017). Therefore, the information conveyed by midwives, health workers, FP instructors, or FP cadres has the potential to influence the intentions and even behavior of couples of childbearing age in participating in the FP program using contraception (Winarni and Dawam, 2016; Husnah, Masni and Hadju, 2019). Furthermore, discussing health issues in an informal social environment, such as with friends, relatives, and family, can also influence health behavior, so it is also interesting for future researchers to look at aspects of social norms when researching behavior change (Lim *et al.*, 2019; Liu *et al.*, 2020).

CONCLUSION

The use of modern and non-modern contraceptive methods was shown to be significantly influenced by FP information received by couples of childbearing age. Mediated communication channels such as television, radio, newspapers, print promotion media, SMS/instant messaging, and even email were proven to play an important role in increasing the use of contraceptive methods. In addition, exposure to FP information from face-to-face communication channels was also shown to be an important factor influencing contraceptive use. However, some mediated communication channels did not significantly increase contraceptive use.

Recommendations from the results of this review of existing studies are that practitioners of delivering FP information still need to optimize the use of mediated communication channels such as electronic mass media, print media, and digital media, considering the rapid development of the media such as online media and social media, and practitioners also need to optimize face-to-face communication channels. For further researchers, exposure to FP information from mediated and face-to-face communication channels still needs to be further tested for its effect as an investigation and evaluation of FP

communication and promotion. Regarding several communication channels that have been shown to not significantly increase contraceptive use, practically and theoretically, practitioners and further researchers need to consider and investigate other factors that are assumed to influence contraceptive use, such as social, cultural, economic, and individual beliefs.

REFERENCES

- Ahmed, M. and Seid, A. (2020) 'Association between exposure to mass media family planning messages and utilization of modern contraceptive among urban and rural youth women in ethiopia', *International Journal of Women's Health*, 12, pp. 719-729. doi: 10.2147/IJWH.S266755.
- Ajaero, C. K. *et al.* (2016) 'Access to mass media messages, and use of family planning in Nigeria: A spatio-demographic analysis from the 2013 DHS', *BMC Public Health*, 16(1), p. 427. doi: 10.1186/s12889-016-2979-z.
- Ajzen, I. (2020) 'The theory of planned behavior: Frequently asked questions', *Human Behavior and Emerging Technologies*, 2(4), pp. 314-324. doi: 10.1002/hbe2.195.
- Asare, M. (2015) 'Using the Theory of Planned Behavior To Determine the Condom Use Behavior Among College Students.', *American journal of health studies*, 30(1), pp. 43-50.
- Babalola, S., Figueroa, M.-E. and Krenn, S. (2017) 'Association of Mass Media Communication with Contraceptive Use in Sub-Saharan Africa: A Meta-Analysis of Demographic and Health Surveys', *Journal of Health Communication*, 22(11), pp. 885-895. doi: 10.1080/10810730.2017.1373874.
- Bakibinga, P. *et al.* (2016) 'Pregnancy history and current use of contraception among women of reproductive age in Burundi, Kenya, Rwanda, Tanzania and Uganda: analysis of demographic and health survey data', *BMJ Open*, 6(3), p. e009991. doi: 10.1136/bmjopen-2015-009991.
- Bocanegra, H. T. de *et al.* (2017) 'Do Bedsider Family Planning Mobile Text Message and E-mail Reminders Increase Kept Appointments and Contraceptive Coverage?', *Women's Health Issues*, 27(4), pp. 420-425. doi: 10.1016/j.whi.2017.02.001.
- Bramer, W. M. *et al.* (2018) 'A systematic approach to searching: An efficient and complete method to develop literature searches', *Journal of the Medical Library Association*, 106(4), pp. 531-541. doi: 10.5195/jmla.2018.283.
- Carrión-Yaguana, V. D., Alwang, J. and Barrera, V. H. (2020) 'Promoting Behavioral Change Using Text Messages: A Case Study of Blackberry Farmers in Ecuador', *Journal of Agricultural and Applied Economics*, 52(3), pp. 398-419. doi: 10.1017/aae.2020.7.
- Dasa, T. T. *et al.* (2019) 'Factors associated with long-acting family planning service utilization in Ethiopia: a systematic review and meta-analysis', *Contraception and Reproductive Medicine*, 4(1), p. 14. doi: 10.1186/s40834-019-0095-z.
- Donné, L., Jansen, C. and Hoeks, J. (2017) 'Uncovering Factors Influencing Interpersonal Health Communication', *Global Qualitative Nursing Research*, 4. doi: 10.1177/2333393617711607.
- Gahungu, J., Vahdaninia, M. and Regmi, P. R. (2021) 'The unmet needs for modern family planning methods among postpartum women in Sub-Saharan Africa: a systematic review of the literature', *Reproductive Health*, 18(1), p. 35. doi: 10.1186/s12978-021-01089-9.
- Gong, J. *et al.* (2021) 'Media attention, dependency, self-efficacy, and prosocial behaviours during the outbreak of COVID-19: A constructive journalism perspective', *Global Media and China*, p. 205943642110213. doi: 10.1177/20594364211021331.
- Grishina, M. A. (2018) 'Health communication: Theoretical and practical aspects', *Health Risk Analysis*, (2), pp. 138-150. doi: 10.21668/HEALTH.RISK/2018.2.16.
- Habibov, N. and Zainiddinov, H. (2015) 'Effect of TV and radio family planning messages on the probability of modern contraception utilization in post-Soviet Central Asia', *International Journal of Health Planning and Management*, 32(1), pp. e17-e38. doi: 10.1002/hpm.2318.
- Hu, Y. *et al.* (2020) 'SMS-based family planning communication and its association with modern contraception and maternal healthcare use in selected low-middle-income countries', *BMC Medical Informatics and Decision Making*, 20(1), p. 218. doi: 10.1186/s12911-020-01228-5.

- Husnah, Masni and Hadju, V. (2019) 'Effect of communication, information and education (Cie) on knowledge and decision making of married women planning program at marusu district maros city in 2016', *Indian Journal of Public Health Research and Development*, 10(4), pp. 1051-1055. doi: 10.5958/0976-5506.2019.00848.9.
- Jacobs, J. et al. (2017) 'Mass media exposure and modern contraceptive use among married West African adolescents', *European Journal of Contraception and Reproductive Health Care*, 22(6), pp. 439-449. doi: 10.1080/13625187.2017.1409889.
- Jadhav, A. and Weis, J. (2020) 'Mobile phone ownership, text messages, and contraceptive use: Is there a digital revolution in family planning?', *Contraception*, 101(2), pp. 97-105. doi: 10.1016/j.contraception.2019.10.004.
- Jones, R. M. et al. (2020) 'A Short Message Service (SMS) increases postpartum care-seeking behavior and uptake of family planning of mothers in peri-urban public facilities in Kenya', *PLoS ONE*. Edited by B. Najafi, 15(9 September), p. e0239213. doi: 10.1371/journal.pone.0239213.
- Konkor, I. et al. (2019) 'Exposure to mass media family planning messages among post-delivery women in Nigeria: testing the structural influence model of health communication', *The European Journal of Contraception & Reproductive Health Care*, 24(1), pp. 18-23. doi: 10.1080/13625187.2018.1563679.
- Lim, R. B. T. et al. (2019) 'A Public Health Communication Intervention Using Edutainment and Communication Technology to Promote Safer Sex among Heterosexual Men Patronizing Entertainment Establishments', *Journal of Health Communication*, 24(1), pp. 47-64. doi: 10.1080/10810730.2019.1572839.
- Lin, T. (2020) *The role of exposure to communication channels, institutional trust and moral norm in predicting PM2.5 risk-reduction intention in China: A study of the theory of planned behavior*. Syracuse University.
- Liu, L. et al. (2020) 'Exploring how media influence preventive behavior and excessive preventive intention during the COVID-19 pandemic in China', *International Journal of Environmental Research and Public Health*, 17(21), pp. 1-27. doi: 10.3390/ijerph17217990.
- McCarthy, O. L. et al. (2020) 'An intervention delivered by mobile phone instant messaging to increase acceptability and use of effective contraception among Young Women in Bolivia: Randomized controlled trial', *Journal of Medical Internet Research*, 22(6), p. e14073. doi: 10.2196/14073.
- Okigbo, C. C. et al. (2015) 'Exposure to family planning messages and modern contraceptive use among men in urban Kenya, Nigeria, and Senegal: A cross-sectional study', *Reproductive Health*, 12(1), p. 63. doi: 10.1186/s12978-015-0056-1.
- Osmani, A. K. et al. (2015) 'Factors influencing contraceptive use among women in Afghanistan: secondary analysis of Afghanistan Health Survey 2012.', *Nagoya journal of medical science*, 77(4), pp. 551-61.
- Packer, C. A. et al. (2020) 'Factors associated with reported modern contraceptive use among married men in Afghanistan', *Reproductive Health*, 17(1), p. 64. doi: 10.1186/s12978-020-0908-1.
- Page, M. J. et al. (2021) 'The PRISMA 2020 statement: an updated guideline for reporting systematic reviews', *BMJ*, p. n71. doi: 10.1136/bmj.n71.
- Prasanti, D. (2018) 'Hambatan Komunikasi Dalam Promosi Kesehatan Program Keluarga Berencana (KB) Iud Di Bandung Communication Considerations in Health Promotions Family Planning Program (KB) Iud in Bandung', *Jurnal Ilmiah Kesehatan Keperawatan*, 22(1), pp. 52-63.
- Rutaremwya, G. and Kabagenyi, A. (2018) 'Postpartum family planning utilization in Burundi and Rwanda: A analysis of population based cross-sectional data', *Pan African Medical Journal*, 30. doi: 10.11604/pamj.2018.30.303.15105.
- Sano, Y. et al. (2016) 'Exploring the linkage between exposure to mass media and HIV testing among married women and men in Ghana', *AIDS Care*, 28(6), pp. 684-688. doi: 10.1080/09540121.2015.1131970.
- Speizer, I. S. et al. (2018) 'Association of men's exposure to family planning programming and reported discussion with partner and family planning use: The case of urban Senegal', *PLOS ONE*. Edited by C. A. Moyer, 13(9), p. e0204049. doi: 10.1371/journal.pone.0204049.
- Suffoletto, B. (2016) 'Text message behavioral interventions: from here to

where?', *Current Opinion in Psychology*, 9, pp. 16-21. doi: 10.1016/j.copsyc.2015.09.012.

Tilahun, T. *et al.* (2015) 'Couple based family planning education: changes in male involvement and contraceptive use among married couples in Jimma Zone, Ethiopia', *BMC Public Health*, 15(1), p. 682. doi: 10.1186/s12889-015-2057-y.

Wasswa, R., Kabagenyi, A. and Atuhaire, L. (2020) 'Determinants of unintended pregnancies among currently married women in Uganda', *Journal of Health, Population and Nutrition*, 39(1), p. 15. doi: 10.1186/s41043-020-00218-7.

Winarni, E. and Dawam, M. (2016) 'Family planning information, education and

communication with contraceptive use', *Kesmas*, 11(2), pp. 94-102. doi: 10.21109/kesmas.v11i2.801.

Winarni, S. *et al.* (2019) 'Determinants of unmet need for family planning in tegal and klaten regency', *Indian Journal of Public Health Research and Development*, 10(11), pp. 1704-1708. doi: 10.5958/0976-5506.2019.03794.X.

Yang, Q. and Wu, S. (2019) 'How Social Media Exposure to Health Information Influences Chinese People's Health Protective Behavior during Air Pollution: A Theory of Planned Behavior Perspective', *Health Communication*, 4(4), pp. 1-10. doi: 10.1080/10410236.2019.1692486.