

## Who cares for women with children? Crossing the bridge between disciplines

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### Abstract

It has long been acknowledged that women with children require social support to promote their health and wellbeing, as well as that of their children. However, current conceptualisation of support has been heavily influenced by Western family norms. The consequence, at best, has been to stifle our understanding of the nature and consequences of support for mothers and children. At worst, it has led to systematic discrimination negatively impacting maternal-child health.

To fully engage with the complexities of social support, we must take a multidisciplinary or interdisciplinary approach spanning diverse cultural and geographical perspectives. However, multidisciplinary knowledge-processing can be challenging, where it is often unclear how different studies from different disciplines relate. To address this, we outline two epistemological frameworks -the scientific approach and Tinbergen's four questions- which can be useful tools in connecting research across disciplines. In this themed issue on *Multidisciplinary Perspectives on Social Support and Maternal-Child Health*, we attempt to foster multidisciplinary thinking by presenting work from a diverse range of disciplines, populations, and cultures. Our hope is that these tools, along with papers in this issue, helps us build a holistic understanding of social support and its consequences for mothers and their children.

Overall, a multidisciplinary perspective points to how the responsibility of childrearing cannot fall solely onto mothers. Indeed, this multidisciplinary issue demonstrates that successful childrearing is consistently an activity shared beyond the mother and the nuclear family; an insight which is crucial to harnessing the potential of social support to improve maternal-child health.

## Introduction

As we write, in the midst of the third COVID-19 lockdown in England, the need for social support when it comes to raising children has never been so apparent. With schools closed to the majority of children and physical contact severed between households, many families have not been able to access the support they need(1, 2). With evidence that childcare and domestic workloads have disproportionality increased for women during this pandemic, many mothers are struggling with their physical and mental health(1-4). Further, there is increasing concern about children facing unprecedented levels of loneliness and mental health problems due to social isolation(5). Many of us through this pandemic are experiencing first-hand how crucial social support is for our health and wellbeing, and this need is particularly acute for mothers and children.

Public health researchers, practitioners and policy makers have long argued that mothers and children need support(6, 7). However, the ultimate aim of support has frequently focused on improving infant and child health, without enough consideration for supporting mothers in their own right(8). For example, drawing on our own expertise around breastfeeding, the extensive investment in breastfeeding support in England has primarily been pushed as a way to improve outcomes for infants and young children, with some bonus maternal benefits (e.g., (9)). Past government guidance has included recommendations of “raising awareness of the health benefits of breastfeeding – as well as the risks of not breastfeeding” (10), p.28). But the known costs and challenges of breastfeeding (11, 12)(Myers et al., this issue) were barely explained, which, one might expect to see more of if breastfeeding was framed as an important determinant of maternal wellbeing, not just that of children. While we cannot be certain why maternal wellbeing in its own right is often overlooked, Budds, in this issue, outlines how intensive mothering norms that are pervasive in the West coexist with the expectations of maternal sacrifice (Budds this issue): Amplified by Bowlby and Ainsworth’s Attachment Theory, maternal devotion is often assumed to be crucial for optimal child development, and putting their children first over and above mothers’ own wellbeing is fundamental to being a “good mother.”

Much of what we feel or believe to be “normal” in the West may in fact be comparatively unusual. As Sear and others highlight in this issue (Sear this issue, Page et al this issue, Vázquez et al. this issue, Schacht et al. this issue), the human childrearing system evolved to be cooperative, where mothers and children require extensive support from others(13-16). It is only in relatively recent history that nuclear family norms became so widespread (Sear this issue) and, cross-culturally, childrearing is still widely shared where mothers and

children are supported by a diverse range of individuals (13-15) (Page et al. this issue, Avv this issue, Mortia et al. this issue). The “WEIRDness” of nuclear family focused childrearing – specific to Western, Educated, Industrial, Rich, Democratic(17) ideals – has long been obvious to researchers engaging with different communities and cultures. However, it is yet to be widely acknowledged within Western perspectives dominated by White middle-class norms.

The narrow conceptualisations of the family and who should care for children have perhaps fuelled the view of mothering as an individual responsibility (e.g., see (8, 18-22)), coinciding with high levels of research interest in how mothers affect child development(8, 22)(Budds this issue). The consequence has been a much more limited consideration of wider social environments which impact mothers and children(19, 22), and policies and interventions primarily targeting mothers to improve their parenting practices (8, 19-23). In reality, mothers and children are influenced by a wide range of socioecological factors, including the availability of social support. Support can be provided to mothers and/or children from a range of sources from across their social networks, including fathers, grandparents and friends, as well as “professional supporters” such as trained volunteers and health practitioners. Further, support can take different forms, including emotional, affirmational, practical, and informational support (insert ref McLeish, this issue; Myers et al., this issue). The impact of support on mothers and children may depend on who provides the support, what support is provided, and the context in which the supportive acts take place(7, 13, 24-26); meaning understanding the pathways between support and maternal-child health is likely to be complex. However, despite theoretical acknowledgement of these complexities(7, 25), research into support for mothers and children have rarely approached the topic in this holistic manner.

One underlying cause, we argue, are disciplinary silos. The dominant way of working in academia has been for researchers to engage with those of similar training, similar backgrounds, and, inevitably, similar thoughts. This is of course not surprising given the known barriers which disadvantage multidisciplinary collaboration – ranging from communication challenges, poor quality peer reviews of interdisciplinary work, and wider academic structures and policies which focus on distinct disciplines (27-30). The costs of such constraints include the “slowing down” of knowledge-building, as opportunities for comprehensive knowledge and creative breakthroughs are stifled(31). Perhaps more importantly, disciplinary silos can push knowledge-building down the wrong path: The lack of diversity in knowledge, views, and experiences leads to a lack of critique of dominant research narratives, and a lack of awareness of research bias(31).

This is a real and serious problem. The harmful consequences from the lack of diversity and critique is exemplified by Betti, in this issue, who critically describes how the dominant assumptions of what a “normal” female pelvis should look like has largely been based on studies of women with European genetic ancestry. This has ultimately led to discriminatory maternal healthcare practices across the globe, particularly disadvantaging women with non-White ethnicities (insert ref Betti, this issue). As we hope to show, engaging with multiple disciplines and perspectives is crucial in achieving research rigour, and is particularly important for a topic which may have profound, real-world implications for the lives of women, mothers, children, and their families.

The motivation behind this themed issue on “Multidisciplinary perspectives on social support and maternal-child health” stemmed from an earlier workshop on interdisciplinary approaches to mother-infant support(27). Based on discussions with students, researchers, and practitioners from different disciplines, we collated a *Practical Guide to Successful Interdisciplinary Research* (27)(see SI). This included the suggestion of topic-focused outlets of research, to facilitate multidisciplinary dialogue and knowledge exchange. While our themed issue is by no means comprehensive, it presents work from scholars with backgrounds in public health, midwifery, psychology, human biology, demography and evolutionary anthropology to name a few. The diversity in disciplines has led to research from across cultures, with participants from the UK(Myers et al., this issue; McLeish et al. this issue), Japan ( Masahito et al., this issue), Australia (Spry et al. this issue), the Thai-Myanmar border (Garcia et al., this issue), Bangladesh (Shenk et al., this issue), BaYaka foragers from the Congo Basin (Gettler et al, this issue), Agta foragers from the Philippines (Page et al, this issue) and more. We hope this issue provides an example of facilitating broader discussions, drawing on multiple perspectives.

### **How to cross disciplinary bridges**

Interdisciplinary approaches to address complex topics and problems, where ideas are integrated from different disciplines, have been pushed for decades(32-34), but it is very difficult to accomplish(33). In addition to the barriers discussed above, it can be challenging for researchers to comprehend unfamiliar concepts, unfamiliar phrases, and unfamiliar methods. As outlined in our guide to interdisciplinary research, some are institutional and structural barriers, but some could be addressed at an individual level. From our experience, one common individual-level issue is with knowledge-processing, where it’s unclear how different studies from different disciplines relate. As self-identified interdisciplinary

researchers with a background in evolutionary anthropology, here we outline two useful epistemological frameworks which have helped us cross disciplinary bridges.

*Tip 1: Framing diverse research under a scientific approach*

A common issue we have observed and experienced first-hand is the dismissal of qualitative work as non-generalisable story-telling, and quantitative work as complexity-ignoring reductionism. As particular disciplines tend to utilise particular methods, these misunderstandings can hinder multidisciplinary engagement. We propose that using a scientific framework can help “map out and connect” research with different aims and different methods.

Science is often framed as hypothesis-testing, but this is a narrow view of science which overemphasises confirmatory methods which tend to be, although not exclusively, quantitative(35). As outlined in Figure 1, the scientific method includes both exploratory and confirmatory stages. Carefully detailing and reflecting on the lived experiences of a group of people (exploratory stage), for example, ensures that proposed answers to related questions are well-informed and plausible. Systematically testing these explanations (confirmatory stage) helps us then assess which of the suggested explanations are more likely than others.

While what we present here is a significantly simplified version of science, we hope it helps some readers organise the knowledge presented in this issue. For example, Chang et al. in this issue takes an exploratory approach by presenting a systematic review of the views and experiences of partners and family members who provided breastfeeding support ([inset ref Chang et al](#)), describing both similarities and differences in experiences across cultures. Following this, Myers et al. in this issue takes a confirmatory approach to test the hypothesis that different types of support from varying sources differentially influences breastfeeding duration and experience ([inset ref Myers et al](#)). These contributions speak to different aims within the scientific method, and, as such, critiques of story-telling and reductionism are simply not valid.

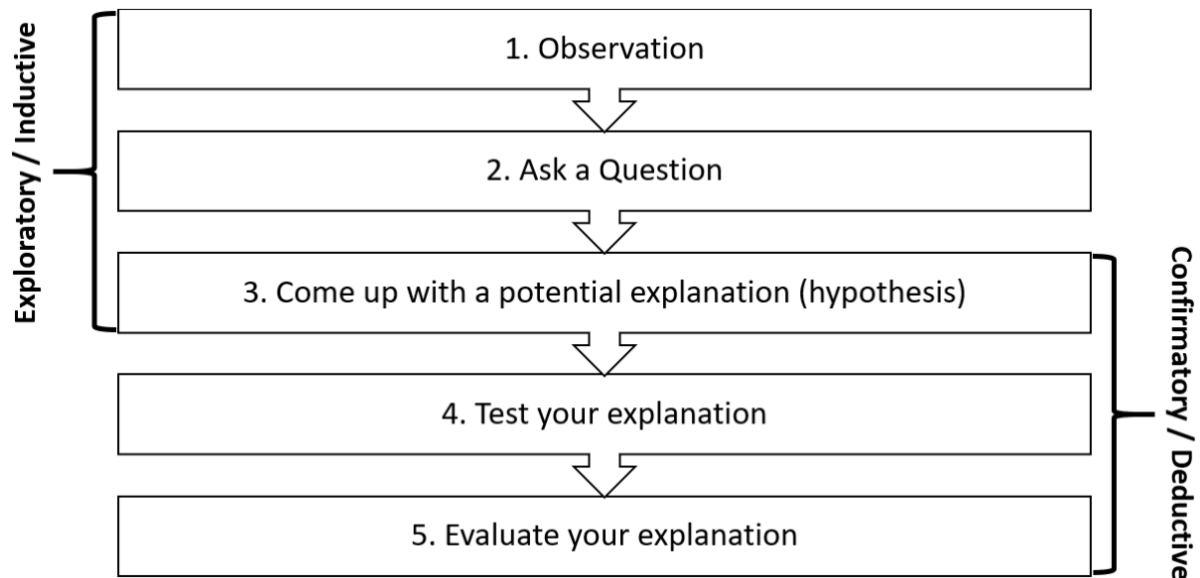


Figure 1: The scientific method as exploratory and confirmatory stages.

### Tip 2: Framing diverse research under Tinbergen's Four Questions

Another issue we commonly encounter is the misinterpretation of research findings from different disciplines as conflicting, rather than complementing. Often, this is due to the lack of understanding that different disciplines are frequently speaking to different types of questions. Tinbergen, an ethologist known to many in the field of biology, clarified in 1963 that questions around behaviour could be broken down into four categories: *Ontogeny*, or how the behaviour develops during the individual's lifetime; *Mechanism*, or how the behaviour is caused; *Phylogeny*, or the evolutionary history of the behaviour; and *Current utility*, or the adaptive function of the behaviour relating to fitness (i.e., survival and reproduction) (36, 37). The first two, ontogeny and mechanism, address proximate-level questions which serve to clarify *how* a behaviour exists. The last two, phylogeny and current utility, address ultimate-level questions explaining *why* the behaviour exists in the first place.

Therefore, again drawing on breastfeeding as an example, ultimate-level adaptive explanations around how breastfeeding influences maternal fitness do not replace or conflict with proximate-level mechanistic explanations around how norms influence breastfeeding behaviour (Table 1); both can be true. Indeed, for us to truly understand a social phenomenon, we must collectively engage with all four questions(36). In this issue, for example, Gettler et al. investigates the *mechanism* of how paternal provisioning influences child psychobiology in the BaYaka (Gettler et al., this issue), revealing the pathways of how

social support can impact child fitness. The fitness consequence, or the *current utility*, of social support is explored by Schacht et al. using a historical dataset from Utah, evidencing how the flexibility of family formations after parental death buffers children from mortality risks (Schacht et al., this issue). As we hope to demonstrate through this themed issue, exploring social support from different levels encourages diversity in perspectives, leading to a to a comprehensive understanding of “who cares” for mothers and children and its consequences.

Table 1: Understanding breastfeeding using Tinbergen’s four questions.

<b>Proximate-level explanations</b>		
	Ontogeny / Development	Mechanism / Causal Pathways
Q. <i>How</i> does breastfeeding exist?	A. Development of mammary glands. Learning to breastfeed through observation/teaching.	A. Hormonal changes & milk production. Reactions to crying. Cultural norms.
<b>Ultimate-level explanations</b>		
	Phylogeny / Evolutionary History	Current Utility / Adaptive Value
Q. <i>Why</i> does breastfeeding exist? (evolutionary questions)	A. Humans are mammals, and like all mammals we produce milk to feed babies. Evolved >200mya	A. Mothers provide babies with nutrients and energy, which increases their fitness (survival + reproduction)

We hope these tips are helpful for researchers to engage in cross, multi and interdisciplinary research. However, as briefly referred to above, this of course does not address systemic and institutional barriers that hinder collaboration. The core of multi/interdisciplinary research is diversity in perspectives, but this is difficult to achieve in a system where diverse voices and experiences are not heard. The lack of social, cultural, ethnic and gender diversity within many research communities(38-40) and the lack of geographic and cultural diversity in current research(17) leads to the dominance of Western White middle-class narratives. Achieving diversity in research more broadly is an important issue in itself, but we should all acknowledge that lack of diversity hinders knowledge production and innovation(41, 42), which costs us all. Indeed, one of our regrets about this issue is the over-representation of researchers based in Western institutions despite our efforts to diversify. One important action is for those in more privileged positions to connect with, listen to, step aside for, and amplify the voices of scholars from diverse backgrounds and perspectives from across the globe. While the issues are legion, as we outline in our practical guide to interdisciplinary research (SI), it’s important that we “don’t do it alone”.

### **Understanding this themed issue**



Now that we are better equipped to cross disciplinary bridges, let us outline key points of this themed issue. First, this issue focuses on presenting research and commentary on support for mothers with infants and/or young children, due to the predominant norms and expectations of mothers as primary caregivers (Budds, this issue; Sear, this issue). This is not to say that other caregivers are not important; in fact, we argue the opposite. Many authors in this issue, us included, highlight the importance of non-maternal caregivers and extended social support across cultures. This includes fathers (Daneile this issue, Gettler et al. this issue, Myers et al. this issue, Morita et al. this issue, Chang et al. this issue), grandmothers, and other relatives (Vazquez-Vazquez et al., this issue; Shenk et al., this issue; Page et al., this issue; Morita et al., this issue; Chang et al., this issue; Myers et al., this issue), as well as non-kin in both informal and formal settings (Page et al. this issue; Schacht et al., this issue; Morita et al. this issue; Hughes et al. this issue; McLeish this issue). Second, we primarily focus on the individual-level and specific acts of support rather than wider supportive environments. While we recognise that macro and community-level factors are also key determinants of maternal and child health, this focus stems from how we define support: From an evolutionary anthropological perspective, we conceptualise support as investments directly or indirectly transferred to a person, which “cost” the actor some form of time, energy or resource(13). As outlined by McLeish et al. (insert refs) and Myers et al. (insert refs) in this issue, such support is diverse; spanning practical, informational, emotional, and affirmative support.

With this focus, we present commentaries and research papers on: understanding the need for mother-infant support (Sear, Hughes et al.); supporting pregnancy and childbirth (Betti, McLeish, Daniele et al.); supporting maternal mental health (Budds, Spry et al., Fellmeth et al.); supporting maternal physical health (Page et al., Vazquez-Vazquez et al., Shenk et al.); supporting infant feeding (Chang et al., Myers et al.); and supporting child survival and development (Schacht et al., Gettler et al., Morita et al.). These topics bring together a diverse literature on the multiple elements of social support and maternal-child health, moving past a primary focus on child outcomes. These papers, while important contributions in their own right, are presented to complement one another and build a broad understanding of the multifaceted nature of social support across diverse settings.

## **Final thoughts**

This themed issue would not have been possible without the hard work and collaboration of all our authors, reviewers, and all the unseen supporters who made this work possible

during the current pandemic. It must be acknowledged that it has taken a heroic amount of effort from many, juggling care for children and others, supporting students and colleagues, and more – for which we are very grateful. Our hopes for this special issue are twofold. First, to foster multidisciplinary understandings of support for mothers and children, informed by findings from different cultures. Second, to evidence that the responsibility of childrearing should not -nor cannot- fall solely onto mothers; and indeed, successful childrearing is consistently an activity shared beyond the nuclear family.

As we discuss above, narrow, ideological conceptualisations of motherhood reinforced by unchallenged “scientific” assumptions have led to harmful implications for maternal wellbeing. The assumption that mothers are, and evolved to be, sole caregivers, and that motherhood should come at the expense of all other domains of womanhood, contrasts and conflicts with the realities of raising children across the globe.

This point, while it may seem obvious to many of us, must be reinforced. During the present COVID-19 pandemic in the UK, Western notions of intensive mothering arguably resulted in delayed policy change to allow for childcare support during lockdown (e.g., (43)), instances of fathers and other key supporters being excluded from antenatal appointments and births (e.g., (44)), economic support packages being tailored towards “working men”(45), and widespread rhetoric in popular media encouraging a gendered division of childcare labour (e.g.,(46)). Cultural norms that mothers should sacrifice their time, energy, and careers in order to be a “good mother” has resulted in the overburdening women, reinforcing current gender inequalities and damaging maternal wellbeing. And of course, these assumptions disadvantage fathers and other caregivers too, as those who want to provide care and support are by extension excluded from the domain of childrearing.

To challenge the “truth” behind these assumptions, we must work together as a research community. We hope this themed issue is approachable and accessible to a broad audience, encouraging researchers to look beyond disciplinary boundaries when considering social support and maternal-child health. In the end, it is not just who cares that matters, but how we care together.

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## References

1. Myers S, Emmott EH. Communication across maternal social networks during the UK's national lockdown and its association with postnatal depressive symptoms. *OSF Preprints*. 2021. <https://doi.org/10.31219/osf.io/cb85t>
2. Calarco JM, Anderson E, Meanwell E, Knopf A. "Let's Not Pretend It's Fun": How COVID-19-Related School and Childcare Closures are Damaging Mothers' Well-Being. *OSF Preprints*. 2020. <https://doi.org/10.31235/osf.io/jyvk4>
3. Davenport MH, Meyer S, Meah VL, Strynadka MC, Khurana R. Moms Are Not OK: COVID-19 and Maternal Mental Health. *Frontiers in Global Women's Health*. 2020;1(1). <https://doi.org/10.3389/fgwh.2020.00001>
4. Del Boca D, Oggero N, Profeta P, Rossi M. Women's and men's work, housework and childcare, before and during COVID-19. *Review of Economics of the Household*. 2020;18(4):1001-17.
5. Loades ME, Chatburn E, Higson-Sweeney N, Reynolds S, Shafran R, Brigden A, et al. Rapid Systematic Review: The Impact of Social Isolation and Loneliness on the Mental Health of Children and Adolescents in the Context of COVID-19. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2020;59(11):1218-39.e3.
6. Berkman LF. Social support, social networks, social cohesion and health. *Social work in health care*. 2000;31(2):3-14.
7. Stansfeld SA, Marmot M, Wilkinson R. Social support and social cohesion. *Social determinants of health*. 2006;2:148-71.
8. Daly M. Parenting support: Another gender-related policy illusion in Europe? *Women's Studies International Forum*. 2013;41:223-30.
9. Public Health England. *Early years high impact area 3: Breastfeeding. Health visitors leading the Healthy Child Programme*. 2018. [Available from: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/754791/early\\_years\\_high\\_impact\\_area\\_3.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/754791/early_years_high_impact_area_3.pdf) ]
10. Department of Health. *Healthy Child Programme: Pregnancy and the first five years of life*. 2009. [Available from: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/167998/Health\\_Child\\_Programme.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/167998/Health_Child_Programme.pdf) ]
11. Page A, Emmott EH, Myers S. Testing the buffering hypothesis: breastfeeding problems, cessation and social support in the UK. 2020. *OSF Preprints*. <https://doi.org/10.31219/osf.io/byf5g>
12. Kelleher CM. The physical challenges of early breastfeeding. *Social Science & Medicine*. 2006;63(10):2727-38.
13. Emmott EH, Page AE. Alloparenting. In: Shackelford TK, Weekes-Shackelford VA, editors. *Encyclopedia of Evolutionary Psychological Science*. Cham: Springer International Publishing; 2019. p. 1-14.
14. Sear R, Coall D. How Much Does Family Matter? Cooperative Breeding and the Demographic Transition. *Population and Development Review*. 2011;37(s1):81-112.
15. Kramer KL. Cooperative Breeding and its Significance to the Demographic Success of Humans. *Annual Review of Anthropology*. 2010;39(1):417-36.
16. Hrdy SB. Evolutionary context of human development: The cooperative breeding model. *Family relationships: An evolutionary perspective*. 2007:39-68.
17. Henrich J, Heine SJ, Norenzayan A. Most people are not WEIRD. *Nature*. 2010;466(7302):29-.
18. Walters R, Woodward R. Punishing 'Poor Parents': 'Respect', 'Responsibility' and Parenting Orders in Scotland. *Youth Justice*. 2007;7(1):5-20.
19. Holt A. Room for resistance? Parenting Orders, disciplinary power and the production of "the bad parents". *Policy Press*; 2008.
20. Lucas PJ. Some reflections on the rhetoric of parenting programmes: evidence, theory, and social policy. *Journal of Family Therapy*. 2011;33(2):181-98.

21. Clarke K. Childhood, parenting and early intervention: A critical examination of the Sure Start national programme. *Critical Social Policy*. 2006;26(4):699-721.
22. Maher J, Fraser S, Wright J. Framing the mother: childhood obesity, maternal responsibility and care. *Journal of Gender Studies*. 2010;19(3):233-47.
23. Peters E. I blame the mother: educating parents and the gendered nature of parenting orders. *Gender and Education*. 2012;24(1):119-30.
24. Emmott EH, Mace R. Practical Support from Fathers and Grandmothers Is Associated with Lower Levels of Breastfeeding in the UK Millennium Cohort Study. *PLOS ONE*. 2015;10(7):e0133547.
25. Cohen S, Syme SL. Issues in the study and application of social support. *Social support and health*. 1985;3:3-22.
26. Sadruddin AFA, Ponguta LA, Zonderman AL, Wiley KS, Grimshaw A, Panter-Brick C. How do grandparents influence child health and development? A systematic review. *Social Science & Medicine*. 2019;239:112476.
27. Page AE, Emmott EH, Myers S. *Who Cares? An Interdisciplinary Approach to Mother-Infant Support Findings from a one-day workshop on introducing evolutionary approaches to caregiving and mother-infant health*. 2019.
28. Rafols I, Leydesdorff L, O'Hare A, Nightingale P, Stirling A. How journal rankings can suppress interdisciplinary research: A comparison between Innovation Studies and Business & Management. *Research Policy*. 2012;41(7):1262-82.
29. Rhoten D. Interdisciplinary research: Trend or transition. *Items and Issues*. 2004;5(1-2):6-11.
30. MacLeod M. What makes interdisciplinarity difficult? Some consequences of domain specificity in interdisciplinary practice. *Synthese*. 2018;195(2):697-720.
31. Nissani M. Ten cheers for interdisciplinarity: The case for interdisciplinary knowledge and research. *The Social Science Journal*. 1997;34(2):201-16.
32. You HS. Why Teach Science with an Interdisciplinary Approach: History, Trends, and Conceptual Frameworks. *Journal of Education and Learning*. 2017;6(4):66-77.
33. Fish S. Being interdisciplinary is so very hard to do. *Profession*. 1989:15-22.
34. Klein JT, Newell WH. Advancing interdisciplinary studies. *Handbook of the undergraduate curriculum: A comprehensive guide to purposes, structures, practices, and change*. 1997:393-415.
35. Kell DB, Oliver SG. Here is the evidence, now what is the hypothesis? The complementary roles of inductive and hypothesis-driven science in the post-genomic era. *BioEssays*. 2004;26(1):99-105.
36. Tinbergen N. On aims and methods of Ethology. *Zeitschrift für Tierpsychologie*. 1963;20(4):410-33.
37. Bateson P, Laland KN. Tinbergen's four questions: an appreciation and an update. *Trends in Ecology & Evolution*. 2013;28(12):712-8.
38. Merchant JL, Omary MB. Underrepresentation of Underrepresented Minorities in Academic Medicine: The Need to Enhance the Pipeline and the Pipe. *Gastroenterology*. 2010;138(1):19-26.e3.
39. Scott Metcalfe A, Padilla González L. Underrepresentation of Women in the Academic Profession: A Comparative Analysis of the North American Region. *NASPA Journal About Women in Higher Education*. 2013;6(1):1-21.
40. Parker S, Clayton-Pedersen A, Moreno J, Teraguchi D, Smith DG. *The revolving door for underrepresented minority faculty in higher education*. 2006. [Available from: [http://www.irvine.org/assets/pdf/pubs/education/insight\\_Revolving\\_Door.pdf](http://www.irvine.org/assets/pdf/pubs/education/insight_Revolving_Door.pdf) ]
41. Berliant M, Fujita M. Culture and diversity in knowledge creation. *Regional Science and Urban Economics*. 2012;42(4):648-62.
42. Jones G, Chirino Chace B, Wright J. Cultural diversity drives innovation: empowering teams for success. *International Journal of Innovation Science*. 2020;12(3):323-43.
43. BBC News. *Coronavirus: Childcare exemption added to new restrictions in England*. 2020. [Available from: <https://www.bbc.co.uk/news/uk-england-54240681> ]

44. Screwed PT. But Not Maternity 2020 [Available from: <https://pregnantthenscrewed.com/but-not-maternity/> ]
45. BBC. *Covid: Support 'repeatedly skewed towards men', say MPs* 2021 [Available from: <https://www.bbc.co.uk/news/uk-politics-55978335> ]
46. Collins P. Daddy, what did you do in the great Covid crisis? Why it's our national duty to get back to the office: The Times; 2020 [Available from: <https://www.thetimes.co.uk/article/daddy-what-did-you-do-in-the-great-covid-crisis-why-its-our-national-duty-to-get-back-to-the-office-hv7kzkmd> ]