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Microfinance for Wives: Fresh Insights Obtained from a Study of Poor Rural Women in Pakistan

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ABSTRACT. This article identifies why some poor rural women do or do not obtain micro-loans and considers the economic effectiveness of these loans. It draws on primary data collected through interviews and women focus group discussions from four villages of Sindh province in Pakistan. A qualitative approach is adopted to analyze the factors affecting women's access to micro-loans and their successful use of these loans. It shows that women's engagement in social networking helps them obtain micro-loans and assists them in using these loans wisely. Furthermore, success in using micro-loans encourages further business entrepreneurship and continuing evolution in social networks. Poor women need to be made aware of the important

role that social networking plays in accessing microfinance. Nevertheless, some rural women (and households) are unable to rely on micro-loans to alleviate their poverty. This article highlights demand-side credit issues faced by poor women and the implications of credit supply for their ability to engage in entrepreneurial activity and wealth creation. It emphasizes the need for a holistic approach to the assessment of microfinance taking into account its economic, social and psychological impacts within families, paying particular attention to gender relationships.

Keywords: microfinance; poverty alleviation and gender; rural development; social capital; social networks of women; women's empowerment

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1. Introduction

Microfinance for women has been promoted by its backers as a relatively effective means to alleviate poverty, stimulate economic growth and empower women (De & Christian, 2019; Duflo, 2012; Hermes & Hudon, 2018; Prakash & Malhotra, 2017; Rahman et al., 2017; Thomas, 1990). However, this rosy assessment has also been challenged or qualified by several researchers (Garikipati, 2008; Murshid et al., 2016). We are still in the process of improving our understanding of the benefits and disbenefits of micro-loans and their ability to improve the lot of women and their families. The purpose of this article is to improve our knowledge of these matters by drawing on a case study in rural Pakistan and by reviewing some of the relevant literature.

Microfinance is one of the approaches which facilitates women's empowerment; it assists women socially and economically (Salia et al., 2018). However, its success in improving the standard of life of women and empowering them in true sense is debatable (Ali & Hatta, 2012). According to Kabeer (2005), microfinance is not a 'magical bullet' and there are other fronts where interventions are needed to truly empower women. The process of empowerment is complex as it affects the existing gender relations and may lead to unexpected results. Interventions made to improve the livelihoods of people can result in unintended and unplanned outcomes if these interventions are not conceived and executed cautiously. For example; programs aimed at improving women's lives and making them economically empowered can enhance women's power, but these interventions can also impact gender relations and accelerate domestic violence as a result (Asia, 2014). Women in more rigid cultural settings are likely to face a higher risk of domestic

violence because economic empowerment intervenes with patriarchy and expedites change in rigidly defined gender roles (Hughes et al., 2015). A study in Ghana found that interventions to empower women economically resulted in women neglecting their households work, engaging their daughters to perform their duties and increasing disputes within the family (Salia et al., 2018). Therefore, the need to address gender power imbalance and existing gender roles needs to be taken into account before making interventions to empower women (Huis et al., 2019).

According to the available data, micro-loans in Third World countries are mainly made to females and to persons located in rural areas. In 2013, there were reported to be 105.9 million such borrowers of which 81% were reported to be women and two-thirds of whom were located in rural areas (Dar et al., 2016: 27). However, as can be seen from Table 1, the gender of the recipients of these loans varied considerably by geographic region and as did the percentage of those loans given to rural residents. In South Asia, the percentage of micro-loans given to females is very high (the highest in the listed regions) as is the percentage given to rural residents. Note that (unlike in South Asia) in Eastern Europe and Central Asia, female borrowers are in the minority. In Latin America and the Caribbean, rural borrowers are in the minority unlike in South Asia.

Table 1 Percentage of micro-loans taken by females and by rural residents in the stated regions in 2013 and number of borrowers

Region	Female (%)	Rural (%)	No. of borrowers (millions)
South Asia	93	77	56.7
Latin America & Caribbean	65	35	21.9
Africa	62	54	8.7
Eastern Europe & Central Asia	44	61	3.1
Middle East & North Africa	59	54	2.0

Source: Data extracted from Dar et al. (2016: 22).

While the data provided in Table 1 provides a useful overview of the gender-related allocation of micro-loans, it should also be pointed out that sometimes loans taken in a wife's name are actually used by husbands. Examples of this in rural Pakistan were revealed in our survey.

It might also be noted that the general cultural context in Pakistan has similarities with that in many other parts of the Indian sub-continent although it is not a mirror image (Tisdell, 2019). Paternalism is strong in many parts of the Indian sub-continent, especially in rural areas. Nevertheless, the status of South Asian women varies according to cultural differences between social groups (Tisdell, 2019).

This article has evolved from a broader study which focused on the ability of credit schemes to increase the wealth of holders of small farms in Pakistan. It was found that most of the relevant existing literature concentrated on the factors affecting the supply of agricultural finance, including micro-loans to women, with much less attention being given to the demand-side influences on the taking of such loans. Nevertheless, some studies (Ashraf et al., 2009; Guirkinger & Boucher, 2004) have identified demand-side obstacles experienced by smallholders, such as complicated application processes and difficulties in providing loan collateral, as limiting the demand of women for agricultural loans. We decided that it would be useful to seek additional information about the factors limiting the access of poor women to agricultural finance based on a case in rural Pakistan, as well as to obtain more information about their demand for such finance.

In this article, our main aim is to obtain insights into the demand-side credit issues faced by poor wives involved in small-scale agriculture and the implications of these for their ability to engage in entrepreneurial activity and wealth creation. Understanding the strategies that women can use to improve access to financial services can strengthen their role as farmers and improve economic opportunities for them and their families (Fletschner & Kenney, 2014). The capacity of women to find new business opportunities and create wealth for their families is well documented (Naudé, 2011) and is viewed as a key to rural development in emerging economies. Yet, women involved in small-scale agriculture or other rural activities often struggle to obtain credit or are reluctant to seek credit. We address these issues by analyzing data obtained from four focus group discussions (FGDs) with rural women from four rural villages in the Taluka area of the Khairpur District of Sindh province in Pakistan as well as data collected as a result of interviews with these individual wives. Our findings indicate that access to social networks, and a better understanding of how loans can be used for economic benefit, are crucial in improving access to financial services. These results are consistent with other studies that have demonstrated the significance of social capital for entrepreneurial activity (Hanson & Blake, 2009; Korsgaard et al., 2015). We also identify several other factors that rationally deter wives from taking such loans.

In recent years, microfinancing (particularly for women) has been promoted as a significant contributor (in less developed countries) to economic development and poverty alleviation, especially in rural areas. The incidence of rural poverty is marked in Pakistan (Planning Commission of Pakistan et al., 2016) and is negatively correlated with the size of agricultural holdings – it tends to increase as the size of such holdings declines. The size of agricultural holdings in Pakistan has decreased significantly due to land subdivisions as a result of inheritance practices (Obaidullah, 2015). This trend has added

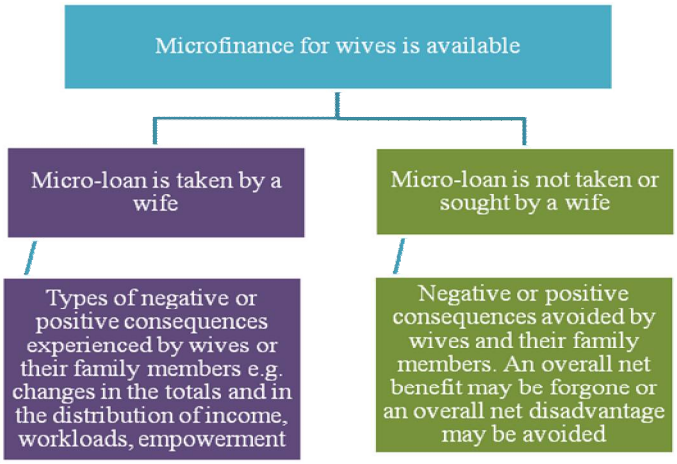
to rural poverty in Pakistan. Furthermore, agricultural women usually bear the brunt of rural poverty because of their inferior social status in paternalistic societies (Tisdell, 2019), such as those in Pakistan where son preference is common (Agha, 2018). Consequently, their ability to contribute to household income is restricted because social factors limit their access to economic opportunities capable of raising household incomes. This includes their access to finance for rural projects able to enhance household incomes. In view of these aspects, the focus of this case study is on Pakistani rural wives living in households possessing little or no land and on the factors influencing their utilization of microfinance.

This article is developed in the following way. First, an analytical framework relevant to the investigation is outlined. Then the methodology adopted is outlined. Subsequently, the basic results from the survey of individual wives and the information provided by the focus discussion groups are summarized. This is followed by a more detailed outline of the results obtained from each of the focal rural villages from which the participating respondents were drawn. Use is made of data obtained from the focal group discussions as well as information collected from the prior interviews with individual wives. The information reported is then reflected on. As a result, we consider the following. Reasons why wives do not take agricultural micro-loans are extracted from the data and consideration is given to the relevance of social network theory to the ability of women to obtain micro-loans. We explore the role of social networking and analyse how these networks facilitate poor women in accessing microfinance facilities and improve their livelihoods. Because social networking is associated in the literature with social capital theory, this link is investigated. Additional financial issues arising from this study are also considered and the relationship between micro-loans and the development of female entrepreneurship is given attention. Finally, before concluding there is a general discussion which draws on the available literature to broaden our assessment of the impacts of the taking of micro-loans by wives on themselves and their families. In addition, this section enables some extra features associated with gender and micro-loans to be highlighted.

2. Conceptual Analytical Background

A tree diagram can be used to organize the analysis of the consequences of the decisions of wives to take or not to take (or seek) micro-loans. A simplified tree diagram with this in mind is shown in Figure 1. It can be made more detailed as far as the possible consequences of micro-financing are concerned, but it is adequate for organizing the present discussion.

Figure 1 A simplified tree diagram intended to help organize the discussion of the consequences for wives and their families of the availability of microfinance



The main focus of this case study is on the items shown in the second row of the tree diagram in Figure 1. However, some of the outcomes in the third row of this diagram are also identified in this case study. Furthermore, drawing on the available literature, important aspects of the possible outcomes listed in the third row of Figure 1 are given attention in Section 7.

Benefits and disbenefits experienced by wives from taking micro-loans can be quite varied. They may be of an economic, social or psychological nature. For example, a wife may add to the wealth of her family as a result of taking a micro-loan but neither herself nor her children may benefit economically because her husband uses the extra income raised for himself alone or leaves little of this extra income for his wife and children (Kiriti Nganga & Tisdell, 2010; Kiriti & Tisdell, 2003; Tisdell, 2019). Servicing the loan may also make a wife anxious and stress her.

Furthermore, even if the wife does have substantial control over the extra income earned (and therefore, has greater empowerment in this regard), she may be subject to increased psychological abuse and violence from her husband if he feels that his dominance within his family is threatened. This is just a sampling of the possible wide-ranging consequences of wives taking micro-loans. The prevalence of these effects is liable to vary with the prevailing culture in which families are embedded.

The case in which each member of a family benefits when a wife takes a micro-loan represents a very desirable outcome. However, we also need to recognize that situations arise in which some family members are advantaged and others are disadvantaged when a wife borrows. When this happens, it is a challenge to determine whether the family is better off or not. The intra-

family distributional effects of wives taking micro-loans are an important subject for empirical investigation. This subject is not directly addressed in our case study but it is considered in Section 7 of this article by drawing on the relevant literature.

Major contributions of this case study include its identification of factors that result in wives from poor rural families successfully obtaining micro-loans and sing these profitably for funding their own investment projects. As well, it shows that social networking by wives is able to play a major role in the success of this process, provide ongoing social and economic benefits, and add to social capital.

3. Methodology

Female participants from four rural villages in the Khairpur District were selected to participate in four different focus group discussions (FDGs); one discussion group for each of the following villages in the Taluka sub-district of Pakistan: Gagri, Faizabad, Abdul Kareem Solangi and Sanwalo Khan Jamali. District Khairpur is located in the northern Sindh on the west bank of the Indus River. The majority of people in this district are directly or indirectly dependent on agriculture for their survival. The district is further sub-divided into administrative areas known as “Taluks” (tehsils). There are eight Taluks in District Khairpur. Most of the people (about 94%) in this district speak the local language, Sindhi, whereas the remaining speak Punjabi (3.2%), Urdu (1.4%) and Baluchi (less than 1%). The major cultivated crops include cotton, sugarcane, wheat, rice, banana, mangoes, but the most important cash crop is dates – popularly known as the golden harvest (Agha, 2015a, 2016a). Date production occupies a central role in the village economy of Khairpur, providing both men and women with opportunities for livelihood (Agha, 2015b). It is the key source of financial support for local people despite the fact that there is no large, medium or small industry for the processing of dates within the administrative domain of the district.

The selection of the villages was purposive. Two were selected to include participants who had taken loans and two were chosen where it was believed that loans were not taken by poor agricultural women. The majority of the focus group participants from Gagri and Sanwalo Khan Jamali villages were found to have taken loans but none from the villages of Faizabad and Abdul Kareem Solangi. It was expected that this difference would provide scope for comparative insights and analysis.

Initially, background information was collected about the four villages and the areas in which they are located (to obtain village profiles) relying on official sources and interviews with villagers. After this, 27 wives were individually interviewed (7 from each of the three villages and 6 from one

village), by means of a structured questionnaire to obtain a large amount of information about themselves, their families and about their reliance or otherwise on microfinance. The data collection instruments (for example, survey questions and the topics of the FGDs) are fully specified in Tisdell et al. (2017: 27–28). The information gathered from each of the respondents along with the full transcripts of the four FGDs held with wives from each of the four villages is available in Tisdell et al. (2017, pp. 30–88).

The interview guide was divided into three sections: the first part related to the village profile in which basic information about the village was asked, e.g. number of households in the village, facilities available to the villagers, number of schools and health facilities, seasonal crops etc. The second part contained questions about the respondent and her family such as respondent's educational level, highest education in the family, number of children and family members, primary and secondary economic activity of the family and so on. The third part of the questionnaire carried the questions targeting agricultural activities, land ownership, access and difficulties to access credit facilities, repayment of loans etc.

The participants were chosen according to the inclusion criteria, i.e. those who were directly or indirectly engaged with agricultural activities, had or had not taken loans (for comparison) for various reasons, had some knowledge of agricultural practices in the village etc. We excluded senior and unmarried women from these discussions because younger married women actively participated in most of agricultural activities while unmarried and older women remained at home looking after the household.

The choice of the Taluka sub-district for this study was partly determined by convenience and cost considerations. The medium of communication was the local language – Sindhi. The responses of the participants in the focus groups were recorded and then translated into English. The women who participated were accessed through intermediaries from their village. Those intermediaries included a school headmaster, a landlord, and a social worker. A prior visit was made to each village in order to build rapport with the participants and set a schedule for the focus group discussion. The focus groups were organized at places easily accessible to all participants; for example, one was organized at the school headmaster's house. He was a well-known and trusted man and therefore, village women were allowed to visit his house without their family's objection.

Women from the villages had a low socio-economic status. Convincing these women to participate in focus group discussions was a challenge; nearly all of these women had limited literacy and social exposure and were not used to being asked about credit issues, their farming practices and the challenges they usually face in the fields. This also influenced the length of the discussions. Except in Gagri village, the majority of the participants in

other villages lacked confidence in sharing their situation and thus could not speak at length. In Gagri village, the involvement of the women in socio-politics enabled them to discuss their practices at length and to be vocal about their situation.

Although our sample is small, this allowed detailed data to be collected and provides new information (much of it qualitative) which would otherwise be unavailable. The value of this type of information has been noted by Saunders et al. (2018) and others. This survey does bring to light issues that tend to be overlooked in mechanical collection of large sets of statistical data and with the further enquiry it generates, is a useful supplement to the literature on microfinance and gender. Our approach provides new insights into the demand of poor rural women for micro-credit and their access to financial services and enables three main themes to be addressed. These are (1) the impediments to women seeking such loans; (2) the role of social networks in enabling women to obtain microfinance and use it productively; and (3) the creation of localized social capital by women and within families as a result of their access to micro-loans.

4. Basic Results

Each member of the focus groups was asked how many loans they had taken in the past three years, the sources of these loans, the amount of the loans and the mode of payment. They were also asked about the method of repayment, whether or not payment was delayed and if so why. None of the participating women from Faizabad and Abdul Kareem Solangi village had taken loans. However, five of the seven participants from Gagri village responded that they had taken loans and four of the seven participants from Sanwalo Khan Jamali village reported likewise.

In the case of Gagri village, all the loans were from the Sindh Rural Support Organization (SRSO). This organization was established in 2003 and is the main rural support program in Northern Sindh covering ten districts including Sukkur, Khairpur, Ghotki, Naushero Feroz, Shaheed Banazirabad, Shikarpur, Jacobabad, Larkana, Kashmore-Kandhkot, and Qambar-Shadadkot. This is a non-government and non-profit organization aiming to support disadvantaged rural social groups engaged in agricultural and other wage-earning activities (such as sharecroppers/haris, small farmers, landless laborers, and women). The main aim of SRSO is the promotion of sustainable development and the reduction of rural poverty through community participation and local capacity building.

Payments of loans to women in Gagri were in cash. Except for a group loan of 100,000 rupees for the establishment of a shop, repayment of none of the loans was delayed. [Note: At the time of the survey (May 2017), one

Australian dollar equaled about 80 Pakistani rupees]. The loan for the establishment of the shop was delayed because the income from the shop was less than expected. Indications are that loans are for a short term, for example, one year. Meeting repayments, therefore, requires a rapid cash flow from the use of a loan, obtaining another loan, or the ability to draw on other assets to meet repayments. For example, one respondent reported that she sold livestock to repay her small loan on time.

Four of the seven participants from Sanwalo Khan Jamali village reported that they had had loans in the last three years. Each of these four women had had loans from ASA Pakistan Ltd., a microfinance institution, and one of these women also had had two loans from the Tameer Bank. The Tameer Bank was established in 2005 and was the first scheduled microfinance bank in Pakistan. It was taken over by one of the largest mobile providers "Telenor" in March 2016.

ASA Pakistan is a microfinance organization and a subsidiary of ASA Pakistan International. The organization is well established in Pakistan and has several branches in Punjab and Sindh. It aims to empower poor people to obtain sustainable development through small and medium loans. Their small loans specifically target working women in order to enable them to support their families.

5. More Detailed Results Obtained from Focus Group Discussions and Individual Interviews

Discussions with the women from each of the rural villages under consideration yielded extra information about household gender-related loans and credit which was unavailable from data obtained in the more structured portion of our information gathering process. Information from both these sources is drawn on in this section to provide more detailed results than in the previous section. While FDGs have their limitations (for example, more vocal persons may dominate the discussion), they can provide valuable insights into socio-economic conditions (Cochrane & Thornton, 2017). At the same time, it needs to be borne in mind that the number involved in such discussions ('the sample') usually has to be small, and how representative it is of a wider set of persons is a matter for judgment or further investigation. Bearing this in mind, let us, therefore, consider the relevant extra information about loans and credit revealed by the FGDs. The discussions with women groups from each of the villages will be examined in turn.

All families in all the villages represented by the women interviewed are poor. The comparative economic wealth of their families (classified according to their villages based on the holdings of land in their family's name, their possession of gold and electrical items) is in descending order of wealth:

Abdul Kareem Solangi, Gagri, Sanwalo Khan Jamali, and Faizabad. An important factor associated with the households from the first mentioned village is that all but one of the husbands of interviewed women had off-farm government jobs. Most men from the other villages lacked off-farm work and when it is available, it is usually casual (low-paid) work.

5.1. Gagri village: Information about loans and credit extracted from the FGD with women from this village and their individual interviews

The FGD with women from Gagri revealed that they are politically active, work hard and are engaged in diversified agricultural production, for example, they grow a variety of crops and keep some livestock, for instance, buffaloes. They are also engaged in cottage production – the making of pots and in addition, assemble mats and plates from date palm leaves. Their social networking has enabled them to obtain considerable support from SRSO by way of loans and the free provision of some agricultural resources, for instance, some buffaloes. Furthermore, they obtain support from an organization for women, namely the Indus Resource Centre (IRC). This organization provides basic information about agriculture and has taken this group of women for a visit to Islamabad. This visit helped to improve their horizons.

This focus group stated that they belong to the Solangi caste and that consequently, they all work together. Solangi is a Muslim Rajput tribe living in Sindh and Southern Punjab. Their co-operation is reinforced by a perception that they are socially distinct from others. This social separation is not unique (Kelly et al., 2017). The kinship system in rural Sindh is very specific in order to retain the integrity of social groups (Agha, 2016b). Caste endogamy is one of the ways group members can maintain themselves socially and economically. In so doing, in-group marriage unions are formed to strengthen the group. These women mentioned that they are taunted by villagers who have higher incomes and who do not allow their women to work. The Solangi do allow their daughters to work in agriculture when required.

Various examples were given by the interviewed women of the support they obtained from the SRSO. These included loans for economic projects, the free provision of agricultural resources, and advice about agricultural production and marketing. An interesting example is the buffalo donation scheme. A group of women were donated two buffalos each by SRSO on the condition that one be returned to SRSO after two years. At the end of this period, the ownership of one was retained by the recipient. Any calves born also became the property of the recipient and recipients were entitled to the milk of these animals while in their possession. One discussant said that the women have their own buffalos now and that she herself made approximately Rs. 80,000 in seven months from the sale of this milk. This scheme involved partly a gift in kind (a buffalo) and partly an interest-free loan in kind,

namely one buffalo. It was also mentioned that SRSO provided chickens and seeds but no details were given about the terms of this assistance.

Mention was made of a women's local support organization (LSO), which liaises with SRSO. This organization had, for example, a project for investment in livestock. It was managed by a committee consisting of a president, vice-president, a treasurer and another member. The project was for the benefit of 20 persons and involved a loan. Respondents, when asked about the advantages of this, replied: '*We had advantages with this, we earned and paid back the loan easily, and our network also grew*'.

Clearly, the women by co-operating in Gagri village by building social networks and by being politically active have been able to benefit by receiving loans and information. These have increased the productivity and profitability of their farming systems and they have also been able to obtain donations of agricultural working capital.

5.2. Faizabad village: Information from the FGD with women from this village and their individual interviews

The situation of the women from Faizabad contrasts strongly with that of the women from Gagri. Their households have no land in their families' names and they are extremely poor. They work daily on the farms of landlords for very long hours. When asked whether there is any possibility of them having a bank loan, one respondent said, '*Yes there is but poor people don't take the risk of taking a loan … [because] of low profitability*'. Another woman said: '*There are banks and an organization we know of but we do not mostly know as we are not into it*'. No use is made of formal loans and credit. One woman said, '*when we need money we borrow some amount privately and sometimes from the landlord who deducts it later from our wage/share*'. When asked if there was any facility for loans for women, one woman said: '*We have no idea, we are concerned with our work*'. When asked why don't they get a loan, the replies were: '*No, we don't get a loan, we are poo*r' and '*Our men are jobless and [our] kids have to be raised; how can we afford to pay back loans*?'

The extreme poverty of this group of women seems to be associated with their lack of natural capital (land owned by their families), little human capital (no education) and the absence of social capital (active and effective female social networks). This combination traps them in a continuing cycle of poverty. Their scope for agricultural entrepreneurship is extremely limited. Potentially, however, there may be scope for them to benefit from a donation-type scheme, such as the buffalo scheme described in the previous subsection.

5.3. Abdul Kareem Solangi village: Information about loans and credit extracted from the FGD with women from this village and their individual interviews

Women from this village reported that they do not take loans and that loans are not available for women. It was also explained that sometimes when they have a shortage of money for agriculture or for their own expenses, their men go and borrow some grocery items from the shopkeeper. There are no organizations for women in this village and these women said they have no economic surplus after providing for necessities. They said that income (profit) from agricultural activity is very low, and they say they are at a loss as to how to increase it. In the absence of these women obtaining effective knowledge about how they can increase the profitability of their agricultural activities, it is difficult to see how they could benefit from a loan to support their agricultural activities.

However, households from this village represented by participants in the FGD are wealthier than those from the other villages when judged by their ownership of gold, electrical items, and land. All have land in their family's name and their holdings range from 1–4 jerib (equivalent to 0.49 acre). This compares to an estimated average land holding in the locality of this village in the range of 5–10 jerib.

The fact that all their husbands (except one) had off-farm government jobs (were teachers, a policeman and a secretary to a local council) may have reduced the motivation of these families to seek ways to increase their agricultural productivity, obtain knowledge about how to do this, and to take loans for this purpose. They also make more use of hired labor and hired agricultural machinery and services to produce their crops. These procurements are financed from their own resources. It is also possible that given their relative wealth, they are less likely to obtain financial and other support from NGOs for the purpose of increasing their income from agriculture than poorer women.

5.4. Sanwalo Khan Jamali village: Information about loans and credit extracted from the FGD with women from this village and their individual interviews

Several of the focus group women from this village did take loans. Four took a group loan from ASA Pakistan Ltd. However, those who spoke up in the FGD said that their loans were only to help finance their husbands with operating shops. None of the loans were for the purpose of raising agricultural productivity and increasing returns from the sale of agricultural produce. It was also mentioned that there is no organization for women in this village. Nevertheless, it was stated that the Kashaf Foundation was present in the village and that it provides group loans for women. The Kashaf Foundation

was the first specialized microfinance institution in Pakistan to supply financial and non-financial services to the poor and low-income individuals. It was established in 1999 with a particular focus on the empowerment of women by developing their enterprise skill, and providing them with greater access to education and training to improve their livelihood prospects. However, none of the focus group respondents stated that they had taken a loan from Kashaf. They had mostly relied on ASA Pakistan Ltd. for their loans.

One participant in this group also said: '*We are unable to save anything because all we get is spent on our kids and food*'. These women struggle to supply the bare necessities for their household members. No mention was made of investment in agriculture or of other agricultural initiatives, which might raise their returns from agriculture. Nevertheless, several of the households in the 'sample' possess small plots of agricultural land. There appears, therefore, to be a lack of social and economic dynamics which could be supportive of agricultural innovation, entrepreneurship, and change in this village. Households (represented by women from this village) appear to be stuck in an agricultural rut.

6. Reflections on the Information Reported Above

6.1. Means other than microfinance to benefit and empower women

While microfinance is considered to play a leading role in empowering women, it is contentious whether or not it empowers women in a true sense (Ali & Hatta, 2012). Although access to microfinance can contribute greatly to the improvement of poor women's lives by enhancing their economic productivity and by developing their social status, it is not the only factor which can empower women. Other interventions such as greater education or political quotas for women also need interventions for structural transformation and women's empowerment in a real sense (Kabeer, 2005). Women's formal education has a positive correlation with their access to credit facilities. This access enables women to gain economic and social benefits from microfinance services. Their level of education determines the degree of the benefit women are likely to gain from microfinance facilities (Salia et al., 2018). This was also demonstrated from our data as women from three villages had limited literacy and education as well as access to and awareness about the credit facilities. Women from Gagri village had greater literacy and more education and thus their performance in terms of access and utilization of loans was better than that of their counterparts from other three villages. The education of our respondents is specified in Table 2.

Table 2 A table showing (for each village) the amount of education (in school years or university achievement) of each of the wives surveyed for this study and whether they had micro-loans. Those taking micro-loans are identified by an asterisk.

Village Respondent	Gagri	Faizabad	Abdul Kareem Solangi	Sanwalo Kahn Jamali
1	MA degree*	0	5	0*
2	8*	0	8	0*
3	10*	0	0	0*
4	5*	0	0	0*
5	0*	0	0	0
6	0	0	0	0
7	0	0	n.a.	0

Note: Gagri wives used their loans for their own projects but those from Sanwalo Kahn Jamali did not. They were in fact, used by their husbands.

6.2. Impediments to women obtaining agricultural micro-loans

Except for most female respondents from Gagri, none of the interviewed women availed themselves of loans for the purpose of agricultural development or for their own use. Some reasons given by women who did not take such loans are listed in Table 3 along with reasons that can be deduced from the data collected. Mostly, the listed items reflect feminine demand-side limitations to taking loans for agricultural development. However, some reflect the unwillingness of providers of formal loans to provide loans to poor agricultural households.

Table 3 Reasons why women do not take loans for agricultural development

Reasons given in interviews (other than FGDs)	1. Lack of profitable opportunities for agricultural investment 2. Ignorance about profitable opportunities for agricultural investment 3. Too risky given their severe poverty 4. Lack of awareness of possible sources of finance
Reasons which might reasonably be inferred from the FGDs and data obtained for this paper	5. Lack of social capital and networking among women 6. Difficulties in servicing debt due repayments exceeding available cash flow, especially in the early stages and lack of sufficient income and realizable assets that could be used to meet any such shortfall 7. Difficulties in establishing creditworthiness, especially of first time borrowers 8. High rates of interest and service charges
Difficulties sometimes mentioned in the relevant literature	9. Agricultural land owned entirely by males 10. Lack of collateral to cover a debt in the case of default. Even if such collateral is available, it may be costly for the lender to acquire and dispose of the asset involved

Whether or not the land of a family is owned in the name of males does not appear to be a major obstacle to women and households accessing micro-loans for agricultural development in the Taluka area of Pakistan. In all cases, the land owned by households of the interviewed women is in the name of males. For example, women from Gagri obtained loans for agricultural purposes and some women from Sanwalo Khan Jamali obtained loans for other purposes. This suggests that the importance of female ownership of land for the status of women, as stressed by some researchers (Doss et al., 2015; Njoh & Ananga, 2016), may have been exaggerated. This does not imply that it is irrelevant.

Furthermore, the importance of using land as collateral for the purpose of securing agricultural loans appears to have been overemphasized. The more important consideration of the lender seems to be the ability (and the willingness) of a borrower to repay the loan in full and in a timely fashion. Furthermore, as observed by Schindler (2010), the inability of women to repay loans prevents them from escaping from poverty. It can in fact, deepen the extent of their poverty. However, the capacity to repay a loan is likely to be an increasing function of the amount of agricultural land available to the household, its productivity, and other factors.

An important reason mentioned by women who did not take agricultural loans was that they lacked opportunities to invest these funds profitably. Furthermore, some said that they lacked knowledge about how they could increase their profits from agriculture by changing their practices. Risk was also stated in the FGDs as a major impediment to the taking of loans. This is likely to be especially important for families living near subsistence level. Those families have no scope for saving or for obtaining an economic surplus, and possess few assets. Consequently, they are highly vulnerable to agricultural risks.

In one of the FGDs, respondents mentioned that they did not know anything about possible sources of formal finance. While the absence of such knowledge can be an obstacle to taking advantage of financing opportunities, in this case, it is clear that even if the women concerned had knowledge about such opportunities, they would still not have taken loans because of their extreme poverty and inability to repay. In such circumstances, it is rational for them not to seek information about the possibility of formal loans (cf. Tisdell, 1975, Chs. 2 and 3; 1996).

6.3. Social network theory and micro-loans for women

Our data and FGDs show that an important influence on the ability of women to obtain loans is their capacity to establish effective social networks. These networks are a form of social capital and enable access to be obtained to resources such as finance, equipment, information and business opportunities

(Hanson & Blake, 2009; Korsgaard et al., 2015; McKeever et al., 2014). This is particularly evident in the case of Gagri where women have been able to achieve significant agricultural development mostly due to their social networking and political activism. Most importantly, these women have been able to build social capital in the public sphere of the community, which is the domain of commerce and paid labor (Hanson & Blake, 2009). In the other three villages, there is a noticeable absence of social networking by women. This may be so in two villages because of their greater impoverishment. They have little spare time for forming and sustaining such groups because their time is spent attending to tasks necessary for the survival of their families. Coping with poverty severely restricts their scope to create and be involved in social networks.

Social networking involves both time and effort. Yet women are not always able to convert these efforts into useful outcomes (De Klerk & Verreynne, 2017), and often focus on developing non-influential networks. Women are more likely to form network connections with other women and are therefore limited in their capacity to access the power and decision-making networks of men (Hanson & Blake, 2009). Furthermore, the absence of the formation of such networks might also be influenced by the female perception that potential female borrowers would be unable to service loans if they were forthcoming and the chances of them receiving outside support for agricultural development (by forming social groups) is minuscule. In short, the costs in relation to the prospective benefits of creating female social networks may be perceived by very poor agricultural women as being negative. Indeed, this may often be so.

The above discussion suggests that a unimodal relationship may exist between social network formation and involvement and the poverty level of households in some developing countries, for example, those on the Indian subcontinent. Women belonging to extremely poor households are unlikely to form social networks intended to bring about improvements in their households' returns from agriculture. However, as the degree of poverty of these households declines, the chances of social networks being formed for this purpose rises. However, possibly, in cases where agricultural households are reasonably well off, women are less inclined in some societies to form social networks with this objective in mind. There is some evidence from our data to suggest the existence of a rise in the above-mentioned relationship. There is other evidence that on the Indian subcontinent, women from higher income families in rural areas are less likely to be involved in economic activities outside the home than those from low income families (Tisdell, 2019). This partly reflects cultural factors.

6.4. Social networks and problems involved in measuring social capital

Developing effective social networks adds to social capital and can increase the wealth of participants in such networks. The results reported by the interviewed wives from Gagri village provide a pertinent example of this process. In our view, it is important to study the processes involved in the formation of social capital at the local and micro-levels (e.g. its accumulation by individuals and families) in order to ensure the policy relevance of this type of research.

Although social capital has been recognized as a significant potential contributor to economic growth (World Bank, 2011), its accurate measurement as an independent variable is very difficult to achieve, perhaps impossible. This is because it is comprised of several different elements, each of which is highly resistant to being accurately quantified. Therefore, in applying some macroeconomic growth models, several economists have treated the contribution of social capital to wealth as a residual (Arrow et al., 2012). However, as is well documented by Engelbrecht (2016), this approach can result in very different estimates of the contribution of social capital to economic growth at the macro-level using the same data sets.

Most studies of social capital (especially those by sociologists) stress the importance of trust between individuals and the presence of social networks as major contributors to the existence and 'size' of social capital (see, for example, Coleman, 1990; Hong et al., 2019; Putnam, 2000; Righi, 2013; Westlund & Adam, 2010). While both of these elements resist being measured accurately, one is usually able to obtain a more accurate image of these locally than on broader geographical scales, especially if this is on a macro-scale, and if the various elements are represented by a single variable.

This study gave attention to localized aspects of social capital. The idea that social capital is highly contextual has previously been noted by McKeever et al. (2014). However, even at localized levels, the quantification of social capital as a single variable and the accurate measurement of its components empirically remain challenging. For example, all the attributes of social networks need to be accounted for. These include their purpose (which can vary considerably), their extent and structure, their strength (depth), the nature of interconnections between their members, and the sustainability (resilience) of these networks (Hong et al., 2019; Kastelle & Steen, 2014).

The dynamics of the creation of social capital also require careful consideration. For example, how do lenders come to trust borrowers or prospective borrowers? In this article, this was shown to depend on the past credit history of borrowers. Also, the presence of trust is important for the establishment of social networks and their sustainability. This is because, as a rule, all members of a social network are expected to co-operate to provide mutual advantages to each other. In other words, prospects for social recip-

rocation are usually important (McKeever et al., 2014). Perceptions about how much potential members of a social network can be trusted to co-operate with one another influences whether or not a social network is likely to be established (Shazi et al., 2015). If after the establishment of a social network significant trustworthiness of its members is confirmed, this is likely to increase the likelihood of this network being maintained, extended or utilized for a widening range of purposes, as is evidenced by the Gagri village case.

Analyzing social capital is frequently restricted to the consideration of trust and social networks. However, a strong case exists for including 'good' governance as a component of social capital. This should include (to the extent possible) an allowance for the codification of the law and its enforcement, that is, the maintenance of law and order (Smith, 1910[1776]). Nevertheless, there is disagreement among scholars about what constitutes good governance at the national level, e.g. the extent to which good governance depends on the presence of authoritarian or democratic institutions.

6.5. Additional financial matters

Another issue not raised by participants in the FGDs but which can be influential is the importance of cash flow constraints as an influence on accepting microfinance. Repayment of the loans mentioned in the survey was required over a comparatively short period of time. This can create a cash flow problem (in particular, for innovative projects) because it usually takes a while before many investments in agriculture provide an adequate cash flow to service loans. In such cases, other sources must be drawn on to service a debt. In general, the poorest agriculturalists (and female borrowers) have little or no capacity to draw on other sources of income or realize assets to service a debt if the cash flow from a financial investment is insufficient to cover some of the instalments agreed to for debt repayment.

Judging from our sample, micro-loans made to women (of households holding little agricultural land) are relatively short term, for example, for periods of 1–2 years. Long-term loans, which might increase their agricultural wealth, appear to miss out on funding. This is probably because of insufficient collateral of the borrowers to cover the loan should they default.

The main criterion adopted by lenders for giving loans to the women who participated in the focus group discussion appears to be their creditworthiness. This is usually established by timely repayments of previous loans. This can make it difficult for first-time borrowers to obtain a loan. In some cases, this can be overcome by having a surety or sureties. Some group loans contain an element of this type of insurance.

None of the female respondents mentioned high-interest rates as a deterrent to taking loans. Nevertheless, it is clear that interest and debt servicing charges can be high and are likely to be deterrents to the taking of loans by

poor women for agricultural purposes. Although none of the women articulated this directly, the way the women from the village Sanwalo Khan Jamali reacted to the question about interest revealed that these women would have to pay more in the way of interest than their returns. Women from the village Faizabad also responded in the same manner; for example on the question of women's engagements with loan-taking services, a woman said: 'No we do not take loans, we are poor… our men are jobless and kids have to be raised. How can we pay back loans?'

6.6. Enterprise and micro-loans

This study highlights the important role played by social networking (including political enterprise) in enabling poor agricultural women to obtain micro-loans for development of their businesses. The significance of this factor is evident from interviews with female focus groups from Gagri village. It is also clear from this study that enterprise by would-be borrowers is required on two fronts, namely in social networking, and in finding economic opportunities which will enable them to service their loans and add to their income.

In addition, the Gagri case indicates that the success of recipients with microfinancing breeds further success. It encourages borrowers to seek further loans and extra support is likely to be forthcoming from NGOs wanting to assist these poor entrepreneurs. Two effects are present, namely, borrowers learn by doing, and for lenders, there is a demonstration effect. Successful borrowers show that they are creditworthy and are able to enhance their wealth by such loans. As a result, successful borrowers are likely to be favored by lenders for future micro-loans, and by NGOs for other forms of assistance. Increased trust is also developed between lenders and borrowers as a result of this process. While this can be beneficial to the parties involved from a business point of view, it can have a negative social effect. It is likely to make it more difficult for those who are considering obtaining micro-loans for the first time to receive loans and obtain other types of support from NGOs. In effect, a barrier to entry of new borrowers is created. Many microfinanciers are likely to concentrate on repeated lending to previous borrowers who have proven themselves to be creditworthy, as has been pointed out by Becker and Posner (2009, Ch. 47).

Furthermore, it should be recognized that microfinanciers are involved in a search process; not only potential borrowers. Their repeated loans to previous creditworthy customers result in their search costs (or more generally transaction costs) being lower than otherwise. Transaction costs are also likely to be lower when the offices of micro-lenders are located in the vicinity of potential borrowers. This locational factor seems, for example, to have favored respondents from Gagri village obtaining micro-loans and other forms of aid.

In the Gagri case, social networking enhanced the social capital of women involved in this networking, increased their access to further credit and to market opportunities, as well as enabling them to secure additional resources and knowledge; all of which had positive consequences for their business enterprises and for the alleviation of their poverty. These consequences accord with the general hypotheses of Grootaert (1998), Knight and Yueh (2008), and van Bastelaer (2000). Because lending by mainstream financial institutions is more carefully regulated by fiduciary rules than is microfinancing (Becker & Posner, 2009, Ch. 47), and social networking is likely to be more important in gaining access to the latter type of finance.

7. General Discussion

The focus of this study has been on determining factors that seem to influence the demand of rural wives in Pakistan for microfinance and the ability of micro-loans to promote the entrepreneurship of these women. The results indicate that those from very poor families with a low level of education (e.g. wives in Faizabad) do not seek loans. This is because they believe that they cannot utilize loans profitably and also that they are unlikely to obtain loans. They are too poor to benefit from microfinance. Nevertheless, in Sanwalo Kahn Jamali, quite poor wives with no education did obtain micro-loans but as stooges for their husbands.

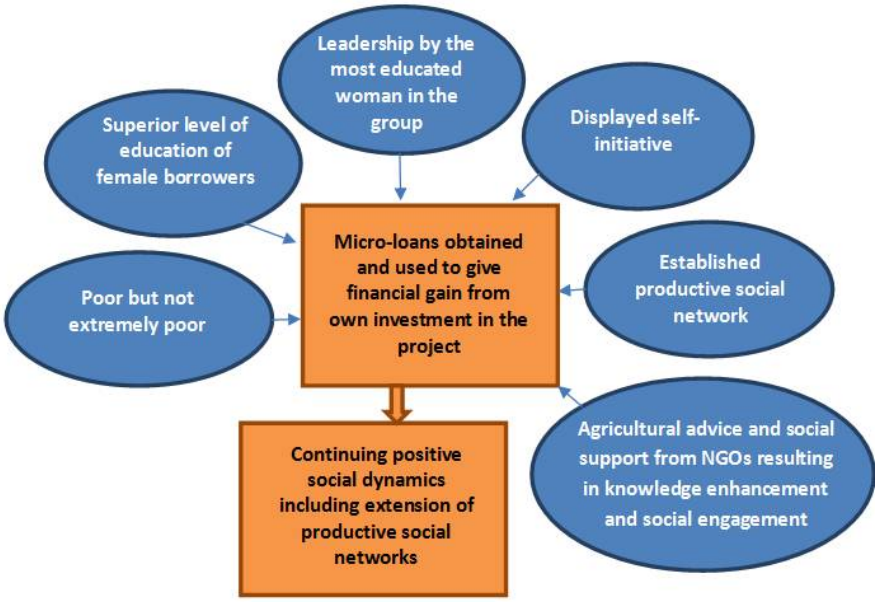
The better-off group of wives economically in this survey came from Abdul Kareem Solangi village. Their families had the most land and the husbands of most had government jobs. They did not seek loans. In their FGD, they said that they did not seek microfinance because they did not know how to profit from using these. However, it might have also been the case that they were not highly motivated to increase the profitability of their farms. This low economic push-factor may have been accompanied by a cultural disinclination to seek micro-loans. The education levels of wives in this village were quite low.

The standout group of wives in this study was from Gagri village. Most of the wives interviewed from this village availed themselves of micro-loans. Their families were poor but better off than the families of interviewed wives from Faizabad and Sanwalo Kahn Jamali. On average, they had received more education than the wives from the other three villages. One wife had, in fact, completed an MA degree, even though the level of education of the other interviewed wives was substantially lower. This wife appears to have been a prime mover in having most of the women interviewed from this village taking micro-loans. This group of wives developed productive social networks and obtained valuable investment advice and assistance from an NGO. In this case, micro-loans acted as a catalyst for their entrepreneurship.

The families of most of these wives have some land, but a small amount. Education and their own self-initiative appear to have been the major contributors to their successful economic results from borrowing. Their early success appears to have generated further success.

Figure 2 summarizes the features that distinguish women borrowers from Gagri village from the other interviewed wives. These factors provide a guide to factors that are likely to result in a financial gain from the taking of micro-loans. They may have a high degree of transferability to other situations.

Figure 2 Distinguishing features (which can be gleaned from this case study) which assisted Gagri women in obtaining micro-loans and in investing them profitably for financial gain. As a result, a new social dynamic emerged which included the continuing extension of productive social networks.



The results of this study are consistent with one of the findings of Salia et al. (2018). They found that higher levels of education of women (especially if they had university education) increased their ability to access micro-loans, identify economic opportunities, and use their loans profitably. This appears to be a major reason why (in our study) the group of interviewed women from Gagri village accessed micro-loans and used these productively, thereby distinguishing this group from the other wives surveyed by us.

This study did not examine the varied distributional impacts on families that arise as a result of the taking micro-loans by wives. These distributional impacts can include changes in inequality of income within the family, in

power relationships as well as in workloads. This aspect needs more research. However, the importance of these types of issues is widely recognized in the available literature.

Huis et al. (2019) and others (Dixon et al., 2012; Dutt et al., 2016; Howson & Flood, 2015; Rahman, 1999; Rahman et al., 2011) have identified that significant changes in power relationships within families can occur when wives take micro-loans to foster their own economic activities. A husband may take countervailing actions directed at his wife if he feels his dominance within their family is threatened when his wife takes a micro-loan. This type of social conflict might be minimized if the partners consult and agree on goals prior to this borrowing. However, Huis et al. (2019) found that involving both wives and husbands in pre-consultations and training prior to wives borrowing yielded mixed results. In one study, women's empowerment increased and in another, it was not strengthened (Huis et al., 2019: 348). The prospects of women being empowered within their families by borrowing (or more generally by independently earning income (see Tisdell, 2019)) vary according to cultures; as does the likelihood of negative treatments of wives (physical violence, psychological bullying) by their husbands in such cases. This is an area that calls for more investigation.

A study by Salia et al. (2018) investigating the impacts on families of microfinance for wives in Accra, Ghana concluded that "women's economic empowerment [obtained from borrowing] often precipitates or aggravates incidences of polygyny, family conflicts and adverse impacts on young girls' education and well-being. These effectively neutralize the benefits of microfinance" (Salia et al., 2018: 284). The reasons why these effects occur in Ghana are well explained by Salia et al. (2018). However, these types of negative consequences can be expected to differ in other cultural contexts and geographical areas.

Both the examples by Huis et al. (2019) and by Salia et al. (2018) and their coverage of the relevant literature are significant in that they highlight the need when assessing the overall benefit of the taking of micro-loans by women to consider the distributional effects on all members of their families and not just the aggregate economic effects of these loans. Even if the economic benefits to a family of such loans are positive, this can be offset or more than counter-balanced by other negative effects on a family. We need to consider the consequences of micro-loans in a holistic manner.

8. Conclusions

The supply of credit/loans is not a panacea for wealth creation by those who have small amounts of agricultural land, possess few assets, and are income poor and wish to escape poverty. Most are unable to take advantage of

potential agricultural loans for several reasons, as has been outlined in this article. Many rural women and their families appear to be trapped in a situation of chronic poverty from which they cannot escape by taking loans, for example, the women interviewed from Faizabad. Furthermore, their strategies for survival (necessitated by their extreme poverty) make it virtually impossible for them to commence social initiatives that could lift them out of extreme poverty. In these cases, the only avenue for increasing their economic welfare seems to be by the provision of charitable assistance (Tisdell & Ahmad, 2018). However, other cases exist where there is potential scope for increasing the agricultural wealth of these poor farmers, for example, in Abdul Kareem Solangi village. Women from this village reported that they did not know of techniques and methods that would increase the profitability of their agricultural activities, and suggested that the government must suggest improvements to them. If their relevant knowledge was improved, there could be scope for them to increase their agricultural wealth by securing micro-loans. However, the likelihood of this happening seems to be low given their lack of education and the absences of other factors that enable women from Gagri village to benefit economically and socially from micro-loans.

In most (but not all) of the households considered in this survey, women are the major breadwinners in their families and seem to be more integrally involved with agriculture than men. Many of their husbands are unemployed or significantly underemployed. In these circumstances, the role of poor women is pivotal to creating agricultural wealth and they can be quite successful, in suitable circumstances, in doing so, as is illustrated by the Gagri case. It is, therefore, important in designing agricultural policy, as suggested by Naudé (2011), to pay particular attention to means that will empower poor agricultural women to bring about agricultural development and help to alleviate the poverty of their families. Nevertheless, it is clear that microfinance does not necessarily benefit women borrowers and all of their family members and women are not always empowered within families by these loans, even when their loans are used profitably. In fact, the opposite can occur in such cases. Women and their families can benefit from microfinance but there is also a risk of increased hardship being experienced by family members of either gender. Poor rural women having little or no education and living in paternalistic societies are particularly vulnerable to such risks.

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Conflict of Interest Statement
The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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The Impact of Sex and Gender on the Incidence and Case Fatality of COVID-19 Infection

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ABSTRACT. Based on an in-depth survey of the literature, the purpose of the paper is to explore the impact of sex and gender on incidence and case fatality of COVID-19 infection. Using and replicating data from Brookings, CWEEE, Global Health 50/50, IASC, Moalem (2020), New York Times, PAHO, Reeves and Ford (2020), Shattuck-Heidorn et al. (2020), and UN, we performed analyses and made estimates regarding differences in COVID-19 illness and death among women and men. Data were analyzed using structural equation modeling.

Keywords: COVID-19; sex; gender; infection; incidence; fatality

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1. Introduction

The amount of severe and critical cases and mortality are inferior among COVID-19 female patients. (Qian et al., 2020) The sex and gender dissimilarities identified in COVID-19 predisposition indicate the relevance of grasping the consequences of sex and gender on prevalence and case fatality of such an infectious disease and to customize treatment consequently. (Gebhard et al., 2020) Being at the frontline of the COVID-19 crisis response, women constituting the health and social care workforce are at risk of infection, in addition to physical and psychological tensions. (King et al., 2020)

2. Conceptual Framework and Literature Review

Identifying the proportion to which the COVID-19 outbreak impact women and men dissimilarly constitutes a pivotal phase in comprehending the primary and secondary consequences of a health emergency on distinct persons and communities (Bin et al., 2019; Ciobanu et al., 2019; Durst, 2019; Hill, 2019; Mihăilă et al., 2016; Mishchuk et al., 2019; Rueda Garrido, 2019), and for articulating coherently unbiased policies and interventions. (Wenham et al., 2020) The social, biological, behavioral, and structural determinants that may bring about incongruities (Byrne, 2019; Drugău-Constantin, 2019; Furnham, 2019; Kenrick et al., 2019; Mihăilă, 2019; Pera, 2019; Szewieczek, 2019) to manifest concerning how women and men tolerate both COVID-19 and its effects should be considered. (Gausman and Langer, 2020) Inflammatory immune reactions and cell counts are likely to be more increased in men and related to aggravated results from COVID-19 than in women. (Klein et al., 2020) Male vulnerability to COVID-19 is somewhat predictable by a gender imbalance in behavior. (Dangis et al., 2020) Gender constitutes a risk component for COVID-19 fatality rate regulated by age, co-diagnosis, and smoking history. (Qin et al., 2020)

3. Methodology and Empirical Analysis

Using and replicating data from Brookings, CWEEE, Global Health 50/50, IASC, Moalem (2020), New York Times, PAHO, Reeves and Ford (2020), Shattuck-Heidorn et al. (2020), and UN, we performed analyses and made estimates regarding differences in COVID-19 illness and death among women and men. Data were analyzed using structural equation modeling.

4. Results and Discussion

To prevent the multiplication of current discriminations, the public health feedback to COVID-19 should integrate socio-gender aspects into a human rights-based proposal to fair access to testing and care, in addition to financial and mental health backing. (Enguita-Fernàndez et al., 2020) A distinct biological and clinical background, typically making men susceptible to a more reduced life expectancy than women, may condition prognosis and fatality rate as regards COVID-19 infection, particularly among elderly persons. (Giagulli et al., 2020) While women tend to preserve the cellular adenosine triphosphate of their immune cells throughout the bodily reaction to COVID-19, men are more vulnerable to immune dysregulation as a result of the infection. (Taghizadeh-Hesary and Akbari, 2020) (Table 1)

Table 1 Differences in COVID-19 illness and death among women and men (yes, %)

Women are slightly more likely to be diagnosed with COVID-19, which may in part be due to the fact that women account for the majority of healthcare workers around the world.	77
There is a consistent pattern of higher death rates recorded among men compared to women.	85
Sex differences in the response of the immune system (men more likely to see their condition worsen).	84
Differences in men and women's risk of dying vary by age.	86
Risk and vulnerability are shaped by multiple intersecting factors alongside sex and gender.	88
A sex difference is observed with some magnitude in deaths across diverse populations.	87
Social and other demographic factors, including age, race or ethnicity and class, and comorbidities, not sex, most likely explain a far greater portion of variation in COVID-19 outcomes between women and men.	89
Social context is instrumental in generating sex disparities.	87
Gendered behaviors, pre-existing conditions, and gender-segregated occupational exposures explain sex differences.	85
Men overall die at a higher rate than women, but sex differences vary considerably by age group.	86
The lower fatality rate among women is driven by particularly high infection rates among healthcare workers, who are predominantly young, healthy, and female.	83
Sex-linked biology may play a role in the development of some chronic diseases, but always in complex interaction with class, race, or ethnicity, and gender-related variables.	84
Men in aggregate have higher fatality rates.	86
Occupations, behaviors, and pre-existing conditions matter more than whether one was a woman or a man.	88
When it comes to surviving the physical hardships encountered from birth to late-in-life, genetic females outlast genetic males.	86
Existing inequalities in preexisting conditions such as hypertension or diabetes also magnify the impact of the virus.	89
Men and women have similar odds of contracting the virus.	85
Male social care workers are dying from COVID-19 at a higher rate.	87
The risk of contracting COVID-19 is similar for men and women, but the resulting death rates are very different as, once infected, men are more likely to die.	86
Certain pre-existing conditions, as well as immunological and hormonal factors, indicate greater male vulnerability	84
Men have slightly higher odds than women of being counted as a COVID-19 case and more risk of being hospitalized.	83
The gendered impacts of COVID-19 go well beyond immediate health effects.	84
Women's employment in the health sector disproportionately exposes them to	85

COVID-19. Women are more likely to be frontline health workers or health facility service-staff, being thus more likely to be exposed to the virus and dealing with enormous stress balancing paid and unpaid work roles.	
The safe and meaningful involvement of women, girls, and other marginalized populations in decision-making processes related to COVID-19 responses, relief delivery, and recovery at all levels should be prioritized.	84
Men, rather than women, are dying potentially due to sex-based immunological differences, higher rates of cardiovascular disease, and lifestyle choices, such as smoking.	85
Gender norms and pre-existing inequalities disproportionately impact women and girls in health emergencies.	84
In most locations, norms dictate that women and girls are the main caretakers of the household, i.e., giving up work to care for children out of school and/or sick household members, impacting their levels of income and heightening their exposure to COVID-19.	83
Overwhelmed health services, reduced mobility, and diverted funding will hamper women and girl's access to health services.	86
Pregnant women are more likely to have contact with health services (antenatal care and delivery), experiencing greater exposure to infections in health facilities, which may discourage attendance.	88
The frontline of treatment of the disease involves dedicated healthcare professionals and includes support staff (such as cleaners, laundry, catering etc.), who are in the majority women. All such frontline workers experience significant higher virus exposure.	89
The COVID-19 pandemic affects diverse groups of women and men differently: the risks and consequences are disproportionately felt by certain groups, especially those living in situations of vulnerability and those who experience discrimination.	89
Measures are implemented to specifically address women's increased exposure and risk to COVID-19 and unfavorable mental health outcomes.	82
COVID-19 risk factors disproportionately affect men due to co-morbidities and access to health services that are related to constructions of masculinities.	84
Women participate in the analysis of the gendered impacts of the pandemic and in the design of rehabilitative actions to address the gendered needs of women and men, as well as recovery and economic and social redress.	83
The health of women generally is adversely impacted through the reallocation of resources and priorities, including sexual and reproductive health services.	84
Health pandemics, in addition to restrictive social norms and gender stereotypes, can make it more difficult for women and girls to access and receive treatment and health services.	79
The provision of sexual and reproductive health services, including maternal health care and gender-based violence related services, are central to health, rights, and well-being of women and girls. The diversion of attention and critical resources away from these provisions may result in exacerbated	88

maternal mortality and morbidity, increased rates of adolescent pregnancies, HIV, and sexually transmitted diseases.	
Health care response must facilitate the development and dissemination of targeted messaging on public health to the different contexts and concerns of women and girls.	84

Sources: Brookings; CWEEE; Global Health 50/50; IASC; Moalem (2020); New York Times; PAHO; Reeves and Ford (2020); Shattuck-Heidorn et al. (2020); UN; our survey among 3,600 individuals conducted March 2020.

5. Conclusions and Implications

Sex is a biological variable shaping COVID-19 treatment outcomes. (Bischof et al., 2020) Androgen sensitivity constitutes a predictable driver of COVID-19 disease severity. (Wambier et al., 2020) Men are more susceptible to COVID-19 infection than women as regards fatality, indifferent to distinct baseline health features. (Pérez-López et al., 2020) Women are likely to have more robust immune reactions to COVID-19: genetic and hormonal dissimilarities together with environmental aspects are instrumental in such vulnerability. (Lamy et al., 2020)

Survey method

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Sampling errors and test of statistical significance take into account the effect of weighting. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. An Internet-based survey software program was utilized for the delivery and collection of responses.

Data and materials availability

All research mentioned has been published and data is available from respective outlets.

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Author contributions

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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Are Female–Male Imbalances in COVID-19 Mortality Rates Driven Mainly by Innate Sex Differences?

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ABSTRACT. The aim of this paper is to synthesize and analyze existing evidence on female–male imbalances in COVID-19 mortality rates. Using and replicating data from AG/WGEA, CARE, Curley (2020), Global Health 50/50, Healthline, GPC, IASC, IRC, Moalem (2020), New York Times, Shattuck-Heidorn et al. (2020), UNICEF, and WorldYWCA, we performed analyses and made estimates regarding the gender dimensions of associated outcomes of the COVID-19 pandemic. Data were analyzed using structural equation modeling.

Keywords: COVID-19; mortality; female; male; gender; sex

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1. Introduction

Gender norms, roles, and social interactions shaping women's and men's dissimilar susceptibility to COVID-19 infection, exposure to harmful bacteria, and treatment received, in addition to their discrepancy among distinct groups of women and men, should taken into account and addressed. (Wenham et al., 2020) Biological contrasts in the immune reactions may lead to incongruent vulnerability of males and females to COVID-19 infection. (Dangis et al., 2020) Stay-at-home instructions, school closures, and increasing unemployment swiftly influence gender roles. (Betron et al., 2020)

2. Conceptual Framework and Literature Review

Sex dissimilarities may impact the urgency or coherence of nonpharmaceutical interventions (Bekken, 2019; Durkin, 2019; Krech, 2019; Lăzăroiu et al., 2017; Mihăilă et al., 2016; Szewieczek, 2019; Wilson, 2019) for serious COVID-19 infections. (Bischof et al., 2020) Sex discrepancies in co-diagnoses, which can be related to both age and race, influence COVID-19 male-biased results. (Klein et al., 2020) The more significant smoking rate among men possibly fashions the gender imbalance in COVID-19 cases, in addition to the inconsistencies in immunity levels between men and women, and decreased levels of sanitary measures among men. (Gumber and Gumber, 2020) Containment and mitigation approaches that regulate women's ability to carry out their undertakings (Ashander et al., 2019; Chuanyue, 2019; Indartono and Faraz, 2019; Krizanova et al., 2019; Lăzăroiu, 2018; Nica et al., 2014; Trettin et al., 2019) may lead to purposeless exposure to COVID-19 and heightened family vulnerability. (Gausman and Langer, 2020)

3. Methodology and Empirical Analysis

Using and replicating data from AG/WGEA, CARE, Curley (2020), Global Health 50/50, Healthline, GPC, IASC, IRC, Moalem (2020), New York Times, Shattuck-Heidorn et al. (2020), UNICEF, and WorldYWCA, we performed analyses and made estimates regarding the gender dimensions of associated outcomes of the COVID-19 pandemic. Data were analyzed using structural equation modeling.

4. Results and Discussion

Gender should be integrated at all phases of a public health emergency reaction. (Kim et al., 2020) Sex- and gender-related aspects may play a role in COVID-19 susceptibility. (Spagnolo et al., 2020) Fatality from COVID-19 in cancer patients is mainly determined by age, gender, and co-diagnoses. (Lee et al., 2020) The frequency of COVID-19 infection is somewhat indistinguishable between sexes, but the acuteness of the disease and the complications and the deaths rates are more significant in men than women, because of a higher rate of co-diagnoses in infection as regards the former, or of dissimilarities in behaviors between them. (Rozenberg et al., 2020) The identified discrepancies in the positions of the genders indicate that men are more at risk to COVID-19 than women because of their lesser awareness of the perilousness brought about by the current epidemic, together with presumable biological or medical incongruities. (de la Vega et al., 2020) (Table 1)

Table 1 The gender dimensions of associated outcomes of the COVID-19 pandemic (%, yes)

Substantial and severe social, economic and structural outcomes are associated with COVID-19, and shaped by gender alongside other social stratifiers and inequalities.	86
At older ages, there is no significant difference between the female and male fatality rates, but younger men die at markedly higher rates than younger women.	82
Women are both disproportionately likely to be infected and disproportionately likely to survive, compared with men in each age group.	83
The apparent sex difference is caused by gender-related occupational differences and diseases with complex, often socially rooted causes.	81
Men overall are in a poorer state of health than women.	78
In places where men have higher COVID-19 fatality rates than women, men also, on average, have far higher rates of behaviors such as smoking and co-morbidities related to smoking (e.g. heart disease).	81
Women and men actually have an identical risk of dying from COVID-19	77
Gendered behaviors and gender-segregated occupations are responsible for greater COVID-19 vulnerability.	78
Higher rates of tobacco consumption, a reluctance to seek proper and timely medical care and lower rates of hand-washing explain why more men than women are dying from COVID-19.	85
The female survival advantage between the sexes holds regardless of education, economic factors, and alcohol, drug, or tobacco consumption.	79
Higher levels of testosterone suppress the immune system; conversely, estrogens stimulate a more vigorous immunological response.	81
Biology and behavior are among the reasons more men than women are developing COVID-19 and die from the disease.	80
Men tend to engage in more risky behavior such as ignoring physical distancing, delaying seeking healthcare, and ignoring or dismissing symptoms of illness.	78
All behaviors that impact lung health play a role in the disease's deadly impact on men.	79
Pollution is instrumental in elevated COVID-19 mortality rates among men.	78
Many (young) women remain on the frontlines of home, family and community care, being more isolated with the quarantine and distancing protocols and thus unable to reach out for support if they face domestic violence, or are marginalized, pregnant, or encounter (mental) health issues.	84
Health crises can create or exacerbate gender inequalities, barriers and stigmas.	86
The increase in caring responsibilities can heighten feelings of stress and limit women's economic opportunities.	87
Women are on the frontline of the COVID-19 crisis, increasing their exposure and potentially their family members to the virus.	88
Infection rates amongst women healthcare workers are higher than that of male healthcare workers.	83

Women and girls' voices are essential to understanding the impact of the epidemic and meeting the needs of affected populations effectively.	79
Women healthcare workers have specific demands beyond personal protective equipment, including hygiene needs and psychosocial support.	84
Measures taken to relieve the burden on primary health care structures should prioritize access to sexual and reproductive health services, including pre- and post-natal healthcare and GBV screening and response care.	83
Gender-responsive social protection measures, including cash transfers coupled with support services such as parenting and caregiver support programs, can have substantial multiplier effects on women and girls' health, safety and well-being.	84
Female health workers risk stigmatization due to caring for COVID-19 patients.	83
Decision-making bodies established specifically for COVID-19 do not reflect a gender balance between women and men.	85
Inequitable gender norms affect the roles and responsibilities of women, men, girls, and boys.	82
As particularly weak health systems become overwhelmed, women will likely bear the burden of caring for patients that the health system cannot, increasing women's risk of exposure to the virus.	83
Public health emergencies increase the burden on health systems, making barriers to accessing quality health services greater for people of all genders.	86
People of different genders and marginalized groups may be overlooked in community care networks unless they receive specific outreach and safe, inclusive, support.	79
Women and girls' access to sexual and reproductive health rights is limited.	82
Pregnant women and newborns experience physical and developmental changes that often make them vulnerable to viral respiratory infections such as COVID-19.	86
Coordination and decision-making bodies are gender-balanced and inclusive.	76
Gender-sensitive support to frontline health workers at facility and community-levels is supported.	74
Pregnant women with suspected, probable, or confirmed COVID-19, including women who may need to spend time in isolation, have access to timely woman-centered skilled care, including obstetric, fetal medicine, and neonatal care, as well as mental health and psychosocial support with readiness to care for maternal and neonatal complications.	72
As women, girls, and vulnerable or marginalized populations often have less access to information and are more likely to receive inaccurate information either inadvertently or deliberately in order to uphold existing unequal power dynamics and/or create opportunities for exploitation, their ability to obtain objective and reliable information about COVID-19 infection prevention control measures as well as key information about the availability of and any changes in the delivery of essential assistance, including GBV support services, is affected.	77

Sexual and reproductive health services may be diverted to pandemic response, leading to increased maternal mortality and deterioration in the outcomes.	86

Sources: AG/WGEA; CARE; Curley (2020); Global Health 50/50; Healthline; GPC; IASC; IRC; Moalem (2020); New York Times; Shattuck-Heidorn et al. (2020); UNICEF; WorldYWCA; our survey among 4,200 individuals conducted March 2020.

5. Conclusions and Implications

Gender norms and roles assigning women to the sphere of healthcare work place them on the frontlines in the COVID-19 epidemic. (John et al., 2020) Gender-specific inflammation response brings about sex bias in COVID-19 outcomes. (Qin et al., 2020) Causes intrinsic to gender generate a more significant fatality rate in men than in women. (Pérez-López et al., 2020) Men are particularly affected and vulnerable to COVID-19 infection and related co-morbidities. (Walter and McGregor, 2020)

Survey method
The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Sampling errors and test of statistical significance take into account the effect of weighting. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. An Internet-based survey software program was utilized for the delivery and collection of responses.

Data and materials availability
All research mentioned has been published and data is available from respective outlets.

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Author contributions
All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

Conflict of interest statement
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Intimate Digital Traces: Sociosexual Attitudes and Behaviors on Geolocation-based Dating Apps

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ABSTRACT. This article presents an empirical study carried out to evaluate and analyze sociosexual attitudes and behaviors on geolocation-based dating apps. Building our argument by drawing on data collected from B2B International, Kaspersky Lab, Morning Consult, Stanford University, Statista, and YouGov, we performed analyses and made estimates regarding the leading reasons for U.S. adults to use online dating websites or applications. Data collected from 4,400 respondents are tested against the research model by using structural equation modeling.

Keywords: dating; app; geolocation; sociosexual; attitude; behavior

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1. Introduction

Mobile dating applications enable users to set up personal profiles, indicate their romantic or sexual preferences, network with compatible partners, and arrange dates and hook-ups. (Carlson, 2020) Certain sexual online risk behaviors are associated with mobile dating. (Schreurs et al., 2020)

2. Conceptual Framework and Literature Review

The setting of a mobile dating app may resemble users' immediate environment (Al-Tkhayneh et al., 2019; Cardoso Jr., 2019; Fuentes, 2019; Lăzăroiu et al., 2017; Nica et al., 2014; Zéman and Bogdan, 2019; Zhuravleva et al., 2019), configuring an innovative platform (Ciobanu et al., 2019; Hyers, 2019; Kohlhoffer-Mizser, 2019; Lăzăroiu et al., 2020; Nica, 2017; Zhang, 2019) to search for alternative partners. (Alexopoulos et al., 2020) Hooking up represents a dispassionate sexual interaction, inconsonant with sexual activity that takes place in conjunction with a committed relationship. (Berry-Cabán et al., 2020) The convenience of dating apps has exacerbated sexual risk-taking behaviors. (Anderson et al., 2020) Sex-search and self-esteem improvement constitute determinants of online dating problematic use. (Bonilla-Zorita et al., 2020)

3. Methodology and Empirical Analysis

Building our argument by drawing on data collected from B2B International, Kaspersky Lab, Morning Consult, Stanford University, Statista, and YouGov, we performed analyses and made estimates regarding the leading reasons for U.S. adults to use online dating websites or applications. Data collected from 4,400 respondents are tested against the research model by using structural equation modeling.

4. Results and Discussion

As online dating is fashionable, the difficult tasks of relationship initiation may result in adverse interpersonal interactions (e.g. online offense). (DelGreco and Denes, 2020) The Internet and dating apps can be harnessed for men who have sex with men to network with and identify sexual partners, possibly bringing about a more significant sense of social backing. (Sun et al., 2020) Examining other's dating profiles while being inspected may generate a certain type of self-monitoring, where market values of the involved selves are algorithmically determined. (Thompson, 2018) (Tables 1–8)

Table 1 Why people lie while they date online (%)

	16–24	25–34	35–44	45–54	55+	Male	Female
For fun.	25	20	21	19	18	34	30
I was afraid someone could misuse accurate information about me (for blackmail, fraud etc.).	36	32	36	34	33	25	29
I wanted to look more interesting for potential matches.	25	35	33	35	39	22	19
I did not want my friends/acquaintances to recognize me.	9	7	6	8	6	15	16
I was trying to catch my partner cheating on me.	4	4	3	3	2	3	5
Other	1	2	1	1	2	1	1

Sources: B2B International; Kaspersky Lab; our survey among 4,400 individuals conducted February 2020.

Table 2 The leading reasons for adults to use online dating websites or applications (%, by gender)

	Male	Female
To make platonic, non-romantic conditions	14	10
To find an exclusive romantic partner	17	22
To find non-exclusive romantic partners	18	8
To have casual sex	9	4
To cheat on my significant other	2	1
To boost my self-esteem	10	21
To have something fun/interesting to do	11	16
To see what the app is like	12	11
Other	1	1
Don’t know	2	2
Prefer not to say	3	4

Sources: Statista; our survey among 4,400 individuals conducted February 2020.

Table 3 The number of contacts users have at the same time on dating websites and applications (%)

0 contacts (I’m just looking around)	7
1 contact	12
2 to 3 contacts	19
4 to 5 contacts	21
6 to 10 contacts	19
11 and more contacts	22

Sources: Statista; our survey among 4,400 individuals conducted February 2020.

Table 4 The leading reasons for adults to use online dating websites or applications (%, by age group)

	18–34	35–54	55+
To make platonic, non-romantic conditions	13	18	24
To find an exclusive romantic partner	18	26	35
To find non-exclusive romantic partners	22	17	12
To have casual sex	14	12	3
To cheat on my significant other	4	2	1
To boost my self-esteem	17	14	7
To have something fun/interesting to do	12	10	14
To see what the app is like	13	11	6
Other	2	1	1
Don't know	2	2	1
Prefer not to say	1	1	2

Sources: Statista; our survey among 4,400 individuals conducted February 2020.

Table 5 The truthfulness of online dating users when they present themselves on their dating profile (%)

Always	54
Often	40
Rarely	4
Never	2

Sources: Statista; our survey among 4,400 individuals conducted February 2020.

Table 6 Online dating users who have ever met someone in person that they met through a dating application or service (%)

Yes, a long-term romantic partner.	19
Yes, for one or more dates.	44
Yes, a platonic relationship.	7
Yes, for a hookup.	12
Yes, other (please specify).	1
No.	17

Sources: Morning Consult; Statista; our survey among 4,400 individuals conducted February 2020.

Table 7 The most common activities of online dating users prior to physically meeting someone they met on a dating website or application (%, by gender)

	Male	Female
Searched their name online.	52	64
Searched their phone number online.	19	11
Looked at their social media profiles.	64	67
Done a reverse image search using their photos.	11	8
Run a background check on them.	14	7
None of these.	16	12
Prefer not to say.	1	2

Sources: YouGov; Statista; our survey among 4,400 individuals conducted February 2020.

Table 8 Opposite-sex/Same-sex couples who met their current or most recent partner online/offline, among adults who have ever been in a relationship (%)

	Met online	Met offline
Opposite-sex	24	76
Same-sex	33	67

Sources: Stanford University survey; Pew Research Center; our survey among 4,400 individuals conducted February 2020.

5. Conclusions and Implications

Online dating has reconfigured the mate selection procedures and generated a significant and extensive alteration of the conventional courtship. (Sharabi and Dykstra-DeVette, 2019) Online dating apps offer users data-driven matches and are driven by algorithms that assist in improving their social lives. (Sundar, 2020) Online dating sites can be employed as a concealed manner of identifying additional partners or adulterous intimacy. (Harrison, 2019) Users traverse across private and public realms and on- and off-line settings in pursuit of exemplary romantic relationships. (Choy, 2018)

Survey method

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Sampling errors and test of statistical significance take into account the effect of weighting. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. An Internet-based survey software program was utilized for the delivery and collection of responses.

Data and materials availability

All research mentioned has been published and data is available from respective outlets.

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Conflict of interest statement

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Courtship Practices, Romantic Relationship Initiation, and Mate Selection in the Online Dating Environment

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ABSTRACT. This paper analyzes the outcomes of an exploratory review of the current research on courtship practices, romantic relationship initiation, and mate selection in the online dating environment. The data used for this study was obtained and replicated from previous research conducted by Morning Consult, Pew Research Center, SimpleTexting, and Statista. I performed analyses and made estimates regarding U.S. adults who use social media and have dating experience. Data collected from 4,600 respondents are tested against the research model by using structural equation modeling.

Keywords: dating; romantic; relationship; selection; mate; online

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1. Introduction

Geo-social dating apps offer a sense of command over romantic and sexual activities: users can find about more about compatible partners before meeting, there are prospects for gender and sexually diverse individuals to satisfy their passions, while the mediated networking provides safety in connecting with other people. (Carlson, 2020) Dating apps assist users in finding and discussing with persons that may have comparable interests or lifestyles. (Knox et al., 2020) Online dating services enable impermanent encounters, thus constituting a public health issue as regards sexually transmitted infections and substance use. (Bonilla-Zorita et al., 2020)

2. Conceptual Framework and Literature Review

The dating app setting may defy the limits of a committed relationship if a user perceives herself/himself to be attractive and affects single users who may find hard to settle or who tend to be unfaithful to their future partners. (Alexopoulos et al., 2020) Online dating sites users may perceive persons with whom they have joint connections as close or safe (and that may provide users with a deceptive sense of security as regards the sexual health risks that a compatible date may generate) or be reluctant to talk about sexual health issues with individuals from their sexual network because of likely gossip. (Green et al., 2018) As a reaction to women's exercise of option and sexual influence across dating apps, men may try to configure established gender–power relations by use of sexual harassment. (Thompson, 2018)

3. Methodology and Empirical Analysis

The data used for this study was obtained and replicated from previous research conducted by Morning Consult, Pew Research Center, SimpleTexting, and Statista. I performed analyses and made estimates regarding U.S. adults who use social media and have dating experience. Data collected from 4,600 respondents are tested against the research model by using structural equation modeling.

4. Results and Discussion

Users employ various strategies when interacting online, and thus dating sites and apps are relevant for comprehending the communication operations concerning relationship initiation. (Sharabi and Dykstra-DeVette, 2019) Geosocial sexual networking apps enabled by smartphones are the exemplary manner in which men who have sex with men encounter their partners. (Grov et al., 2020) Matching algorithms constitute a pivotal characteristic of online dating. (Sharabi, 2020) Cutting-edge digital communication technologies (Jinyuan, 2019; Krizanova et al., 2019; Lăzăroiu et al., 2020; Mihăilă, 2019; Peters and Besley, 2019; Zéman and Bogdan, 2019) are instrumental in initiating, maintaining, and discontinuing romantic relationships by routines that combine concrete co-occurrence and online interactions. (Gómez-Urrutia and Tello-Navarro, 2020) Structural affordances and technological adjustments for smartphones and satellite geolocation aspects (Gutschow, 2019; Keane, 2019; Lăzăroiu et al., 2017a, b; Lobina, 2019; Nica, 2018; Popescu, 2018) boost prospects for relationship initiation and catalyze the mobile dating app advancement. (LeFebvre, 2018) (Tables 1–7)

Table 1 Among internet users who are single and looking or in a committed relationship for 10 years or less, the % who have searched online for information about someone they were currently dating or about to meet for a first date

Men	29
Women	36
18–29	39
30–49	33
50–64	20
High school grad	22
Some college	41
College+	36
Less than $30,000 (year)	30
$30,000–$49,999	34
$50,000–$74,999	37
$75,000+	33
Urban	38
Suburban	32
Rural	18
Have used online dating sites/apps	
Yes	58
No	24

Sources: Pew Research Center; my survey among 4,600 individuals conducted February 2020.

Table 2 % of teens who use social media and have dating experience who say social media makes them feel …

	Yes, a little	Yes, a lot
more connected to significant other's life.	52	48
like you have a place to show you care about significant other.	41	59
emotionally closer to significant other.	39	61
jealous or unsure of your relationship.	78	22

Sources: Pew Research Center; my survey among 4,600 individuals conducted February 2020.

Table 3 Online dating users, by sexual orientation, who say someone … on a dating site or app (%)

	LGB	Straight
sent them a sexually explicit message or image they did not ask for	59	34
called them an offensive name	46	27
continued to contact them after say they were not interested	52	38
threatened to physically harm them	23	9

Sources: Pew Research Center; my survey among 4,600 individuals conducted February 2020.

Table 4 % of adults who rate each method of breaking up with someone as…

	Mean rating (1–10 scale)	Most acceptable (8–10)	Moderately acceptable (4–7)	Least acceptable (1–3)
Tell them in person	8.7	81	7	12
Call them on the phone	5.7	27	36	37
Send them a text message	3.9	14	23	63
Send them a message on a social media site	2.9	11	22	67
Get one of your friends to tell them	2.4	8	18	74
Change your social media status to "single"	2.1	6	15	79

Sources: Pew Research Center; my survey among 4,600 individuals conducted February 2020.

Table 5 Smartphone users that regularly use dating applications (%, by relationship status)

Single/Unmarried	62
Married	16
In a relationship	14
Divorced/Widowed	8

Sources: Statista; my survey among 4,600 individuals conducted February 2020.

Table 6 Adults who have had a negative experience with online dating applications or services (%, by age group)

	18–29	30–44	45–54	55–64
Been contacted by someone in a way that made you uncomfortable	32	30	28	24
Had to block or report someone	29	27	22	19
Been sent unsolicited inappropriate pictures	31	27	25	11
Had concerns about your safety	24	28	32	38
Found out someone lied about their identity or been catfished	31	28	27	28

Sources: Morning Consult; Statista; my survey among 4,600 individuals conducted February 2020.

Table 7 Length of relationship formed on dating applications (%)

No more than 1–2 dates	18.6
Less than 6 months	34.5
Between 6 months and 1 year	25.1
Longer than 1 year	14.4
We are engaged/married.	6.2
Other	1.2

Sources: SimpleTexting; my survey among 4,600 individuals conducted February 2020.

5. Conclusions and Implications

Development of mobile communication technology and the fashionableness of smartphone applications are expanding the opportunities for individuals to match, configure social ties, and negotiate their identities throughout temporal, spatial, and sociocultural confines, although numerous Internet users are undecided as regards the safety of social networking apps. (Choy, 2018)

Survey method

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Sampling errors and test of statistical significance take into account the effect of weighting. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. An Internet-based survey software program was utilized for the delivery and collection of responses.

Data and materials availability

All research mentioned has been published and data is available from respective outlets.

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Author contributions

The author confirms being the sole contributor of this work and approved it for publication.

Conflict of interest statement

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Networked Intimacy, Data-driven Dating, and Gendered Social Meanings in the Online Sexual Marketplace

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ABSTRACT. Despite the relevance of the online sexual marketplace, only limited research has been conducted on this topic. Using and replicating data from Pew Research Center, Statista, and YouGov, I performed analyses and made estimates regarding networked intimacy, data-driven dating, and gendered social meanings. The results of a study based on data collected from 4,200 respondents provide support for my research model. Using the structural equation modeling, I gathered and analyzed data through a self-administrated questionnaire.

Keywords: networked; intimacy; data-driven; dating; gender; sexual

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1. Introduction

On online dating platforms, both men and women are likely to display behaviors that harmonize with social requirements for their predetermined gender roles. (Sharabi and Dykstra-DeVette, 2019) The harnessing of cutting-edge technology in the dating process provides innovative and large-scale platforms for users to meet socially with compatible partners and establish continuing relationships. (Mosley et al., 2020) While the information supplied about a user may be dissimilar across platforms, most dating apps deal with a mix of visual imagery and characteristics demarcating an individual's background and purposes. (Levy et al., 2019)

2. Conceptual Framework and Literature Review

Dating apps are thoroughly integrated in the fashioning and expression of various identities (Carlson, 2020), constituting a growingly feasible alternative for users in search of interpersonal romantic relationships. (Richardson et al., 2020) The software performance and technological affordances (Ciobanu et al., 2019; King, 2019; Gutberlet, 2019; Zéman and Bogdan, 2019) of mobile dating applications enable an instantaneous dating experience to prospective partners, facilitating the forming of romantic relationships. (LeFebvre, 2018) With the vogue of online dating, users should gradually resort to minimal indications to make preliminary judgments as regards possible sexual partners. (Krishnamurti et al., 2020) Men who have sex with men with persistently encouraging interactions and experiences on gay dating apps can preserve or boost their positive self-confidence by effortlessly approaching numerous sexual partners. (Zervoulis et al., 2019)

3. Methodology and Empirical Analysis

Using and replicating data from Pew Research Center, Statista, and YouGov, I performed analyses and made estimates regarding networked intimacy, data-driven dating, and gendered social meanings. The results of a study based on data collected from 4,200 respondents provide support for my research model. Using the structural equation modeling, I gathered and analyzed data through a self-administrated questionnaire.

4. Results and Discussion

Relocation from the decreasingly apparent offline realms to technologically-facilitated concealed online space (Blacker, 2019; Eysenck et al., 2019; Goswick, 2019; Nica, 2017) strengthens the sociocultural, contiguous, and interactional heteronormativity. (Choy, 2018) Gay and bisexual men have connected shared impediments by harnessing smartphone-dating and hook-up apps. (Lopes et al., 2019) The online dating behaviors performed by both multiracial men and women exemplify a networked furthering of white multiraciality and bolster a stratified pecking order of racial eligibility. (Vaughan Curington et al., 2020) Harassers strive to socially position themselves, as men, in an ascendant status in online dating interactions, while women are seen as subservient, being sexually objectified by use of hateful speech. (Thompson, 2018) Undergoing a deficiency in social support because of their stigmatized identities, sexual minority men may resort to dating apps for identity-related backing. (Brandt and Carmichael, 2020) (Tables 1–7)

Table 1 Respondents who associate dating applications/websites with the following words (%)

	Current/Former user of dating application/website	Never used a dating application/website
Interesting	38	11
Convenient	46	8
Fun	24	7
Helpful	27	5
Romantic	21	3
Exhausting	14	13
Sad	17	21
Pointless	19	29
Shallow	22	31
Dangerous	21	36

Sources: YouGov; Statista; my survey among 4,200 individuals conducted February 2020.

Table 2 How well users get to know a person from a dating website or application before their first meeting (%)

We arrange a meeting right away.	26
We talk a little about rather unimportant things.	23
We exchange basic information about each other (job, interests, etc.).	28
We get to know each other really well and talk about personal opinions and attitudes.	18
I don't meet anyone from dating websites and applications.	4
Prefer not to say.	1

Sources: Statista; my survey among 4,200 individuals conducted February 2020.

Table 3 The experiences of users on dating applications or websites (%, by ethnicity)

	White	Hispanic	African American	Other
Very positive	19	33	27	19
Somewhat positive	26	28	23	27
Neutral	37	33	34	44
Somewhat negative	12	4	9	8
Very negative	6	2	7	4

Sources: Statista; my survey among 4,200 individuals conducted February 2020.

Table 4 Online dating users who say when they used geosocial networking sites or apps that it was … to find people there who … (%)

	Difficult	Easy
they were physically attracted to.	30	70
shared their hobbies and interests.	38	62
seemed like someone they wanted to meet in person.	37	63
were looking for the same kind of relationship.	42	58

Sources: Pew Research Center; my survey among 4,200 individuals conducted February 2020.

Table 5 Adults who say they have ever used an online dating site or app (%)

Men	36
Women	31
Ages 18–29	52
30–49	41
50–64	22
65+	15
White	31
Black	34
Hispanic	32
Straight	30
LGB	58
Less than $30K	36
$30K–$74,999	33
$75K or more	30
High school or less	24
Some college	37
College+	39
Urban	38
Suburban	34
Rural	22

Sources: Pew Research Center; my survey among 4,200 individuals conducted February 2020.

Table 6 Online dating users who say their own personal experiences with dating sites or apps have been … (%)

	Very negative	Somewhat negative	Somewhat positive	Very positive
Men	7	29	45	19
Women	9	31	44	16
Ages 18–49	6	30	46	18
50+	10	33	42	15
White	7	32	44	17
Nonwhite	9	28	47	16
Straight	8	33	43	16
LGB	7	24	51	18
High school or less	16	32	37	15
Some college	8	29	45	18
College+	6	27	46	21

Sources: Pew Research Center; my survey among 4,200 individuals conducted February 2020.

Table 7 Online dating users who say … on dating sites and apps is very common (%)

people lying about themselves to appear more desirable	79
people setting up fake accounts in order to scam others	44
people receiving sexually explicit messages or images they did not ask for	49
people being harassed or bullied	40
privacy violations, such as data breaches or identity theft	16

Sources: Pew Research Center; my survey among 4,200 individuals conducted February 2020.

5. Conclusions and Implications

Commodifying social relations on geosocial networking dating applications aptly maintains a discontinuity between compatible partners, impeding the predisposition to communicate in the interest of other users. (Goldberg, 2020) Harnessing dating apps may be related to risky sexual behavior. (Tomaszewska and Schuster, 2020) Dating apps enabled by social networking sites, broadly employed by men who have sex with men, can use digital health to enhance medical services for them. (Lu et al., 2020)

Survey method

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Sampling errors and test of statistical significance take into account the effect of weighting. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. An Internet-based survey software program was utilized for the delivery and collection of responses.

Data and materials availability

All research mentioned has been published and data is available from respective outlets.

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Online Dating Behavior, Casual Relationships, and Sexual Encounters on Geosocial Networking Mobile Apps

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ABSTRACT. The purpose of this study was to empirically examine online dating behavior, casual relationships, and sexual encounters on geosocial networking mobile apps. Building our argument by drawing on data collected from Pew Research Center, Stanford University, and Statista, we performed analyses and made estimates regarding the experiences of U.S. users on dating applications or websites. The structural equation modeling technique was used to test the research model.

Keywords: online; dating; behavior; geosocial; networking; app

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1. Introduction

Sharing sexually explicit material on mobile dating apps may bring about both positive and adverse consequences on couple functioning, consistent with the context. (Niehuis et al., 2020) Enabling users to opt for inconsistent kinds of self-presentation and self-disclosure, setting up flimsy boundaries, and facilitating more non-restrictive behaviors in relationship constitution result in online dating deception. (Mosley et al., 2020)

2. Conceptual Framework and Literature Review

The informational affordances of geosocial networking mobile apps (Andrade-Lotero and Ortiz-Duque, 2019; Cosgrave, 2019; Krizanova et al., 2019; Lăzăroiu et al., 2017a, b; Lăzăroiu et al., 2020; Mihăilă, 2017; Sion, 2019) shape the dating market. (Alexopoulos et al., 2020) Online platforms offer prospects for identifying a romantic partner, but users tend to remain single, as the perpetual access to practically boundless potential partners may result in pessimism and rejection. (Pronk and Denissen, 2019) Inadequate decision-making and sensation-seeking may affect the capacity to perform safe sexual behaviors among dating and hookup apps users. (Lopes et al., 2019)

3. Methodology and Empirical Analysis

Building our argument by drawing on data collected from Pew Research Center, Stanford University, and Statista, we performed analyses and made estimates regarding the experiences of U.S. users on dating applications or websites. The structural equation modeling technique was used to test the research model.

4. Results and Discussion

Online dating enables almost continuing contact with compatible partners. (Sharabi and Dykstra-DeVette, 2019) Users fashion contiguous and mobile dimensions to the dating apps (Bratu, 2019; Harrower, 2019; Krylov, 2019; Lăzăroiu, 2018; Mihăilă et al., 2016; Nica et al., 2014) for reorganizing their public and private realms. (Choy, 2018) The self-authored image operates as the main manner for daters to bring into contact with and find more about compatible partners. (Tong et al., 2020) Geosocial networking mobile apps impact the effortlessness in performing assenting behaviors. (Shumlich and Fisher, 2020) Dating and repartnering when old may lead to reconfigured sexual relationships. (Malta et al., 2020) (Tables 1–6)

Table 1 Adults who say online dating sites and apps have had a … effect on dating and relationships (%)

mostly positive	27
neither positive, nor negative	45
mostly negative	28

Among those who said mostly positive, % who give these as main reasons

Expands options/Meet people outside of your circle	20
Can evaluate people before meeting	16
Makes meeting people easier	14
Connects likeminded people	12
Success stories, in general	10
Quicker/More efficient	9
Better than old-fashioned ways	9
Helps people who have trouble meeting others	5
Safer way to meet	3
Other	2

Among those who said mostly negative, % who give these as main reasons

Dishonesty/Misrepresentations	22
Lack of personal/emotional connections	16
Better to meet people in person	14
Too many options keeps people from settling down	10
Focus is on sex/hookups	12
Safety concerns	6
Focus is on physical traits	11
Facilitates cheating	2
Bad/Impolite behavior, in general	3
Other	4

Sources: Pew Research Center; our survey among 3,600 individuals conducted February 2020.

Table 2 The reasons why adults use online dating sites or applications (%)

To meet people who share my interests or hobbies	36
To meet people who share my beliefs or values	29
To find someone for a long-term relationship or marriage	44
I have a schedule that makes it hard to meet interesting people in other ways.	35
To meet people who just want to have fun without being in a serious relationship	31
None of the above	2

Sources: Statista; our survey among 3,600 individuals conducted February 2020.

Table 3 Adults who have ever been in a relationship and met their current or most recent partner online/offline saying they and their partner have … (%)

Couples of all ages

	Met online	Met offline
different incomes	79	80
different education levels	61	60
different political parties	48	42
different races or ethnicities	21	16

Couples in which both partners are younger than 40

	Met online	Met offline
different incomes	78	80
different education levels	58	60
different political parties	46	44
different races or ethnicities	22	18

Sources: Stanford University survey; Pew Research Center; our survey among 3,600 individuals conducted February 2020.

Table 4 Online dating users in each group who say someone … on a dating site or app (%)

	continued to contact them after saying they were not interested	sent them a sexually explicit message or image they did not ask for	called them an offensive name	threatened to physically harm them
Men	25	22	19	8
Women	51	49	38	16
Ages 18–34	47	47	36	15
35–49	38	39	32	10
50+	32	24	18	5
Men 18–34	26	26	21	11
Women 18–34	62	62	48	22
Men 35–49	22	22	22	9
Women 35–49	47	50	38	16
Men 50+	24	20	14	4
Women 50+	28	24	19	7

Sources: Pew Research Center; our survey among 3,600 individuals conducted February 2020.

Table 5 The experiences of adult users on dating applications or websites (%)

Very positive	21
Somewhat positive	19
Neutral	38
Somewhat negative	14
Very negative	8

Sources: Statista; our survey among 3,600 individuals conducted February 2020.

Table 6 Online dating users who say they have … (%)

gone on a date with someone they met on a dating site or app.	79
come across the online dating profile of someone they already knew offline.	61
been in a committed relationship with or married someone they met on a dating site or app.	37

Sources: Pew Research Center; our survey among 3,600 individuals conducted February 2020.

5. Conclusions and Implications

Geospatial social networking furthers the constitution of romantic relationships. (Barros, 2020) The harnessing of dating apps entails the operational management and exhibition of identities, heterogeneous selves being constantly displayed to various audiences. (Carlson, 2020) Hook-up apps links digital intimacy and affective networked publics. (Petrychyn et al., 2020) Romantic relationships constitute an intricate environment in which gender is handled by use of digitally mediated routines of courtship and perpetuation of compatible relationships. (Gómez-Urrutia and Tello-Navarro, 2020)

Survey method

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Sampling errors and test of statistical significance take into account the effect of weighting. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. An Internet-based survey software program was utilized for the delivery and collection of responses.

Data and materials availability

All research mentioned has been published and data is available from respective outlets.

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Author contributions

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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Social Matching Systems, Intimate Personal Data, and Romantic Compatibility on Internet Dating Sites and Apps

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ABSTRACT. I draw on a substantial body of theoretical and empirical research on Internet dating sites and apps, and to explore this, I inspected, used, and replicated survey data from Pew Research Center and Statista, performing analyses and making estimates regarding social matching systems, intimate personal data, and romantic compatibility. Structural equation modeling was used to analyze the data and test the proposed conceptual model.

Keywords: dating; app; romantic; intimate; social; matching

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1. Introduction

Online dating, the exemplary instrument to initiate an offline relationship (Hallam et al., 2019) has methodically accommodated the propensity for selection, providing users with access to a practically boundless set of partner options, but the concatenation of partner profiles may give rise to a prevailing feeling of frustration and despondency as regards identifying a mate. (Pronk and Denissen, 2019) Nonsingle users may pursue compatible romantic partners on mobile dating apps while still in a committed relationship for fear not to remain companionless. (Timmermans et al., 2018) Daters' self-authored profile on online dating platforms may not be in harmony with the representations constituted by other users. (Tong et al., 2020)

2. Conceptual Framework and Literature Review

Interpersonal relationship constitution, selection mechanisms, and purposive pre-interaction behaviors (Drennan-Stevenson, 2019; Nica et al., 2014; Nica et al., 2019; Redouane, 2019; Wingard, 2019) can develop across technologically-mediated dating culture. (LeFebvre, 2018) Dating sites enable users to communicate and strengthen sexual preferences in conformity with racial features. (Carlson, 2020) Ordinary routines of safety, risk, and soundness are being configured and challenged by harnessing dating and hookup apps. (Albury et al., 2020) Social distress among users is envisaged by negative world assessments, inferior self-assurance and significant recognition concerns. (Pitcho-Prelorentzos et al., 2020) Trait narcissism by itself may not justify legitimacy of hostile behavior on online dating sites. (March et al., 2020) Self-perceived attractiveness mediates the link between perceived dating app achievement and purpose to be unfaithful. (Alexopoulos et al., 2020) Numerous older adults use geosocial networking mobile apps or access online dating websites to identify compatible partners. (Malta et al., 2020)

3. Methodology and Empirical Analysis

I inspected, used, and replicated survey data from Pew Research Center and Statista, performing analyses and making estimates regarding social matching systems, intimate personal data, and romantic compatibility. Structural equation modeling was used to analyze the data and test the proposed conceptual model.

4. Results and Discussion

Sexual networks are more elaborate and influential together with the growing interest in online dating. (Vajdi et al., 2020) Geolocation characteristics are employed in dating apps as *matching processes* that set up connections between a user and compatible partners by contiguous spot, and as *warranting processes* assisting a user to clarify whether to rely on a specific profile. (Veel and Bonde Thylstrup, 2018) Networked media-based web technologies (Krylov, 2019; Nica, 2018; Park, 2018; Sion, 2019) shape online daters' perceptions of and positions in relation to their own bodies, impacting control behaviors. (Filice et al., 2020) Dating apps are related to social risks (e.g. unsafe sexual behavior and privacy issues). (Lau et al., 2019) Internalized homonegativity and face visibility may affect HIV-risk-taking behavior as regards gay men in pursuit of casual sex by use of geosocial networking apps. (Sietins et al., 2020) (Tables 1–6)

Table 1 Among Internet users who are single and looking or in a committed relationship for 10 years or less, the % who have…

	used Internet or email to maintain a long distance relationship	asked someone out for a first date online or via email
Men	26	25
Women	27	19
Age		
18–29	34	19
30–49	28	27
50–64	17	21
Education attainment		
High school grad	16	19
Some college	33	25
College+	34	23
Household income (year)		
Less than $30,000	33	24
$30,000–$49,999	26	22
$50,000–$74,999	27	26
$75,000+	28	21
Urbanity		
Urban	29	23
Suburban	27	24
Rural	18	19
Have used online dating sites/apps		
Yes	54	55
No	18	14

Sources: Pew Research Center; my survey among 3,800 individuals conducted February 2020.

Table 2 Adults who say … (%)

Online dating sites and apps have had a … effect on dating and relationships

mostly positive	27
mostly negative	31
neither positive, nor negative	42

Compared to relationships that begin in person, relationships where people first meet through a dating site or app are

more successful.	8
less successful.	42
just as successful.	50

Sources: Pew Research Center; my survey among 3,800 individuals conducted February 2020.

Table 3 % of users with dating experience who have experienced the following from a current or former romantic partner

Checked up with you multiple times per day on the Internet or on your cellphone, asking where you are, who you are with, or what you are doing	27
Called you names, put you down or said really mean things to you on the Internet or on your cellphone	19
Read your text messages without your permission	14
Made you remove former girlfriends or boyfriends from your friends list on Facebook, Twitter or other social media such as Tumblr	12
Used the Internet or text messages to try to pressure you into sexual activity you did not want to have	9
Spread rumors about you on the Internet or on a cellphone	11
Demanded to know the passwords to your email and Internet accounts	7
Contacted you on the Internet or on your cellphone to threaten to hurt you	12
Used information posted on the Internet against you, to harass or embarrass you	14

Sources: Pew Research Center; my survey among 3,800 individuals conducted February 2020.

Table 4 Online dating users, by gender, who say that it was very important that the profiles they looked at included the following (%)

	Men	Women
Photos of themselves	70	77
Type of relationship they're looking for	56	76
If they have children	45	54
Hobbies and interests	36	45
Religious beliefs	17	28
Racial or ethnic background	14	21
Occupation	13	27
Height	12	24
Political affiliation	9	16

Sources: Pew Research Center; my survey among 3,800 individuals conducted February 2020.

Table 5 The main reasons for adults to access online dating sites and applications (%)

Romantic relationship	60
Friendly contact	22
Sexual relationship	14
None of the above	4

Sources: Statista; my survey among 3,800 individuals conducted February 2020.

Table 6 % of users with romantic relationship experience who have…

	Women	Men
unfriended or blocked someone on social media that you used to be in a relationship with.	48	57
untagged or deleted photos of you and a former partner on social media.	52	43

Sources: Pew Research Center; my survey among 3,800 individuals conducted February 2020.

5. Conclusions and Implications

A complete assessment of compatible relationship partners is pivotal to various lifetime decisions. (Brandner et al., 2020) Face and body pictures on geosocial networking mobile apps for men who have sex with men are associated with visual self-presentation approaches and psychosocial positions as regards somatic masculinity. (Miller, 2019) Online dating may intensify the expansion of sexually transmitted infections and articulate intuitive impressions. (Schmälzle et al., 2019)

Survey method

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Sampling errors and test of statistical significance take into account the effect of weighting. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. An Internet-based survey software program was utilized for the delivery and collection of responses.

Data and materials availability

All research mentioned has been published and data is available from respective outlets.

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Algorithmic Sociality, Digital Intimacies, and Gendered Hierarchies of Power on Dating and Sexual Networking Apps

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ABSTRACT. I develop a conceptual framework based on a systematic and comprehensive literature review on dating and sexual networking apps. Building my argument by drawing on data collected from Morning Consult, Pew Research Center, and Statista, I performed analyses and made estimates regarding algorithmic sociality, digital intimacies, and gendered hierarchies of power. The data for this research were gathered via an online survey questionnaire and were analyzed through structural equation modeling on a sample of 4,200 respondents.

Keywords: algorithm; sociality; digital; intimacy; dating; networking

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1. Introduction

Dating apps are quite innovative online platforms of mediated encounters, in which selves are carried out, contested, disparaged, and reconfigured. (Carlson, 2020) Mobile dating apps may supply a defending component against both practice and performance of unmanageable dating behaviors and nonconsensual controlling conducts. (Mayshak et al., 2020) Notwithstanding its risks (e.g., pressure, unauthorized sharing, and coercion), sexting is progressively employed within dating and romantic relationships, while having various meanings and being determined by the circumstances in which the pictures are exchanged. (Van Ouytsel et al., 2020)

2. Conceptual Framework and Literature Review

Groundbreaking technologies are altering how interpersonal relationship initiation operates: the conventional unmediated relationship advancement patterns and initiation schemes should encompass the pre-interaction mechanisms (Felstead, 2019; Krizanova et al., 2019; Lăzăroiu et al., 2017; Tooby, 2019; Whittle et al., 2019) presumed in mobile dating apps. (LeFebvre, 2018) Dating apps that harness geolocation technologies bring to light ambiguous cutting-edge spatio-temporal realms of intimacy, displaying themselves as affective configurations of romance, while destabilizing the sphere of users' own doubtlessness and enabling innovative mediated kinds of connectivity. (Veel and Bonde Thylstrup, 2018) Mobile dating apps are comparable with social networking services (Ciobanu et al., 2019; Goswick, 2018; Krylov, 2019; Lăzăroiu et al., 2020), as regards their relationship with the users' satisfaction after utilization. (Her and Timmermans, 2020)

3. Methodology and Empirical Analysis

Building my argument by drawing on data collected from Morning Consult, Pew Research Center, and Statista, I performed analyses and made estimates regarding algorithmic sociality, digital intimacies, and gendered hierarchies of power. The data for this research were gathered via an online survey questionnaire and were analyzed through structural equation modeling on a sample of 4,200 respondents.

4. Results and Discussion

Dating app adoption is closely related to body image concerns among individuals. (Rodgers et al., 2019) Even though the likelihood to participate in cross-sex interactions may consolidate with online dating apps, deficiency in knowledge or counseling in respect of such relationships may develop into frustration. (Rochadiat et al., 2018) Romantic rejection in connection with online dating may give rise to malevolent tendencies. (Andrighetto et al., 2019) Individuals who pay significant attention to details may get involved in online dating apps thoughtfully and discreetly, taking into account the details displayed as regards other users. (Timmermans et al., 2018) Online dating sites for men who have sex with men can be a viable alternative for offline sexual gay venues. (Lemke, 2020) Masculinity, race, and sexually transmitted infections shape partner selection on smartphone geo-locating sex applications in men who have sex with men. (Martinez and Jonas, 2019) (Tables 1–6)

Table 1 Adults in each group who have used online dating sites vs. mobile dating apps (%)

	% who have used online dating sites	% who have used mobile dating apps
Men	16	14
Women	12	10
Race/Ethnicity		
White, Non-Hispanic	14	4
Black, Non-Hispanic	10	7
Hispanic	8	6
Age		
18–24	11	6
25–34	20	13
35–44	17	5
45–54	10	1
55–64	8	2
65+	5	1
Education attainment		
No high school diploma	6	4
High school grad	8	6
Some college	15	4
College+	16	5
Household income (year)		
Less than $30,000	14	5
$30,000–$49,999	13	6
$50,000–$74,999	18	6
$75,000+	10	4
Urbanity		
Urban	14	6
Suburban	11	4
Rural	8	3

Sources: Pew Research Center; my survey among 4,200 individuals conducted February 2020.

Table 2 % of users who have done the following to a current or former romantic partner

Sent them a very large number of texts in a short period of time	41
Accessed their mobile phone or online accounts	17
Sent messages to others while pretending to be your boyfriend, girlfriend, or ex	14
Modified or deleted their social media profile	13
Sent embarrassing pictures of them to someone else	12
Downloaded a GP2 or tracking program to their cellphone without them knowing	3

Sources: Pew Research Center; my survey among 4,200 individuals conducted February 2020.

Table 3 % within each group who …

	know someone who uses online dating	know someone who has entered a long-term relationship via online dating
18–24	67	41
25–34	65	39
35–44	52	38
45–54	46	36
55–64	40	34
65+	29	26
High school grad or less	32	24
Some college	52	35
College graduate	64	51
Less than $30,000	36	25
$30,000–$75,000	47	34
$75,000+	63	47

Sources: Pew Research Center; my survey among 4,200 individuals conducted February 2020.

Table 4 Adults who say they … (%)

	have ever used a dating site or app	have ever married or been in a committed relationship with someone they met on a dating site or app
Men	34	14
Women	29	12
Ages 18–29	51	19
30–49	40	17
50–64	22	9
65+	15	6
White	28	15
Black	32	14
Hispanic	30	12
Straight	31	13
LGB	59	23
High school or less	20	9
Some college	37	16
College+	38	18

Sources: Pew Research Center; my survey among 4,200 individuals conducted February 2020.

Table 5 Adults who say they have ever … someone they met through a dating site or application (%)

gone on a date with	29
been in a committed relationship with or married	16

Sources: Pew Research Center; my survey among 4,200 individuals conducted February 2020.

Table 6 The experiences of users on dating applications or websites (%, by gender)

	Male	Female
Very positive	27	21
Somewhat positive	29	24
Neutral	31	35
Somewhat negative	9	14
Very negative	4	6

Sources: Morning Consult; Statista; my survey among 4,200 individuals conducted February 2020.

5. Conclusions and Implications

Online dating apps entail the sharing of essential demographic data, sexual issues, detailed or revealing pictures, etc. (Waldman, 2019) For a dating app user who obtains promising evaluation from other individuals, the dating app setting may be compelling or discouraging, and consequently may be not so passionate about persistently engaging in romantic or sexual behavior with unknown people outside of the relationship. (Alexopoulos et al., 2020)

Survey method

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Sampling errors and test of statistical significance take into account the effect of weighting. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. An Internet-based survey software program was utilized for the delivery and collection of responses.

Data and materials availability

All research mentioned has been published and data is available from respective outlets.

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Author contributions

The author confirms being the sole contributor of this work and approved it for publication.

Conflict of interest statement

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Algorithmic Compatibility: Love, Intimacy, and Pleasure on Geosocial Dating Apps

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ABSTRACT. Employing recent research results covering love, intimacy, and pleasure on geosocial dating apps, and building our argument by drawing on data collected from Morning Consult, Pew Research Center, Statista, We are Flint, and YouGov, we performed analyses and made estimates regarding the likelihood that U.S. adults would use a dating application or website to find a new partner. Structural equation modeling was used to analyze the collected data.

Keywords: algorithm; compatibility; intimacy; geosocial; dating; app

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1. Introduction

Online dating may enable the intention for commitment while plausibly weakening the continuing steadiness of relationships. (Sharabi and Timmermans, 2020) Online dating sites as realms of implicit love, intimacy, and enjoyment are in many instances restricted by more extensive structural mechanisms (Lăzăroiu et al., 2017; Popescu, 2018; Tuffnell et al., 2019; Westbrook et al., 2019) of heterosexism, racism, and objectification. (Carlson, 2020)

2. Conceptual Framework and Literature Review

Online dating users enable mediated intercommunication (Kohlhoffer-Mizser, 2019; Mihăilă, 2017; Sheller, 2019; Vilchez, 2019) by use of cutting-edge technological initiations. (LeFebvre, 2018) Psychological disorder, conviviality, sensation-seeking, and sexual permissiveness are associated with more significant employment of online dating services. (Bonilla-Zorita et al., 2020) Becoming involved in geospatial dating apps may be related to body image concerns. (Rodgers et al., 2019) Users' perceived success on Internet and mobile dating apps is positively integrated into their deliberateness to commit infidelity with the help of self-perceived attractiveness, and negatively connected with their planning to commit infidelity as a consequence of perceived volume of convenient partners. (Alexopoulos et al., 2020)

3. Methodology and Empirical Analysis

Building our argument by drawing on data collected from Morning Consult, Pew Research Center, Statista, We are Flint, and YouGov, we performed analyses and made estimates regarding the likelihood that U.S. adults would use a dating application or website to find a new partner. Structural equation modeling was used to analyze the collected data.

4. Results and Discussion

Identifying sexual partners is facilitated by Internet and mobile dating apps. (Spiteri et al., 2019) Extremely neurotic and emotionally reactive users employ dating apps to further their mood management. (Timmermans et al., 2018) The greater quantity of time a woman harnesses online dating platforms, the less assumptions she would have of effectively instituting and constituting subsequent romantic relationships. (Rochadiat et al., 2018) Employing dating apps may be related to risky sexual behavior. (Tomaszewska and Schuster, 2020) (Tables 1–10)

Table 1 Adults who have had a negative experience with online dating applications or services (%, by gender)

	Male	Female
Been contacted by someone in a way that made you uncomfortable	22	29
Had to block or report someone	27	31
Been sent unsolicited inappropriate pictures	18	26
Had concerns about your safety	31	35
Found out someone lied about their identity or been catfished	22	26

Sources: Morning Consult; Statista; our survey among 4,600 individuals conducted February 2020.

Table 2 The most common activities of online dating users prior to physically meeting someone they met on a dating website or application (%, by age group)

	18–34	35–54	55+
Searched their name online	39	48	64
Searched their phone number online	16	19	23
Looked at their social media profiles	79	65	54
Done a reverse image search using their photos	16	12	3
Run a background check on them	12	8	3
None of these	24	19	5
Prefer not to say	2	1	1

Sources: YouGov; Statista; our survey among 4,600 individuals conducted February 2020.

Table 3 The use frequency of online dating sites or applications among adults (%)

Several times a day	29
Once a day	26
Once every few days	25
Once a week	14
Once every few weeks	4
Less often than every few weeks	2

Sources: We are Flint; Statista; our survey among 4,600 individuals conducted February 2020.

Table 4 The likelihood that adults would use a dating application or website to find a new partner (%, by age group)

	18–29	30–44	45–64	65+
Very likely	21	19	5	2
Somewhat likely	26	22	17	6
Not very likely	23	10	21	25
Not likely at all	30	49	57	67

Sources: Statista; our survey among 4,600 individuals conducted February 2020.

Table 5 Adults who use dating applications or websites (%, by age group)

18–24	35
25–34	23
35–44	17
45–54	12
55–64	8
65–75	3
75+	2

Sources: Statista; our survey among 4,600 individuals conducted February 2020.

Table 6 The experiences of users on dating applications or websites (%, by age group)

	18–29	30–44	45–54	55+
Very positive	26	24	16	17
Somewhat positive	29	26	20	22
Neutral	35	34	38	39
Somewhat negative	8	12	17	14
Very negative	2	4	9	8

Sources: Statista; our survey among 4,600 individuals conducted February 2020.

Table 7 Online users who have or know someone who has met a romantic partner on a dating website or app (%, by age group)

	18–34	35–54	55+
Yes, I have.	27	25	9
Yes, someone I know has.	38	41	42
No, neither I nor anyone I know has met a partner through a dating website/application.	19	16	30
Don't know.	11	14	12
Prefer not to say.	5	4	7

Sources: Statista; our survey among 4,600 individuals conducted February 2020.

Table 8 The likelihood that adults would use a dating application or website to find a new partner (by ethnicity)

	White	Black	Hispanic	Other
Very likely	12	14	18	16
Somewhat likely	24	27	21	29
Not very likely	27	29	26	19
Not likely at all	37	28	35	35

Sources: Statista; our survey among 4,600 individuals conducted February 2020.

Table 9 Among those who have used a dating site or app in the past year, the users who say that in the past year it made them feel more ...

Frustrated	62	Hopeful	38
Pessimistic	56	Optimistic	44
Insecure	42	Confident	58

Sources: Pew Research Center; our survey among 4,600 individuals conducted February 2020.

Table 10 Online dating users, by gender, who say when they used geosocial networking sites or apps that it was very or somewhat difficult to find people there who…

	Women	Men
they were physically attracted to.	42	26
seemed like someone you would want to meet in person.	45	35
were looking for the same kind of relationship as you.	46	38
shared your hobbies and interests.	33	45

Sources: Pew Research Center; our survey among 4,600 individuals conducted February 2020.

5. Conclusions and Implications

Location-based online dating applications are instrumental in instituting short- and long-term romantic relationships. (Lyons et al., 2020) Dating initiation constitutes a demanding stage of romantic relationship advancement, as men and women may have distinct assumptions and mental constructions as regards communicative cues. (DelGreco and Denes, 2020)

Survey method

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Sampling errors and test of statistical significance take into account the effect of weighting. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. An Internet-based survey software program was utilized for the delivery and collection of responses.

Data and materials availability

All research mentioned has been published and data is available from respective outlets.

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Author contributions

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

Conflict of interest statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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